360iResearch

Telecom Battery Backup System Market

Global Forecast 2026-2032

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1. Preface

1.1. Objectives of the Study

- Which documented Battery Units and Assemblies and Complete Backup Systems participate in telecom backup applications, and how do marketed, announced, and investigational offerings differ in commercial status?
- Who controls purchasing, equipment ownership, and continuity obligations across the accepted Buyer Type categories, and how do those responsibilities affect equipment purchase, leasing, rental, or managed-capacity choices?
- Which buyer qualification, regulatory, licensing, and jurisdiction-specific access conditions must a supplier satisfy before an offering can be considered for the relevant telecom application?
- What documented compatibility, warranty, service, and contractual requirements constrain supplier or technology switching, and which obligations remain with the buyer under each alternative?
- How do Network Application, Power Interface, Installation Environment, Powering Architecture, Grid Availability, Backup Duty, and Backup Autonomy distinguish commercial requirements without implying equivalent capability across technologies?
- What do Direct Manufacturer Supply, Distributor and Retailer Supply, Systems Integrator and Contractor Supply, and Telecom Service Provider Supply contribute to buyer access, local delivery, and continuing service responsibility?
- How should equipment and complete-system propositions be compared across Owned Equipment, Leased or Rented Equipment, and Managed Backup Capacity without treating overlapping offerings or obligations as separate opportunities?
- Which documented offering capabilities, business rights, partnerships, and service commitments distinguish competitive alternatives, and what must be verified before selecting a supplier or commercial partner?
- Which changes in buyer requirements, commercial availability, regulation, or contractual responsibility would alter a business commitment within the study horizon ending in 2032?

1.2. Market Definition

The Global Telecom Battery Backup System market covers the commercial provision of Battery Units and Assemblies and Complete Backup Systems for continuity of telecommunications connectivity. It encompasses Core Networks & Network Control, Transport & Backhaul Networks, Network Interconnection & Peering, Wireless Access Networks, Wireline Access Networks, and Customer-Premises Connectivity.

The buyer perimeter includes Telecommunications Network Operators, Telecom Infrastructure & Tower Operators, Telecom Energy-Service Providers, Equipment Leasing & Rental Providers,

Business & Institutional Connectivity Owners, and Household Connectivity Purchasers. Equipment ownership, leasing or rental, and managed backup capacity are included commercial delivery models. The geographic boundary is Global.

All accepted Battery Technology, Power Interface, Installation Environment, Powering Architecture, Grid Availability, Backup Duty, and Backup Autonomy categories are included. This coverage encompasses weather-protected, non-weather-protected, and underground locations; local and remote powering; Reliable Grid, Unreliable Grid, and Off-Grid contexts; and both Reserve-Only Backup and Backup with Energy Management.

The studied commercial offering is distinct from upstream raw materials, unrelated battery applications, and downstream telecommunications services. Nonbattery power sources and general connectivity equipment are adjacent activities rather than standalone battery backup offerings. Their bundled commercial role may be examined within an included Complete Backup System without expanding the study to every product or service supplied by the same business.

1.3. Market Segmentation & Coverage

Offering distinguishes Battery Units and Assemblies from Complete Backup Systems. This axis separates the commercial object being procured and supports comparison of equipment supply with a broader system proposition.

Battery Technology includes Lead-Acid, comprising Flooded Lead-Acid and Valve-Regulated Lead-Acid, with Absorbent Glass Mat and Gel within Valve-Regulated Lead-Acid; Lithium-Based, comprising Lithium-Ion and Lithium-Metal; Nickel-Based, comprising Nickel-Cadmium, Nickel-Metal Hydride, Nickel-Iron, and Nickel-Zinc; Sodium-Based; Metal-Air; Flow Batteries; Aqueous Zinc-Based; and Multi-Chemistry. These categories define the technology coverage for commercial comparison without prescribing a preferred technology.

Power Interface covers AC Output, DC Output, and Combined AC/DC Output. This lens connects offering identity to the buyer's interface requirements and the commercial responsibility for compatibility.

Network Application covers Core Networks & Network Control, Transport & Backhaul Networks, Network Interconnection & Peering, Wireless Access Networks, Wireline Access Networks, and Customer-Premises Connectivity. It distinguishes where the backup proposition supports connectivity and which purchasing context must be understood.

Buyer Type includes Telecommunications Network Operators, Telecom Infrastructure & Tower Operators, Telecom Energy-Service Providers, Equipment Leasing & Rental Providers, Business & Institutional Connectivity Owners, and Household Connectivity Purchasers. This axis identifies purchasing constituencies without presuming that the buyer, asset owner, operator, and beneficiary are the same party.

Installation Environment includes Weather-Protected Locations, comprising Temperature-Controlled Enclosed Locations, Enclosed Locations Without Temperature Control, and Partly Weather-Protected Locations; Non-Weather-Protected Locations, comprising Sheltered Non-Weather-Protected Locations and Open-Air Locations; and

Underground Locations. These categories frame questions about documented suitability, service access, and contractual responsibilities rather than technical installation instructions.

Powering Architecture covers Local Powering and Remote Powering, with Centralized Powering, Cluster Powering, and Reverse Powering within Remote Powering. This lens supports examination of the commercial allocation of asset control, purchasing responsibility, and backup obligations.

Commercial Delivery Model includes Owned Equipment, Leased or Rented Equipment, and Managed Backup Capacity. The distinction concerns what the customer contracts for and which equipment, ownership, and service obligations accompany the proposition.

Sales Channel covers Direct Manufacturer Supply, Distributor and Retailer Supply, Systems Integrator and Contractor Supply, and Telecom Service Provider Supply. Channel analysis concerns the contracting relationship, authorized access to an offering, delivery responsibilities, and continuing support.

Grid Availability includes Reliable Grid, Unreliable Grid, and Off-Grid. These categories distinguish the power-supply context relevant to the commercial backup requirement without assuming that one context creates a superior opportunity.

Backup Duty separates Reserve-Only Backup from Backup with Energy Management. Both are included, while their different commercial purposes require clear treatment of the telecom backup role and any adjacent contracted activity.

Backup Autonomy includes Short-Duration Backup, Intermediate-Duration Backup, Extended-Duration Backup, and Day-Scale Backup. This lens distinguishes continuity propositions without asserting numerical thresholds or equivalent buyer acceptance. All segmentation axes are independent views of the accepted market and are not separate additive markets.

Table 1. Global Telecom Battery Backup System Market Segmentation & Coverage

Segmentation	Coverage
Backup Autonomy	• Extended-Duration Backup • Intermediate-Duration Backup • Day-Scale Backup • Short-Duration Backup
Backup Duty	• Reserve-Only Backup • Backup with Energy Management

Table 1 - continued

Segmentation	Coverage

Battery Technology	• Lead-Acid
	  o Valve-Regulated Lead-Acid
	  Absorbent Glass Mat
	  Gel
	  o Flooded Lead-Acid
	• Lithium-Based
	  o Lithium-Ion
	  o Lithium-Metal
	• Nickel-Based
	  o Nickel-Cadmium
	  o Nickel-Zinc
	  o Nickel-Metal Hydride
	  o Nickel-Iron
	• Multi-Chemistry
	• Sodium-Based
	• Aqueous Zinc-Based
	• Flow Batteries
	• Metal-Air

Buyer Type	• Telecommunications Network Operators • Telecom Infrastructure & Tower Operators • Household Connectivity Purchasers • Business & Institutional Connectivity Owners • Telecom Energy-Service Providers • Equipment Leasing & Rental Providers
Commercial Delivery Model	• Owned Equipment • Managed Backup Capacity • Leased or Rented Equipment
Grid Availability	• Reliable Grid • Unreliable Grid • Off-Grid

Installation Environment	• Weather-Protected Locations
	  o Enclosed Locations Without Temperature Control
	  o Temperature-Controlled Enclosed Locations
	  o Partly Weather-Protected Locations
	• Non-Weather-Protected Locations
	  o Sheltered Non-Weather-Protected Locations
	  o Open-Air Locations
	• Underground Locations

Network Application	• Wireless Access Networks • Customer-Premises Connectivity • Transport & Backhaul Networks • Core Networks & Network Control • Wireline Access Networks • Network Interconnection & Peering

Table 1 - continued

Segmentation	Coverage
Offering	• Battery Units and Assemblies • Complete Backup Systems
Power Interface	• DC Output • AC Output • Combined AC/DC Output

Powering Architecture	• Local Powering
	• Remote Powering
	  o Centralized Powering
	  o Cluster Powering
	  o Reverse Powering

Sales Channel	• Direct Manufacturer Supply • Systems Integrator and Contractor Supply • Distributor and Retailer Supply • Telecom Service Provider Supply

Sources & Evidence

1. Battery Backup - Meriwether Lewis Electric Cooperative
   - Taxonomy evidence: The provider separately offers purchased backup devices and replacement batteries, supporting distinct finished-hardware deliverables. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Taxonomy evidence: The connectivity provider identifies purchased backup equipment and separately purchasable replacement batteries, corroborating distinct finished-hardware deliverables. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Taxonomy evidence: Replacement batteries are separately purchasable. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Taxonomy evidence: Replacement batteries are separately offered for purchase rather than treated solely as inseparable elements of a new system. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Taxonomy evidence: A purchased backup device protects the provider's ONT and gateway. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Taxonomy evidence: The provider offers a purchased battery-backup device protecting its optical network terminal and connectivity equipment. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Taxonomy evidence: The protected equipment is subscriber-premises connectivity equipment. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Taxonomy evidence: The customer record describes purchased battery-backup equipment protecting an ONT and residential gateway, establishing a customer-premises connectivity application. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Taxonomy evidence: The customer purchases the product and is responsible for replacement batteries. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Taxonomy evidence: The provider explicitly describes the backup device as a purchased product and assigns battery acquisition and replacement responsibility to the customer. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Taxonomy evidence: The disclosed arrangement is equipment purchase, not temporary equipment access. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Taxonomy evidence: The telecom customer disclosure describes a purchased backup product with customer responsibility for replacement batteries. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Taxonomy evidence: Customers may obtain devices and batteries directly through the named manufacturer. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Taxonomy evidence: Customers may purchase backup units and replacement batteries directly from the named equipment supplier. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Taxonomy evidence: The connectivity provider also sells them through local offices. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Taxonomy evidence: The cooperative also offers those backup products through its own local offices. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Taxonomy evidence: Disclosed duration changes with the protected service and connected load. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Taxonomy evidence: The same unit has different disclosed endurance for voice-only and combined voice-and-internet protection. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Taxonomy evidence: Combined voice-and-Internet protection is described as approximately five hours. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Taxonomy evidence: Combined ONT and gateway protection is described as approximately five hours, an illustrative duration within the modeled band. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Taxonomy evidence: Voice-only ONT protection is described as xx.xx hours. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Taxonomy evidence: Voice-only ONT protection is described as xx.xx hours, a commercial anchor for the modeled day-scale category. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Taxonomy evidence: Outage continuity is the stated purpose; exclusive reserve duty is not expressly established. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Taxonomy evidence: The advertised purpose is outage continuity; exclusivity of reserve duty is not expressly established. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))

2. IEC 60896-22:2004 | IEC
   - Taxonomy evidence: The scope identifies stationary lead-acid cells and monobloc batteries for telecom applications, supporting finished battery deliverables. ([webstore.iec.ch](https://webstore.iec.ch/en/publication/xx.xx))
   - Taxonomy evidence: The scope separately identifies stationary lead-acid cells and monobloc batteries used in telecom and UPS applications, supporting finished battery deliverables rather than only complete systems. ([webstore.iec.ch](https://webstore.iec.ch/en/publication/xx.xx))
   - Taxonomy evidence: Stationary lead-acid is explicitly recognized for telecom and UPS applications. ([webstore.iec.ch](https://webstore.iec.ch/en/publication/xx.xx))
   - Taxonomy evidence: The standard establishes a stationary lead-acid battery category with explicit telecom applicability. ([webstore.iec.ch](https://webstore.iec.ch/en/publication/xx.xx))
   - Taxonomy evidence: The publication specifically covers valve-regulated stationary lead-acid construction. ([webstore.iec.ch](https://webstore.iec.ch/en/publication/xx.xx))
   - Taxonomy evidence: Its scope is specifically valve-regulated stationary lead-acid batteries, distinguishing this construction category. ([webstore.iec.ch](https://webstore.iec.ch/en/publication/xx.xx))
3. IEC 60896-11:2002 | IEC
   - Taxonomy evidence: The stationary lead-acid classification separately identifies vented construction, supporting separation from valve-regulated products. ([webstore.iec.ch](https://webstore.iec.ch/en/publication/xx.xx))
   - Taxonomy evidence: The publication's scope is restricted to vented stationary lead-acid batteries; it does not establish telecom sales volumes. ([webstore.iec.ch](https://webstore.iec.ch/en/publication/xx.xx))
   - Taxonomy evidence: The stationary lead-acid classification separately covers vented types, providing the category basis for flooded stationary batteries. ([webstore.iec.ch](https://webstore.iec.ch/en/publication/xx.xx))
4. IEC 62619:2022 | IEC
   - Taxonomy evidence: The industrial secondary-lithium scope expressly includes stationary telecom and UPS applications. ([webstore.iec.ch](https://webstore.iec.ch/en/publication/xx.xx))
   - Taxonomy evidence: The international industrial secondary-lithium classification explicitly includes telecom and UPS stationary applications. ([webstore.iec.ch](https://webstore.iec.ch/en/publication/xx.xx))
   - Taxonomy evidence: The secondary-lithium category supports telecom applicability, not worldwide sales or electrode-subtype allocation. ([webstore.iec.ch](https://webstore.iec.ch/en/publication/xx.xx))
   - Taxonomy evidence: The scope establishes industrial secondary lithium batteries as relevant to stationary telecom backup; it does not establish worldwide sales or subtype shares. ([webstore.iec.ch](https://webstore.iec.ch/en/publication/xx.xx))

5. ETSI TS 103 553-2 V1.1.1 (2021-11) - Innovative energy storage technology for stationary use; Part 2: Battery
   - Taxonomy evidence: The stationary-battery overview recognizes lead, nickel, lithium, sodium, metal-air, and flow technologies; it is not a census of commercial telecom sales. ([etsi.org](https://www.etsi.org/deliver/etsi_ts/103500_103599/xx.xx/xx.xx.01_60/ts_10355302v010101p.pdf))
   - Taxonomy evidence: The stationary technology overview distinguishes lead, nickel, lithium-ion, sodium, metal-air, and flow technologies; it does not establish an exhaustive commercial market partition. ([etsi.org](https://www.etsi.org/deliver/etsi_ts/103500_103599/xx.xx/xx.xx.01_60/ts_10355302v010101p.pdf))
   - Taxonomy evidence: The telecom/ICT implementation examples identify AGM valve-regulated backup batteries. ([etsi.org](https://www.etsi.org/deliver/etsi_ts/103500_103599/xx.xx/xx.xx.01_60/ts_10355302v010101p.pdf))
   - Taxonomy evidence: The telecom implementation examples explicitly identify AGM VRLA backup batteries. ([etsi.org](https://www.etsi.org/deliver/etsi_ts/103500_103599/xx.xx/xx.xx.01_60/ts_10355302v010101p.pdf))
   - Taxonomy evidence: The implementation examples separately identify gel backup batteries at telecom/ICT sites. ([etsi.org](https://www.etsi.org/deliver/etsi_ts/103500_103599/xx.xx/xx.xx.01_60/ts_10355302v010101p.pdf))
   - Taxonomy evidence: The telecom implementation examples separately identify gel stationary backup batteries. ([etsi.org](https://www.etsi.org/deliver/etsi_ts/103500_103599/xx.xx/xx.xx.01_60/ts_10355302v010101p.pdf))
   - Taxonomy evidence: Nickel-cadmium, nickel-metal-hydride, nickel-iron, and nickel-zinc are grouped under nickel-based batteries. ([etsi.org](https://www.etsi.org/deliver/etsi_ts/103500_103599/xx.xx/xx.xx.01_60/ts_10355302v010101p.pdf))
   - Taxonomy evidence: The overview groups nickel-iron, nickel-cadmium, nickel-zinc, and nickel-metal-hydride technologies under nickel-based batteries. ([etsi.org](https://www.etsi.org/deliver/etsi_ts/103500_103599/xx.xx/xx.xx.01_60/ts_10355302v010101p.pdf))
   - Taxonomy evidence: Nickel-cadmium is a named stationary-battery chemistry; this does not establish current telecom purchases. ([etsi.org](https://www.etsi.org/deliver/etsi_ts/103500_103599/xx.xx/xx.xx.01_60/ts_10355302v010101p.pdf))
   - Taxonomy evidence: Nickel-iron is separately named, without proof of current telecom commercialization. ([etsi.org](https://www.etsi.org/deliver/etsi_ts/103500_103599/xx.xx/xx.xx.01_60/ts_10355302v010101p.pdf))
   - Taxonomy evidence: Nickel-zinc is explicitly placed in the nickel-based family. ([etsi.org](https://www.etsi.org/deliver/etsi_ts/103500_103599/xx.xx/xx.xx.01_60/ts_10355302v010101p.pdf))
   - Taxonomy evidence: Metal-air is recognized as a stationary technology grouping rather than merely a constituent-metal label. ([etsi.org](https://www.etsi.org/deliver/etsi_ts/103500_103599/xx.xx/xx.xx.01_60/ts_10355302v010101p.pdf))
   - Taxonomy evidence: Flow batteries are separately recognized; qualifying telecom transactions remain unestablished by this classification. ([etsi.org](https://www.etsi.org/deliver/etsi_ts/103500_103599/xx.xx/xx.xx.01_60/ts_10355302v010101p.pdf))
6. IEC 63115-1:2020+AMD1:2022 CSV | IEC
   - Taxonomy evidence: The industrial nickel-metal-hydride scope expressly lists telecom and UPS stationary applications. ([webstore.iec.ch](https://webstore.iec.ch/en/publication/xx.xx))
   - Taxonomy evidence: The industrial nickel-metal-hydride classification expressly includes telecom, UPS, and emergency-power stationary applications. ([webstore.iec.ch](https://webstore.iec.ch/en/publication/xx.xx))
7. IEC 60623:2026 | IEC
   - Taxonomy evidence: The August xx.xx 2026 publication recognizes vented nickel-cadmium industrial cells and battery systems. It establishes construction/category identity, not 2025 telecom adoption. ([webstore.iec.ch](https://webstore.iec.ch/en/publication/xx.xx))
   - Taxonomy evidence: The August xx.xx 2026 publication identifies vented nickel-cadmium industrial cells and battery systems as a distinct category. ([webstore.iec.ch](https://webstore.iec.ch/en/publication/xx.xx))

8. IEC 60622:2026 | IEC
   - Taxonomy evidence: The September xx.xx 2026 publication separately recognizes sealed nickel-cadmium industrial construction; sealed and vented products remain within the retained chemistry category. ([webstore.iec.ch](https://webstore.iec.ch/en/publication/xx.xx))
   - Taxonomy evidence: The September xx.xx 2026 publication separately recognizes sealed nickel-cadmium industrial cells and battery systems, supporting construction breadth within the same chemistry category. ([webstore.iec.ch](https://webstore.iec.ch/en/publication/xx.xx))
9. IEC 62984-3:2020 | IEC
   - Taxonomy evidence: The official publication identifies sodium-based stationary batteries as a distinct classification. Its scope does not establish attributable telecom-backup sales. ([webstore.iec.ch](https://webstore.iec.ch/en/publication/xx.xx))
   - Taxonomy evidence: The international sodium-based stationary-battery classification includes sodium-sulfur and sodium-nickel chloride; application-specific telecom sales are not established by this scope. ([webstore.iec.ch](https://webstore.iec.ch/en/publication/xx.xx))
10. ITU-T L.1397 (10/2025) - Battery system with integrated control and monitoring information model
    - Taxonomy evidence: The October 2025 telecom recommendation expressly names hybrid lithium-lead, lithium-sodium, and sodium-lead battery modes. It does not establish inseparable transaction pricing or Global prevalence. ([itu.int](https://www.itu.int/rec/dologin_pub.asp?id=T-REC-L.xx.xx-xx.xx-I%xx.xx%21PDF-E&lang=e&type=items))
    - Taxonomy evidence: The recommendation expressly identifies lithium-lead, lithium-sodium, and sodium-lead battery combinations. It does not establish their global prevalence or transaction pricing. ([itu.int](https://www.itu.int/rec/dologin_pub.asp?id=T-REC-L.xx.xx-xx.xx-I%xx.xx%21PDF-E&lang=e&type=items))
    - Taxonomy evidence: The telecom recommendation recognizes battery cells, modules, strings, packs, and battery systems, including integrated control, without equating every battery assembly with a complete UPS. ([itu.int](https://www.itu.int/rec/dologin_pub.asp?id=T-REC-L.xx.xx-xx.xx-I%xx.xx%21PDF-E&lang=e&type=items))
11. ITU-T Work Programme - Aqueous Zinc-Based Battery Systems for Base Station Applications
    - Taxonomy evidence: The inspected official work item names Aqueous Zinc-Based Battery Systems for Base Station Applications, lists its status as Under study, and gives December 2027 timing. Approval and commercial deployment are not established. ([itu.int](https://www.itu.int/itu-t/workprog/wp_item.aspx?isn=xx.xx))
    - Taxonomy evidence: The official work programme names aqueous zinc-based battery systems for base-station applications. Its status is under study, with a December 2027 target; neither approval nor marketed deployment is established. ([itu.int](https://www.itu.int/itu-t/workprog/wp_item.aspx?isn=xx.xx))
12. IEC 62040-3:2021 | IEC
    - Taxonomy evidence: The publication distinguishes complete UPS equipment from individual functional units and identifies continuity of load power as its principal function. ([webstore.iec.ch](https://webstore.iec.ch/en/publication/xx.xx))
    - Taxonomy evidence: The standard identifies complete electronic UPS equipment whose principal function is continuity of load power. ([webstore.iec.ch](https://webstore.iec.ch/en/publication/xx.xx))
    - Taxonomy evidence: The classified UPS equipment delivers AC output, supporting output-form classification independently of battery chemistry. ([webstore.iec.ch](https://webstore.iec.ch/en/publication/xx.xx))
    - Taxonomy evidence: The classified UPS equipment delivers AC output, establishing an output-interface distinction rather than a battery-chemistry distinction. ([webstore.iec.ch](https://webstore.iec.ch/en/publication/xx.xx))
13. ETSI EN 300 132-2 V2.8.1 (2024-10) - ICT power supply interface: Direct Current
    - Taxonomy evidence: The ICT interface standard identifies the established DC equipment-input interface. For this taxonomy, backup output follows the documented protected-load interface rather than battery chemistry. ([etsi.org](https://www.etsi.org/deliver/etsi_EN/300100_300199/xx.xx/xx.xx.01_60/en_30013202v020801p.pdf))
    - Taxonomy evidence: The October 2024 ICT interface standard separately identifies the established telecom DC equipment interface; it does not classify the equipment by battery chemistry. ([etsi.org](https://www.etsi.org/deliver/etsi_EN/300100_300199/xx.xx/xx.xx.01_60/en_30013202v020801p.pdf))

14. ETSI EN 300 132-1 V2.2.1 (2022-11) - ICT power supply interface: Alternating Current
    - Taxonomy evidence: The ICT standards series separately identifies AC equipment-input compatibility, supporting current-form classification at the protected-load boundary. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013201v020201p.pdf))
    - Taxonomy evidence: The ICT interface classification explicitly covers AC power interfaces, including worldwide nominal-voltage compatibility and customer-premises and network-site applications. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013201v020201p.pdf))
    - Taxonomy evidence: The AC interface classification is distinct from the separately published DC interface category; neither determines battery chemistry. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013201v020201p.pdf))
    - Taxonomy evidence: The standards series distinguishes AC and DC equipment interfaces, corroborating classification by load-side electrical compatibility rather than battery chemistry. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013201v020201p.pdf))
15. Telecommunication Engineering Centre - Standards/Specifications, TEC 66160:2024 entry
    - Taxonomy evidence: The official catalog lists Hybrid (AC+DC) Uninterrupted Power Supply System as TEC xx.xx:2024, dated June xx.xx 2024. This establishes the named category, not transaction-specific backed outputs. ([tec.gov.in](https://tec.gov.in/standards-specifications))
    - Taxonomy evidence: The telecom catalog recognizes a hybrid AC/DC continuity-equipment category alongside single-current interface classifications; its national listing is not a worldwide mandate. ([tec.gov.in](https://tec.gov.in/standards-specifications))

16. Ofcom - Network and Service Resilience Guidance for Communications Providers, June 16, 2026

- Taxonomy evidence: The June xx.xx 2026 guidance distinguishes access, aggregation/backhaul, core, and interconnection domains; management is cross-cutting. This supports functional rather than facility-based classification.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/network-and-service-resilience-guidance-for-communications-providerspdf?v=xx.xx))
- Taxonomy evidence: The June xx.xx 2026 guidance differentiates access, aggregation/backhaul, core, and interconnection domains and recognizes management as cross-cutting.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/network-and-service-resilience-guidance-for-communications-providerspdf?v=xx.xx))
- Taxonomy evidence: Core sites contain key control/service functions, and the guidance expressly includes battery backup in their electrical provision.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/network-and-service-resilience-guidance-for-communications-providerspdf?v=xx.xx))
- Taxonomy evidence: Aggregation/backhaul is distinguished from core and last-mile access and has explicit power-resilience expectations.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/network-and-service-resilience-guidance-for-communications-providerspdf?v=xx.xx))
- Taxonomy evidence: Internet peering and non-Internet interconnection are separately identified network functions, not disclosed battery transactions.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/network-and-service-resilience-guidance-for-communications-providerspdf?v=xx.xx))
- Taxonomy evidence: The guidance distinguishes Internet peering from non-Internet interconnection. It establishes a separate function but not an attributable battery-backup transaction.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/network-and-service-resilience-guidance-for-communications-providerspdf?v=xx.xx))
- Taxonomy evidence: Wireless radio access is an explicit access-domain application.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/network-and-service-resilience-guidance-for-communications-providerspdf?v=xx.xx))
- Taxonomy evidence: Access-domain examples include cellular RAN, fixed wireless access, and non-terrestrial access networks.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/network-and-service-resilience-guidance-for-communications-providerspdf?v=xx.xx))
- Taxonomy evidence: Fixed access is distinguished from aggregation/backhaul and core functions.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/network-and-service-resilience-guidance-for-communications-providerspdf?v=xx.xx))
- Taxonomy evidence: Fixed access examples include DSL, hybrid fiber-coax, and fiber-to-premises networks. These are network applications, not global battery-adoption estimates.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/network-and-service-resilience-guidance-for-communications-providerspdf?v=xx.xx))
- Taxonomy evidence: Approximately four hours of backup is described as UK good practice for active fixed-access cabinets; this is not a Global battery-only duration rule.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/network-and-service-resilience-guidance-for-communications-providerspdf?v=xx.xx))
- Taxonomy evidence: The June 2026 guidance regards approximately four hours of backup as good practice for active fixed-access equipment in cabinets at installation. This is UK guidance, not a worldwide minimum.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/network-and-service-resilience-guidance-for-communications-providerspdf?v=xx.xx))

17. ENISA - Power Supply Dependencies in the Electronic Communications Sector, December 2013
- Taxonomy evidence: The 2013 provider accounts describe battery protection at transmission and aggregation sites. This is historical application evidence, not current Global adoption. ([enisa.europa.eu](https://www.enisa.europa.eu/sites/default/files/publications/Power%20Supply%20Dependencies%20in%20the%20Ecomms%20Sector.pdf))
- Taxonomy evidence: The report separately identifies battery protection at critical transmission and aggregation sites. ([enisa.europa.eu](https://www.enisa.europa.eu/sites/default/files/publications/Power%20Supply%20Dependencies%20in%20the%20Ecomms%20Sector.pdf))
- Taxonomy evidence: The provider accounts discuss the cost of procuring and maintaining batteries, supporting a communications-operator purchaser role. ([enisa.europa.eu](https://www.enisa.europa.eu/sites/default/files/publications/Power%20Supply%20Dependencies%20in%20the%20Ecomms%20Sector.pdf))
- Taxonomy evidence: The interviewed communications providers describe procuring and maintaining batteries as part of network-continuity protection, supporting the operator purchaser role. ([enisa.europa.eu](https://www.enisa.europa.eu/sites/default/files/publications/Power%20Supply%20Dependencies%20in%20the%20Ecomms%20Sector.pdf))
- Taxonomy evidence: Provider interviews in the December 2013 report describe core sites protected by UPS systems and batteries, alongside generators. This establishes historical core-backup use, not current global adoption. ([enisa.europa.eu](https://www.enisa.europa.eu/sites/default/files/publications/Power%20Supply%20Dependencies%20in%20the%20Ecomms%20Sector.pdf))
- Taxonomy evidence: Provider examples describe batteries protecting individual access-network base stations during power interruptions. ([enisa.europa.eu](https://www.enisa.europa.eu/sites/default/files/publications/Power%20Supply%20Dependencies%20in%20the%20Ecomms%20Sector.pdf))

18. Oregon Department of Transportation - Bid S-73000-00006485, Battery Backup Power Systems for Wireless Communication Sites
- Taxonomy evidence: The May 2023 public solicitation seeks battery-backup power systems for two-way communications sites, establishing institutional radio-network demand rather than completed delivery. ([oregonbuys.gov](https://oregonbuys.gov/bso/external/bidDetail.sdo?docId=S-xx.xx-xx.xx&external=true&parentUrl=close))
- Taxonomy evidence: The solicitation also includes wireless microwave communications sites; their application allocation depends on the protected network function. ([oregonbuys.gov](https://oregonbuys.gov/bso/external/bidDetail.sdo?docId=S-xx.xx-xx.xx&external=true&parentUrl=close))
- Taxonomy evidence: The transportation department is the procuring organization, supporting an institutional own-use purchaser role. The notice does not establish final installed hardware values. ([oregonbuys.gov](https://oregonbuys.gov/bso/external/bidDetail.sdo?docId=S-xx.xx-xx.xx&external=true&parentUrl=close))

19. Internet Society - The Internet Exchange Point Toolkit & Best Practices Guide
- Taxonomy evidence: The historical Tanzania Internet Exchange case describes an online UPS with external batteries protecting an exchange site. It establishes battery-backed interconnection use, not current purchases or attributable hardware revenue. ([internetsociety.org](https://www.internetsociety.org/wp-content/uploads/2021/xx.xx/Global-IXPToolkit_Collaborative-Draft_Feb-xx.xx.pdf))

20. IFC - Investing in Sustainable Access to Communications: The Role of Telecom Energy Services Companies, September 2021

- Taxonomy evidence: The IFC-led framework separates energy-service asset ownership, equipment supply, maintenance, tower-company power provision, and asset leasing/financing. Only qualitative role definitions are used. ([ifc.org](https://www.ifc.org/content/dam/ifc/doc/mgrt/tesco-study-web-xx.xx-xx.xx-xx.xx-final.pdf))
- Taxonomy evidence: The September 2021 framework distinguishes telecom energy-service firms, network operators, tower companies, equipment supply, and asset leasing/financing. Only qualitative role definitions are used; attributed market estimates and rankings are excluded. ([ifc.org](https://www.ifc.org/content/dam/ifc/doc/mgrt/tesco-study-web-xx.xx-xx.xx-xx.xx-final.pdf))
- Taxonomy evidence: Telecom energy-service firms are defined through power-asset ownership and contracted supply to telecom sites; equipment-only and maintenance-only firms are excluded from that definition. ([ifc.org](https://www.ifc.org/content/dam/ifc/doc/mgrt/tesco-study-web-xx.xx-xx.xx-xx.xx-final.pdf))
- Taxonomy evidence: The definitions identify telecom energy-service firms through power-asset ownership and telecom-site supply, distinguishing them from supply-only and maintenance-only businesses and tower-company power offerings. ([ifc.org](https://www.ifc.org/content/dam/ifc/doc/mgrt/tesco-study-web-xx.xx-xx.xx-xx.xx-final.pdf))
- Taxonomy evidence: Asset leasing/financing is recognized in the value chain, but standalone lessor purchases of qualifying battery-backup hardware are not established. ([ifc.org](https://www.ifc.org/content/dam/ifc/doc/mgrt/tesco-study-web-xx.xx-xx.xx-xx.xx-final.pdf))
- Taxonomy evidence: The value-chain framework recognizes asset leasing/financing. This supports recognition of the role, but not qualifying purchases or materiality for standalone backup-equipment lessors. ([ifc.org](https://www.ifc.org/content/dam/ifc/doc/mgrt/tesco-study-web-xx.xx-xx.xx-xx.xx-final.pdf))
- Taxonomy evidence: The framework distinguishes off-grid, bad-grid, and good-grid contexts using study-specific definitions. ([ifc.org](https://www.ifc.org/content/dam/ifc/doc/mgrt/tesco-study-web-xx.xx-xx.xx-xx.xx-final.pdf))
- Taxonomy evidence: Good-grid is defined using the study's daily-outage cutoff, not a universally comparable reliability benchmark. ([ifc.org](https://www.ifc.org/content/dam/ifc/doc/mgrt/tesco-study-web-xx.xx-xx.xx-xx.xx-final.pdf))
- Taxonomy evidence: Bad-grid denotes connected sites with prolonged daily supply outages under the study's definition. ([ifc.org](https://www.ifc.org/content/dam/ifc/doc/mgrt/tesco-study-web-xx.xx-xx.xx-xx.xx-final.pdf))
- Taxonomy evidence: Off-grid sites are defined as not connected to the national grid. ([ifc.org](https://www.ifc.org/content/dam/ifc/doc/mgrt/tesco-study-web-xx.xx-xx.xx-xx.xx-final.pdf))

21. GSMA - Renewable Energy for Mobile Towers: Opportunities for Low- and Middle-Income Countries, September 2020

- Taxonomy evidence: The association's September 2020 definitions separate sites disconnected from or receiving no grid electricity from connected sites with prolonged outages. Its six-hour daily-outage cutoff differs from the inspected IFC framework's eight-hour cutoff; neither is adopted as a Global rule. ([gsma.com](https://www.gsma.com/solutions-and-impact/connectivity-for-good/mobile-for-development/wp-content/uploads/2020/xx.xx/Clean_Tech_Report_R_WebSingles.xx.xx.pdf))
- Taxonomy evidence: The association's 2020 report distinguishes good-grid, bad-grid, and off-grid telecom contexts. Only category distinctions are used; embedded commercial research estimates are excluded. ([gsma.com](https://www.gsma.com/solutions-and-impact/connectivity-for-good/mobile-for-development/wp-content/uploads/2020/xx.xx/Clean_Tech_Report_R_WebSingles.xx.xx.pdf))
- Taxonomy evidence: Bad-grid refers to connected telecom sites with prolonged electricity outages, not all grid-connected sites. ([gsma.com](https://www.gsma.com/solutions-and-impact/connectivity-for-good/mobile-for-development/wp-content/uploads/2020/xx.xx/Clean_Tech_Report_R_WebSingles.xx.xx.pdf))
- Taxonomy evidence: Bad-grid identifies connected sites with unreliable supply; the report's historical outage cutoff is not adopted as a universal rule. ([gsma.com](https://www.gsma.com/solutions-and-impact/connectivity-for-good/mobile-for-development/wp-content/uploads/2020/xx.xx/Clean_Tech_Report_R_WebSingles.xx.xx.pdf))
- Taxonomy evidence: The off-grid definition includes sites disconnected from the grid or receiving no grid electricity, supporting the usable-connection qualification. No market estimates are used. ([gsma.com](https://www.gsma.com/solutions-and-impact/connectivity-for-good/mobile-for-development/wp-content/uploads/2020/xx.xx/Clean_Tech_Report_R_WebSingles.xx.xx.pdf))
- Taxonomy evidence: Off-grid identifies telecom sites without a national-grid connection, separately from connected sites receiving unreliable electricity. ([gsma.com](https://www.gsma.com/solutions-and-impact/connectivity-for-good/mobile-for-development/wp-content/uploads/2020/xx.xx/Clean_Tech_Report_R_WebSingles.xx.xx.pdf))
- Taxonomy evidence: Good-grid is an explicit context in the report's telecom energy-management classification. ([gsma.com](https://www.gsma.com/solutions-and-impact/connectivity-for-good/mobile-for-development/wp-content/uploads/2020/xx.xx/Clean_Tech_Report_R_WebSingles.xx.xx.pdf))

22. IFC Summary of Investment Information - IPT PowerTech, Project 49095
    - Taxonomy evidence: The project disclosure separates long-term telecom energy-service contracts from turnkey telecom and power-equipment activities. Its original disclosure date is January xx.xx 2025, with a June xx.xx 2026 update. ([disclosures.ifc.org](https://disclosures.ifc.org/project-detail/SII/xx.xx/ipt-powertech))
    - Taxonomy evidence: The investment disclosure distinguishes long-term telecom energy-service contracts from equipment supply and turnkey telecom activities. ([disclosures.ifc.org](https://disclosures.ifc.org/project-detail/SII/xx.xx/ipt-powertech))
    - Taxonomy evidence: The financed project modernizes, maintains, and operates mobile-network clients' energy systems under long-term contracts and anticipates increased battery use. This supports a managed-performance arrangement, not attributed backup-hardware revenue. ([disclosures.ifc.org](https://disclosures.ifc.org/project-detail/SII/xx.xx/ipt-powertech))
    - Taxonomy evidence: Telecom energy systems are modernized, maintained, and operated under long-term service contracts; the project includes increased use of solar panels and batteries. ([disclosures.ifc.org](https://disclosures.ifc.org/project-detail/SII/xx.xx/ipt-powertech))
    - Taxonomy evidence: Contracted energy services are supplied to mobile operators or tower companies; those beneficiaries are not automatically the provider's hardware purchasers. ([disclosures.ifc.org](https://disclosures.ifc.org/project-detail/SII/xx.xx/ipt-powertech))
    - Taxonomy evidence: The disclosed energy-service business provides contracted energy to mobile network operators or independent tower companies. These beneficiaries are not automatically the purchasers of the provider's backup assets. ([disclosures.ifc.org](https://disclosures.ifc.org/project-detail/SII/xx.xx/ipt-powertech))
    - Taxonomy evidence: The independent investment record describes turnkey telecom and energy-system integration activities alongside battery-system supply. It corroborates an integration/contractor role, not an exhaustive channel partition. ([disclosures.ifc.org](https://disclosures.ifc.org/project-detail/SII/xx.xx/ipt-powertech))
    - Taxonomy evidence: The disclosure identifies systems integration, turnkey telecom delivery, and battery-system supply as distinct public business activities. This supports the intermediary role, not an exhaustive channel partition. ([disclosures.ifc.org](https://disclosures.ifc.org/project-detail/SII/xx.xx/ipt-powertech))
    - Taxonomy evidence: The project record distinguishes telecom energy services, telecom contracting services, and equipment-power activities, demonstrating why customer, contractor, and asset-service roles are not interchangeable. ([disclosures.ifc.org](https://disclosures.ifc.org/project-detail/SII/xx.xx/ipt-powertech))
23. IFC Environmental & Social Review Summary - Western Balkan Towers, Project 48526
    - Taxonomy evidence: The investment record distinguishes tower-owning entities from telecom-operator anchor tenants, supporting separate infrastructure and connectivity-provider roles. ([disclosures.ifc.org](https://disclosures.ifc.org/project-detail/ESRS/xx.xx/western-balkan-towers))
    - Taxonomy evidence: The investment disclosure distinguishes tower-owning companies from their telecommunications-operator anchor tenants, supporting separate infrastructure and connectivity-provider buyer roles. ([disclosures.ifc.org](https://disclosures.ifc.org/project-detail/ESRS/xx.xx/western-balkan-towers))
    - Taxonomy evidence: The tower-business record states that outage backup will predominantly use batteries. This establishes an infrastructure-owner setting, not ownership or purchase value for each individual battery. ([disclosures.ifc.org](https://disclosures.ifc.org/project-detail/ESRS/xx.xx/western-balkan-towers))
    - Taxonomy evidence: The disclosed tower-asset business includes battery backup for outages. This supports an infrastructure-owner backup setting, without proving ownership of every individual battery or purchase. ([disclosures.ifc.org](https://disclosures.ifc.org/project-detail/ESRS/xx.xx/western-balkan-towers))

24. GSA - Leasing of New Electronic Equipment

- Taxonomy evidence: The government procurement scope recognizes leasing and lease-with-option-to-own arrangements for telecommunications hardware. It does not specifically establish qualifying battery-backup leases.
([gsa.gov](https://www.gsa.gov/technology/it-contract-vehicles-and-purchasing-programs/multiple-award-schedule-it/electronic-equipment-leasing))

- Taxonomy evidence: The listing corroborates a telecommunications equipment-leasing role but supplies no record of a standalone lessor acquiring eligible backup batteries.
([gsa.gov](https://www.gsa.gov/technology/it-contract-vehicles-and-purchasing-programs/multiple-award-schedule-it/electronic-equipment-leasing))

25. U.S. Census Bureau - 2022 Economic Census Form WH-42361

- Taxonomy evidence: The Economic Census form recognizes nonautomotive batteries and communications equipment within merchant-wholesale activities and distinguishes own-account distributors from agents. It supports the distribution role, not telecom-backup channel shares.
([bhs.econ.census.gov](https://bhs.econ.census.gov/ombpdfs2022/export/2022_WH-42361_su.pdf))

- Taxonomy evidence: The government business-classification questionnaire recognizes nonautomotive batteries and communications equipment within merchant-wholesale activities. It supports the distribution role, not telecom-backup channel shares.
([bhs.econ.census.gov](https://bhs.econ.census.gov/ombpdfs2022/export/2022_WH-42361_su.pdf))

26. Ofcom - Mobile RAN Power Resilience: Technical Report and CFI Update, February 2025

- Taxonomy evidence: The February 2025 regulator report considers battery options of xx.xx minutes, one hour, two hours, and four hours. These are planning alternatives, not a worldwide band standard or completed-purchase record. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))
- Taxonomy evidence: The February 2025 regulator report evaluates battery-backup alternatives lasting xx.xx minutes, one hour, two hours, and four hours. These are studied options, not evidence of completed purchases or global duration bands. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))
- Taxonomy evidence: The considered xx.xx-minute battery option supplies a public planning anchor for subhour autonomy. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))
- Taxonomy evidence: The evaluated xx.xx-minute battery option supplies a public commercial-planning anchor for subhour autonomy. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))
- Taxonomy evidence: The one-hour and two-hour options supply anchors within the modeled intermediate band. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))
- Taxonomy evidence: Evaluated one-hour and two-hour alternatives supply anchors within the modeled intermediate band. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))
- Taxonomy evidence: The report discusses battery backup at mobile radio-access sites, establishing an application context rather than Global adoption. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

27. ETSI EN 300 019-1-3 V3.1.1 (2026-05) - Stationary Use at Weatherprotected Locations
    - Taxonomy evidence: The May 2026 stationary-location classification distinguishes enclosure and environmental control; it informs category design rather than worldwide obligations or 2025 adoption. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300001_300099/xx.xx/xx.xx.01_60/en_3000190103v030101p.pdf))
    - Taxonomy evidence: The May 2026 standard classifies stationary telecom-equipment locations by enclosure and environmental control; it supplies category terminology, not worldwide compliance obligations. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300001_300099/xx.xx/xx.xx.01_60/en_3000190103v030101p.pdf))
    - Taxonomy evidence: The weather-protected regime includes totally enclosed and partly protected locations. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300001_300099/xx.xx/xx.xx.01_60/en_3000190103v030101p.pdf))
    - Taxonomy evidence: Weather-protected locations include enclosed and partly protected locations. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300001_300099/xx.xx/xx.xx.01_60/en_3000190103v030101p.pdf))
    - Taxonomy evidence: Class xx.xx identifies temperature-controlled enclosed locations, including telecommunications centers. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300001_300099/xx.xx/xx.xx.01_60/en_3000190103v030101p.pdf))
    - Taxonomy evidence: Class xx.xx identifies enclosed locations with maintained temperature control, including telecom centers. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300001_300099/xx.xx/xx.xx.01_60/en_3000190103v030101p.pdf))
    - Taxonomy evidence: Class xx.xx identifies enclosed locations without temperature or humidity control. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300001_300099/xx.xx/xx.xx.01_60/en_3000190103v030101p.pdf))
    - Taxonomy evidence: Class xx.xx identifies enclosed locations without temperature or humidity control, including unattended equipment stations. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300001_300099/xx.xx/xx.xx.01_60/en_3000190103v030101p.pdf))
    - Taxonomy evidence: Class xx.xx permits openings to outside air and partial weather protection; the category cannot be equated with every outdoor shelter. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300001_300099/xx.xx/xx.xx.01_60/en_3000190103v030101p.pdf))
    - Taxonomy evidence: Class xx.xx recognizes partially weather-protected locations with openings to outside air. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300001_300099/xx.xx/xx.xx.01_60/en_3000190103v030101p.pdf))
28. ETSI EN 300 019-1-4 V3.1.1 (2026-05) - Stationary Use at Non-Weatherprotected Locations
    - Taxonomy evidence: The May 2026 classification distinguishes sheltered and open-air non-weather-protected stationary locations. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300001_300099/xx.xx/xx.xx.01_60/en_3000190104v030101p.pdf))
    - Taxonomy evidence: The May 2026 classification distinguishes sheltered and open-air non-weather-protected locations for stationary telecom equipment. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300001_300099/xx.xx/xx.xx.01_60/en_3000190104v030101p.pdf))
    - Taxonomy evidence: Classes xx.xx and xx.xx recognize sheltered non-weather-protected locations. Shelter alone does not place equipment in the weather-protected regime. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300001_300099/xx.xx/xx.xx.01_60/en_3000190104v030101p.pdf))
    - Taxonomy evidence: Classes xx.xx and xx.xx explicitly recognize sheltered non-weather-protected locations. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300001_300099/xx.xx/xx.xx.01_60/en_3000190104v030101p.pdf))
    - Taxonomy evidence: Classes xx.xx, xx.xx, and xx.xx recognize open-air non-weather-protected locations. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300001_300099/xx.xx/xx.xx.01_60/en_3000190104v030101p.pdf))
    - Taxonomy evidence: Classes xx.xx, xx.xx, and xx.xx explicitly recognize open-air non-weather-protected locations. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300001_300099/xx.xx/xx.xx.01_60/en_3000190104v030101p.pdf))
29. ETSI EN 300 019-1-8 V2.1.2 (2002-04) - Stationary Use at Underground Locations
    - Taxonomy evidence: The stationary environmental series recognizes a distinct underground-location regime, supporting separation of subterranean field infrastructure from ordinary enclosed-building conditions. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300001_300099/xx.xx/xx.xx.02_60/en_3000190108v020102p.pdf))
    - Taxonomy evidence: The standard identifies a distinct underground stationary-use regime, including footway boxes, manholes, and some tunnels. This supports separating subterranean field exposure from ordinary enclosed building locations. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300001_300099/xx.xx/xx.xx.02_60/en_3000190108v020102p.pdf))

30. ETSI EN 302 099 V2.2.1 (2021-02) - Powering of Equipment in Access Network
    - Taxonomy evidence: The access-network classification distinguishes local, centralized, cluster, and customer-origin reverse powering; battery-backed allocation must follow the outage path. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Taxonomy evidence: Recognizes local, centralized, cluster, and reverse powering; batteries may back up the remote source or receiving equipment. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Taxonomy evidence: Local power units may provide access-equipment backup. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Taxonomy evidence: Local powering uses a colocated supply. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Taxonomy evidence: Remote sources with backup can protect distant access equipment. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Taxonomy evidence: Remote-source backup can protect distant equipment. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Taxonomy evidence: Centralized powering originates at a telecommunications center. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Taxonomy evidence: Centralized supply originates in a telecom center. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Taxonomy evidence: Cluster powering uses a supply node serving access equipment in an area. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Taxonomy evidence: Cluster supply originates outside a telecom center. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Taxonomy evidence: Reverse powering is customer-origin supply to access equipment; a qualifying battery-backed source transaction is not established. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Taxonomy evidence: Reverse powering feeds access equipment from customer premises; battery-specific commercial deployment remains unverified. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Taxonomy evidence: The standard describes batteries providing additional power during heavy traffic, recognizing a duty beyond outage reserve. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Taxonomy evidence: Batteries can supplement telecom power during heavy traffic, supporting an additional duty beyond outage reserve. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Taxonomy evidence: The scope includes wired and hybrid access networks and backup-power arrangements. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Taxonomy evidence: The February 2021 standard covers copper, fiber, radio, and hybrid access networks and discusses backup batteries in DC supplies and UPS equipment. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Taxonomy evidence: Customer-premises equipment is distinguished from shared access-network equipment. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Taxonomy evidence: Sections xx.xx.xx.xx and xx.xx.xx.xx distinguish shared access-network equipment from equipment at customer premises, supporting a separate subscriber-premises application boundary. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Taxonomy evidence: The telecom operator is identified as provider of a local backup power unit. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Taxonomy evidence: Section xx.xx identifies the telecom operator as the provider of a local power unit with backup for access equipment. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Taxonomy evidence: The customer-premises discussion recognizes business-customer AC UPS use; it supports a business connectivity setting, not a disclosed purchase value. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))

31. IEC 62040-5-3:2016 | IEC

- Taxonomy evidence: The standard distinguishes a complete DC UPS from individual functional units and identifies continuity of DC load power as its principal function. ([webstore.iec.ch](https://webstore.iec.ch/en/publication/xx.xx))
- Taxonomy evidence: DC-output UPS equipment is an internationally recognized category even when its normal input source is AC. ([webstore.iec.ch](https://webstore.iec.ch/en/publication/xx.xx))

32. ETSI TR 102 532 V1.1.1 (2009-06) - The use of alternative energy solutions in telecommunications installations

- Taxonomy evidence: The historical telecommunications energy-storage overview separately identifies lithium-metal-polymer batteries; current telecom commercialization is not established. ([etsi.org](https://www.etsi.org/deliver/etsi_tr/102500_102599/xx.xx/xx.xx.01_60/tr_102532v010101p.pdf))
- Taxonomy evidence: Nickel-iron batteries appear as a distinct named technology in the telecommunications energy-storage overview. ([etsi.org](https://www.etsi.org/deliver/etsi_tr/102500_102599/xx.xx/xx.xx.01_60/tr_102532v010101p.pdf))
- Taxonomy evidence: Nickel-zinc batteries appear as a separate named technology; the historical discussion does not establish present telecom deployment. ([etsi.org](https://www.etsi.org/deliver/etsi_tr/102500_102599/xx.xx/xx.xx.01_60/tr_102532v010101p.pdf))

33. ITU-T L.1221 (11/2018) - Innovative energy storage technology for stationary use: Battery

- Taxonomy evidence: The stationary-battery classification distinguishes lithium-metal cells from lithium-ion electrode variants, supporting a family-level distinction rather than overlapping electrode-label siblings. ([itu.int](https://www.itu.int/rec/dologin_pub.asp?id=T-REC-L.xx.xx-xx.xx-I%xx.xx%21PDF-E&lang=e&type=items))
- Taxonomy evidence: Metal-air is a recognized stationary-battery technology grouping, with zinc and aluminum among its named variants; this is not proof of current commercial telecom adoption. ([itu.int](https://www.itu.int/rec/dologin_pub.asp?id=T-REC-L.xx.xx-xx.xx-I%xx.xx%21PDF-E&lang=e&type=items))
- Taxonomy evidence: Flow batteries are separately recognized in the stationary technology overview, rather than classified solely by their constituent metals. ([itu.int](https://www.itu.int/rec/dologin_pub.asp?id=T-REC-L.xx.xx-xx.xx-I%xx.xx%21PDF-E&lang=e&type=items))
- Taxonomy evidence: The classification discusses sodium battery technologies within stationary storage, while distinguishing technological possibilities from established applications. ([itu.int](https://www.itu.int/rec/dologin_pub.asp?id=T-REC-L.xx.xx-xx.xx-I%xx.xx%21PDF-E&lang=e&type=items))

34. TEC 66160:2024 - Hybrid (AC+DC) Uninterrupted Power Supply System

- Taxonomy evidence: The official telecom classification recognizes a complete hybrid UPS supplying uninterrupted AC and DC power. Only attributable battery-backup hardware falls within this market's frozen perimeter. ([tec.gov.in](https://tec.gov.in/pdf/GRFA/Final%20TEC_%20GR_%20Hybrid%20UPS_June%202024_21062024.pdf))
- Taxonomy evidence: The classification explicitly describes backed AC and DC outputs within one telecom system, supporting a combined-output category distinct from AC-input/DC-output equipment. ([tec.gov.in](https://tec.gov.in/pdf/GRFA/Final%20TEC_%20GR_%20Hybrid%20UPS_June%202024_21062024.pdf))
- Taxonomy evidence: The record supplies a telecom-specific combined-output classification basis; its national requirements are not treated as worldwide mandates. ([tec.gov.in](https://tec.gov.in/pdf/GRFA/Final%20TEC_%20GR_%20Hybrid%20UPS_June%202024_21062024.pdf))

35. Vodafone Sustainability Framework 2021

- Taxonomy evidence: Vodafone's 2021 financing framework names flow batteries among network-energy storage project technologies. This is demand-side category recognition, not proof of completed purchases or an exclusively backup-related revenue perimeter. ([vodafone.com](https://www.vodafone.com/~/media/Files/V/vodafone/corp/documents/debt-investor/vodafone-sustainability-framework.pdf))

36. Technology and Tools | First Responder Network Authority

· Taxonomy evidence: The government network description distinguishes core, transport backhaul, and radio access as separate layers, supporting functional rather than building-based application classification. ([firstnet.gov](https://firstnet.gov/network/TT))

· Taxonomy evidence: Core functions include switching, information processing, and network services; these are distinguished from transport links and radio base stations. ([firstnet.gov](https://firstnet.gov/network/TT))

· Taxonomy evidence: Transport backhaul carries user traffic and signaling between radio base stations and the core network. ([firstnet.gov](https://firstnet.gov/network/TT))

· Taxonomy evidence: Radio access is the base-station infrastructure connecting user devices to the network. The record establishes the network function, not battery purchasing volume. ([firstnet.gov](https://firstnet.gov/network/TT))

37. State of Delaware - Public Safety Communications Equipment, 700 MHz Systems, Contract GSS21869-700MHz, Appendix E

· Taxonomy evidence: The public radio-system procurement requires battery-backed UPS equipment at radio sites and communications-control locations. It establishes a public demand requirement, not completed contract delivery. ([bidcondocs.delaware.gov](https://bidcondocs.delaware.gov/GSS/GSS_21869_700mhz_appE.pdf))

· Taxonomy evidence: The state department solicits a communications-system upgrade including UPS equipment, establishing an institutional own-use purchasing role distinct from a telecom carrier or reseller. ([bidcondocs.delaware.gov](https://bidcondocs.delaware.gov/GSS/GSS_21869_700mhz_appE.pdf))

38. FCC Residential Voice Backup-Power Final Rule - Federal Register, October 16, 2015

· Taxonomy evidence: The 2015 residential-voice rulemaking addresses battery or UPS backup for subscriber-premises equipment and distinguishes provider and subscriber responsibilities. It is used as historical category evidence, not a worldwide or current compliance instruction. ([govinfo.gov](https://www.govinfo.gov/content/pkg/FR-2015-xx.xx-xx.xx/pdf/2015-xx.xx.pdf))

39. Terms of Service - AT&T Legal Policy Center

· Taxonomy evidence: Section xx.xx.xx.xx states that customers may purchase battery backup for telecom equipment from third-party manufacturers or retailers. This establishes customer-side procurement alternatives rather than a universal channel allocation. ([att.com](https://www.att.com/legal/terms.iframes.wirelessCustomerAgreement.html?utm_source=openai))

40. DC Power Plant / Rectifiers - UPS Rental

· Taxonomy evidence: The public offering advertises rental of batteries and complete DC power plants for telecom continuity. This supplier example supports category occurrence, not independently demonstrated leasing uptake or a market-wide partition. ([upsrental.com](https://www.upsrental.com/product/rectifiers-dc-plants/))

41. Your landline is going digital: what you need to know - Ofcom

· Taxonomy evidence: The consumer guidance describes at least one hour of backup for eligible landline-dependent customers and notes provider offerings lasting up to seven hours. These UK examples do not establish global bands. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls?SQ_VARIATION_197646=xx.xx))

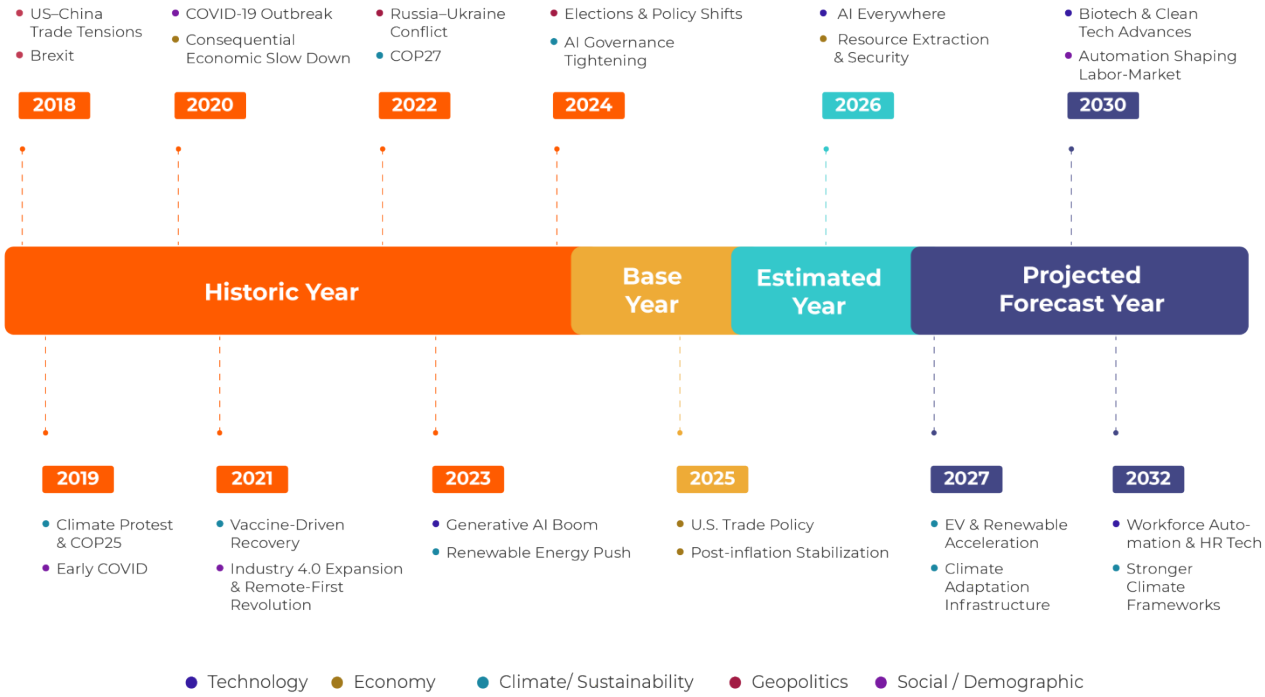
· Taxonomy evidence: The one-hour minimum is an anchor at the modeled intermediate band's lower boundary. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls?SQ_VARIATION_197646=xx.xx))

· Taxonomy evidence: The disclosed availability of offerings lasting up to seven hours supplies another illustrative anchor within the modeled extended band. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls?SQ_VARIATION_197646=xx.xx))

1.4. Years Considered for the Study

The study designates 2024 as the historical year, 2025 as the base year, 2026 as the estimated year, and 2032 as the forecast endpoint. These roles distinguish historical and base-year evidence from estimated and forecast interpretations.

Figure 1. Global Telecom Battery Backup System Market, Years Considered for the Study



1.5. Currency Considered for the Study

The reporting currency is the United States dollar (USD). Monetary market values are expressed on an absolute scale.

1.6. Language Considered for the Study

The report is published in American English.

1.7. Key Stakeholders

- Telecommunications Network Operators: assess qualified backup offerings, supplier switching, and the allocation of network-continuity and service obligations.
- Telecom Infrastructure & Tower Operators: assess purchasing authority, asset responsibilities, and backup delivery commitments in relation to the networks they support.
- Telecom Energy-Service Providers: evaluate managed delivery commitments, supplier dependencies, and the division of equipment ownership and continuity responsibility.

- Equipment Leasing & Rental Providers: evaluate qualification, contractual exposure, service responsibilities, and the suitability of equipment for the intended buyer and application.
- Battery and complete-system suppliers: assess documented offering participation, buyer qualification, business rights, and the capabilities required to support their intended commercial relationships.
- Systems integrators and contractors: assess integration responsibilities, supplier authorization, buyer acceptance, and the boundary between equipment delivery and continuing service.
- Distributors, retailers, and telecom service providers: assess supply rights, customer access, geographic coverage, and responsibility for warranties and after-sales support.
- Business & Institutional Connectivity Owners: compare backup propositions against purchasing authority, continuity requirements, and contractual accountability for their connectivity assets.
- Household Connectivity Purchasers: assess customer-premises offering compatibility, channel access, and the scope of equipment and support commitments.
- Regulators, standards organizations, and end-of-life service organizations: establish the jurisdictional and institutional conditions relevant to lawful commercial participation and lifecycle responsibilities.
- Investors and financing partners: distinguish equipment ownership from contracted service exposure and assess the evidence supporting supplier capability, buyer access, and ongoing obligations.

2. Research Methodology

2.1. Introduction

The study frames the Global Telecom Battery Backup System market through the commercial provision of batteries, assemblies, and complete backup systems for telecommunications continuity. Its approach connects the accepted categories to decisions about purchasing, supplier qualification, distribution, ownership, and service responsibility.

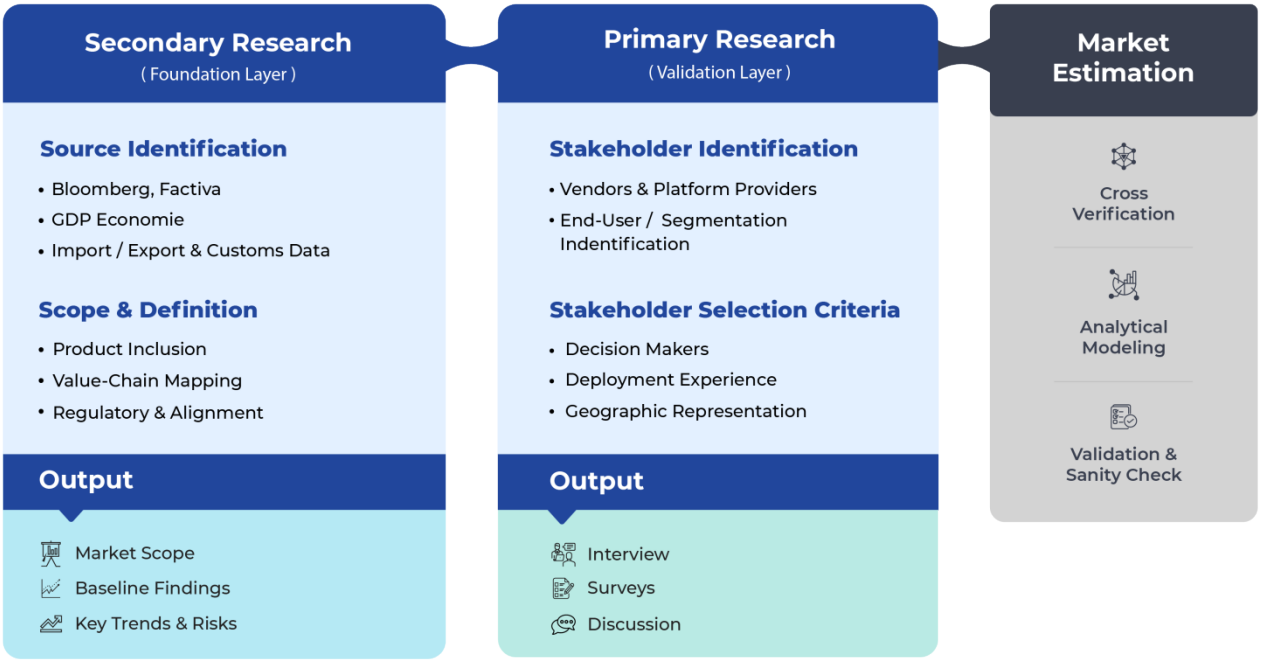
Methodological interpretation distinguishes what a business record establishes from the economic implications drawn from it. The approved qualitative challenge layer informs those explanations, while quantitative conclusions require separate support consistent with the same market boundaries.

2.2. Research Design

The study is organized around the accepted offerings, buyer constituencies, network applications, operating contexts, and commercial relationships. Each business question calls for evidence with matching authority and scope: offering identity, ownership or licensing, legal status, purchasing conditions, and delivery commitments are distinct subjects.

The design separates documented facts from economic interpretation and conditional options. Comparisons must account for differences between battery supply and complete-system supply, between equipment ownership and managed delivery, and between a purchasing party and the connectivity beneficiary. No preferred technology or route to market follows from taxonomy membership alone.

Figure 2. Global Telecom Battery Backup System Market, Research Design



2.2.1. Primary Research

The analyst team conducted primary research as a qualitative challenge layer for market definition, segmentation, demand conditions, adoption barriers, and competitive interpretation. This work tested analytical assumptions and sharpened explanations of market mechanisms without serving as standalone support for numerical estimates.

The qualitative challenge layer is evaluated alongside secondary evidence within the accepted market scope. It informs conditional market explanations and hypotheses for subsequent quantitative analysis. Numerical estimates require their own supporting evidence, and a forecast derived from a qualitative assumption does not independently validate that assumption. Final interpretation must reconcile the qualitative findings with the completed quantitative results.

2.2.2. Secondary Research

Suitable secondary evidence depends on the commercial question. Official company portfolios can establish advertised offering identity and stated service commitments; mandatory filings can establish disclosed operations and corporate relationships; licensing and ownership records can establish business rights. Regulatory records establish legal status within their stated jurisdiction, while public buyer policies and awards can establish purchasing conditions or a particular procurement event.

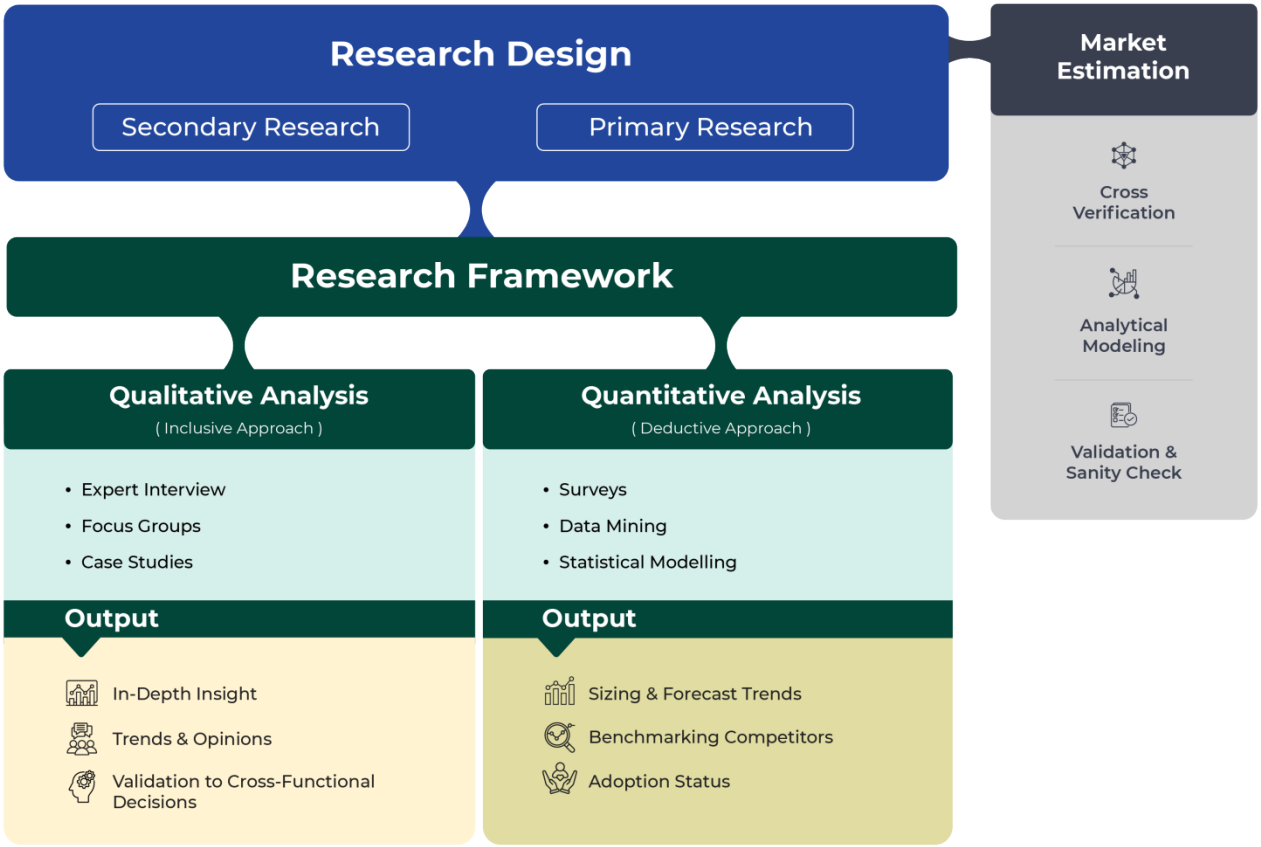
Each record must be interpreted within its effective period, geographic reach, and underlying authority. An announcement is not equivalent to demonstrated availability, an authorization is not evidence of adoption, and a purchasing example does not establish a universal buyer requirement. Syndicated commercial market estimates are not a substitute for attributable original business evidence.

2.3. Research Framework

The framework connects the market definition to the accepted taxonomy, then to identifiable offerings, suppliers, buyers, and contractual relationships. Offering and Battery Technology identify what is being compared; Network Application and Buyer Type identify the purchasing context; the remaining axes distinguish compatibility, operating context, delivery, and access.

Measurement questions follow those commercial boundaries rather than redefine them. Competitive interpretation should then compare documented rights, capabilities, qualification conditions, and service responsibilities. Recommendations remain conditional on the evidence supporting the exact buyer, offering, geography, and relationship concerned.

Figure 3. Global Telecom Battery Backup System Market, Research Framework



2.3.1. Qualitative Analysis

Qualitative analysis examines how purchasing authority, qualification, distribution rights, contractual responsibilities, and service commitments shape access to telecom battery backup business. Comparisons should address the accepted buyer and application categories rather than presume that a proposition suited to a tower operator also suits an institutional connectivity owner or household purchaser.

The approved primary-research challenge layer informs interpretation of these mechanisms and challenges analytical assumptions alongside secondary evidence. Its role is explanatory: it does not independently establish commercial availability, regulatory authorization, or numerical estimates.

2.3.2. Quantitative Analysis

Quantitative interpretation is bounded by the Global geography, the accepted offering hierarchy, the designated study periods, and absolute USD reporting. Supporting business records must be assessed for their relationship to the telecom application, the commercial offering, the jurisdiction, and the relevant period before they can support a comparable market observation.

The segmentation axes describe different attributes of the same activity and should not be treated as independent additive markets. Historical and base-year observations must remain

distinguishable from the estimated-year and forecast interpretations; qualitative hypotheses require independent quantitative support.

2.4. Market Size Estimation

A defensible market-value estimate must concern the accepted telecom battery backup offerings within the Global boundary and use absolute USD reporting. Evidence must connect the business activity to that perimeter rather than equate a diversified battery, power-system, or telecommunications business with the entire studied market.

Battery Units and Assemblies, Complete Backup Systems, and the accepted delivery models require explicit comparability assessment. Their inclusion establishes commercial coverage, not an automatic additive valuation perimeter. Any quantitative conclusion requires its own support and must remain distinguishable from an interpretation of market mechanisms.

2.4.1. Top-Down Approach

A top-down perspective is relevant only where a broader business record provides a defensible connection to the telecom battery backup perimeter. General battery, energy-storage, power-system, or telecommunications activity cannot be treated as an equivalent measure merely because it includes related businesses.

The analytical role is to challenge boundary consistency: whether the broader record distinguishes the accepted offerings, geography, and period sufficiently to inform the study. A broader disclosure may contextualize a supplier or application without supporting a scoped market-value conclusion.

2.4.2. Bottom-Up Approach

A bottom-up perspective requires supplier- or offering-specific business records with a demonstrable relationship to the accepted telecom battery backup scope. An advertised product can establish offering identity, but it does not by itself establish economically comparable activity.

Before comparison or aggregation is defensible, records need compatible offering, geographic, and period boundaries. Battery supply, complete-system supply, and channel participation must be assessed for overlapping commercial relationships rather than presumed to represent separate final activities. Named supplier participation alone cannot establish the completeness of a business universe.

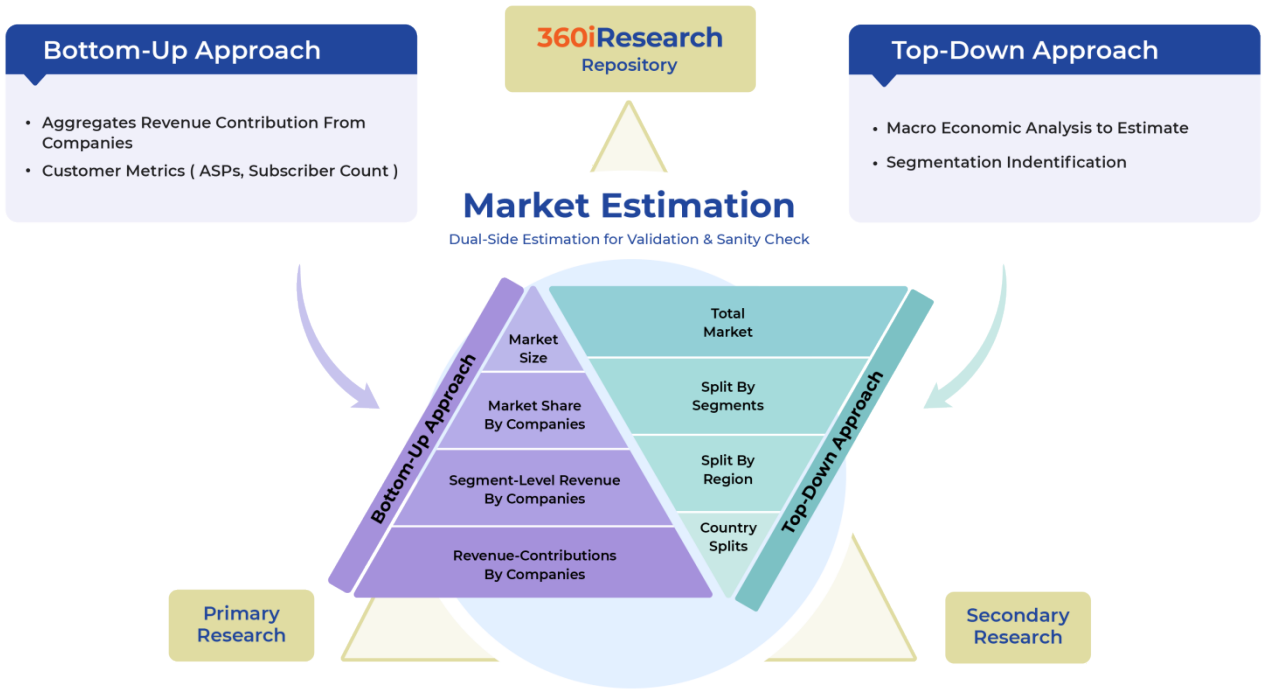
2.5. Data Triangulation

Triangulation concerns whether complementary records establish a consistent offering identity, commercial relationship, jurisdiction, and period. A portfolio, a regulatory record, and a buyer award may corroborate different parts of a proposition without proving the same business fact.

Differences in scope or authority should remain explicit rather than be treated as interchangeable observations. The qualitative challenge layer can identify assumptions

requiring further evidence, but agreement with a qualitative explanation is not independent numerical validation.

Figure 4. Global Telecom Battery Backup System Market, Data Triangulation



2.6. Research Outcomes

The intended outcome is a commercially defensible basis for evaluating supplier participation, buyer requirements, procurement routes, and competitive alternatives within the Global Telecom Battery Backup System market. Decision support should distinguish documented capabilities from announced activity and identify the conditions under which an offering or commercial relationship merits further consideration.

The analysis should clarify what a buyer, supplier, channel partner, or investor must verify before committing: the relevant offering, purchasing authority, qualification requirements, geographic rights, delivery obligations, and exposure to switching or service failure. Opportunity priorities and preferred entry routes require their own supporting commercial evidence.

2.7. Research Assumptions

- Every accepted Battery Technology category remains in scope. Commercial availability, supplier participation, jurisdictional authorization, and buyer qualification must be established separately for the exact offering; category inclusion establishes none of those facts.

- The segmentation axes are independent lenses on the same commercial activity, not separate additive opportunity pools. Cross-axis comparisons require consistent offering and period definitions.
- The contracting buyer, asset owner, network operator, and service provider are not assumed to be the same party. Route-to-market interpretation depends on the documented allocation of purchasing authority and delivery responsibilities.
- Inclusion of Backup with Energy Management and Managed Backup Capacity does not imply that every mixed-use contract belongs exclusively to telecom backup. Comparisons require a documented telecom role and a clear distinction from adjacent activities.
- Offerings sharing a technology, interface, environment, or autonomy category are not assumed to be commercially interchangeable. Substitution conclusions require comparable buyer requirements, qualification status, and contractual commitments.

2.8. Research Limitations

- A business disclosure spanning telecommunications and other applications may establish participation without isolating the studied activity. It cannot justify attributing the entire diversified business to telecom battery backup.
- Complete Backup Systems, Leased or Rented Equipment, and Managed Backup Capacity can represent different bundles of equipment and obligations. Comparisons remain conditional where their contractual boundaries are not demonstrably compatible.
- Product announcements, regulatory authorizations, purchasing awards, and continuing service commitments establish different facts. Evidence for one does not settle the others, limiting conclusions about availability, qualification, or sustained delivery.
- Evidence supporting qualification, distribution rights, or service commitments in one jurisdiction cannot automatically establish access elsewhere. Global commercial choices require support for the jurisdictions involved.
- Backup Autonomy and Installation Environment labels do not establish identical purchasing requirements across offerings. Technology substitution and switching conclusions remain conditional on comparable commercial claims and buyer obligations.

3. Executive Summary

3.1. Introduction

The Global Telecom Battery Backup System market is organized around accountability for connectivity during power disruption, rather than one interchangeable equipment purchase. Battery Units and Assemblies, Complete Backup Systems, and contracted equipment access or managed fulfillment allocate different responsibilities. IHS identifies battery servicing and replacement within required maintenance linked to customer service levels, while its disclosed South African power-service unwind demonstrates why tower ownership does not settle power responsibility. The starting commercial questions are the protected service, actual payer, and obligation being purchased.

Supplier portfolios provide distinct comparison paths. EnerSys' PowerSafe SBS is a named telecom battery offering; Vertiv's NetSure M Series presents configurable infrastructure with battery options. Vertiv also advertises cross-manufacturer upgrades as alternatives to replacing an entire DC plant. Supported replacement can therefore preserve existing infrastructure, while a broader package can consolidate coordination only where its contract accepts those duties. Portfolio breadth alone establishes neither equivalent buyer acceptance nor a local fulfillment commitment.

Sources & Evidence

1. PowerSafe SBS Batteries | EnerSys
   · EnerSys lists PowerSafe SBS for telecom applications, establishing a named battery offering without establishing buyer-specific acceptance or surrounding-plant responsibility. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-sbs/))
2. Vertiv NetSure M Series
   · Vertiv presents NetSure M Series outdoor infrastructure with DC power and battery options, supporting a distinct bundle comparison rather than identical contents in every quotation. ([vertiv.com](https://www.vertiv.com/en-emea/products-catalog/facilities-enclosures-and-racks/outdoor-enclosures/netsure-m-series/))
3. DC Power Services | Vertiv
   · Vertiv advertises DC projects across manufacturers and upgrades as alternatives to replacing an entire plant. ([vertiv.com](https://www.vertiv.com/en-us/products/services/dc-power-services/))
4. IHS Holding Limited First-Quarter 2026 Financial Statements
   · IHS's first-quarter 2026 filing includes generator and battery servicing and replacement within non-discretionary maintenance linked to service-level agreements. It also describes the South African power-service unwind and changed fulfillment responsibility. ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

3.2. CXO Perspective

Network and tower executives should allocate capital against an accepted continuity obligation, comparing supported replacement or upgrade with an explicitly defined system package. Narrow procurement preserves existing assets and component choice but retains coordination duties; broader prime responsibility is preferable only when the contract assigns those duties and continuing support. Component entrants should identify the replacement

payer, equipment-approval authority, warranty interfaces, and local fulfillment before choosing direct supply or an integration role. Verizon's continuing supplier-code requirements demonstrate that contractor involvement does not bypass procurement compliance.

Operators considering managed fulfillment should distinguish ownership and maintenance transfer from public resilience responsibility: UK communications providers retain that responsibility despite outsourcing. Counterparty certainty is another commitment gate. Polarium Energy Solutions AB appears in its contact record, while governance wording uses Polarium Energy Systems AB. This unresolved inconsistency prevents confident attribution of equipment and digital-service liabilities; offering evaluation can proceed, but binding commitments require authoritative counterparty confirmation.

Sources & Evidence

1. Vertiv NetSure M Series
   · The configurable infrastructure proposition supports requesting an explicit equipment boundary before comparison with narrower replacement procurement. ([vertiv.com](https://www.vertiv.com/en-emea/products-catalog/facilities-enclosures-and-racks/outdoor-enclosures/netsure-m-series/))
2. DC Power Services | Vertiv
   · The offering supports comparison of narrower upgrades with complete replacement; customer-specific continuing support remains a condition of the capital-allocation inference. ([vertiv.com](https://www.vertiv.com/en-us/products/services/dc-power-services/))
3. Network and Service Resilience Guidance for Communications Providers, June 16, 2026
   · Ofcom's June xx.xx 2026 guidance retains UK communications-provider resilience responsibility for network portions operated by third parties, including managed-service arrangements. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/network-and-service-resilience-guidance-for-communications-providerspdf?v=xx.xx))
4. Verizon Supplier Code of Conduct
   · Verizon's May 2025 supplier code incorporates continuing compliance into procurement decisions, permits disqualification or termination, and requires oversight of subcontractor compliance. ([verizon.com](https://www.verizon.com/about/our-company/how-we-lead/policies/supplier-code-of-conduct))
5. IHS Holding Limited First-Quarter 2026 Financial Statements
   · The disclosed change in South African power responsibility supports contract-specific verification of the purchasing and fulfillment counterparty rather than inference from tower ownership. ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))
6. Contact | Polarium
   · Polarium's contact page identifies Polarium Energy Solutions AB; it does not reconcile the different governance wording. ([polarium.com](https://polarium.com/contact/))
7. Investor Relations at Polarium
   · Polarium's corporate-governance text identifies Polarium Energy Systems AB, establishing the naming inconsistency with its contact record without resolving the legal seller. ([polarium.com](https://polarium.com/investor-relations/))

3.3. New Revenue Opportunities

The Opportunity Mapping assessment identifies conditional routes in supported replacement for network and tower customers; payer-specific, provider-compatible premises fulfillment; temporary continuity during maintenance and transitions; managed capacity for operators

seeking agreed ownership and upkeep transfer; and selective energy-flexibility participation by eligible asset owners. Documented maintenance obligations provide a concrete replacement trigger when the payer and accepted scope are known. The remaining routes require an appropriate funding, duration, service, or participation relationship rather than a generic backup proposition. Rental demand does not automatically establish an equipment-sale commitment, and energy flexibility is not a default justification for continuity investment. Opportunity Mapping provides the detailed assessment.

Sources & Evidence

1. DC Power Services | Vertiv
   · Cross-manufacturer upgrade services provide an evidenced supported-replacement comparison route, not automatic account access. ([vertiv.com](https://www.vertiv.com/en-us/products/services/dc-power-services/))
2. Your landline is going digital: what you need to know
   · Ofcom requires free backup solutions for qualifying landline-dependent customers without a working mobile phone or reliable mobile signal, establishing a bounded provider-funded premises route. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
3. How to participate in the reserve markets | Fingrid
   · Fingrid documents applicable resource-owner permission, reserve-product agreements, and settlement arrangements as separate Finnish participation prerequisites. ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))
4. IHS Holding Limited First-Quarter 2026 Financial Statements
   · Required battery servicing and replacement provide a documented maintenance-related purchasing trigger; the filing does not establish each site's accepted procurement scope. ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))
5. DNA Tower becomes world's first tower company to offer battery capacity in electricity reserve markets with Elisa DES
   · Elisa Industriq's June xx.xx 2025 announcement reports DNA Tower Finland's reserve-market implementation, providing a jurisdiction-specific commercial precedent for selective flexibility assessment. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/press-releases/dna-tower-becomes-worlds-first-tower-company-to-offer-battery-capacity-in-electricity-reserve-markets-with-elisa-des))
6. Telecommunications | Aggreko US
   · Aggreko advertises telecom rental support including battery storage and support during upgrades and maintenance; the offering does not identify every underlying equipment purchaser. ([aggreko.com](https://www.aggreko.com/en-us/sectors/telecommunications))
7. Battery Backup | Meriwether Lewis Electric Cooperative
   · MLConnect recommends Precision Power for its equipment, permits cooperative or direct purchasing, retains battery-care duties with customers, and excludes backup from its service plan. This supports a provider-specific customer-purchase route. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
8. Solar & Battery as a Service - IPT Website
   · IPT advertises installation, ownership, and maintenance of solar-and-battery systems for telecom and other users, supporting a managed relationship subject to a separately defined continuity obligation. ([iptpowertech.com](https://iptpowertech.com/solutions/solar-battery-as-a-service))

3.4. Next-Generation Business Models

The assessed business models separate equipment acquisition, continuing services, and additional asset monetization. Aggreko advertises temporary telecom equipment access, while IPT PowerTech Group advertises provider-owned and maintained solar-and-battery

services under consumption-based or fixed-payment agreements. Polarium Energy Solutions AB markets connected batteries and additional care services, creating distinguishable hardware, digital-access, and support commitments. These are evidenced propositions, not proof that every customer receives the same bundle.

For Backup with Energy Management, DNA Tower Finland's reported reserve-market implementation provides a specific commercial precedent, and Gridle advertises aggregation and trading. Service-assisted participation can contribute market coordination, but Fingrid's Finnish permissions, product agreements, and applicable settlement arrangements remain separate prerequisites. Direct participation and Reserve-Only Backup are alternatives. Continuity protection, warranty acceptance, data access, remedies, and exit rights determine whether added services justify reduced control and continuing counterparty dependence; the Finnish example does not establish access or outcomes elsewhere.

Sources & Evidence

1. Gridle Telco Solutions
   · Gridle advertises aggregation and electricity-market trading around telecom backup batteries, establishing a service-assisted comparison rather than guaranteed customer benefits. ([elisaindustriq.com](https://www.elisaindustriq.com/gridle/telecom-energy-management-solutions))
2. How to participate in the reserve markets | Fingrid
   · Participants may enter independently or with service-provider assistance, but that choice does not waive the documented permissions, agreements, or applicable settlement responsibilities. ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))
3. DNA Tower becomes world's first tower company to offer battery capacity in electricity reserve markets with Elisa DES
   · The announcement reports connected base-station batteries serving Finnish reserve markets alongside an outage-continuity role; it does not establish transferable access or another customer's outcomes. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/press-releases/dna-tower-becomes-worlds-first-tower-company-to-offer-battery-capacity-in-electricity-reserve-markets-with-elisa-des))
4. Telecommunications | Aggreko US
   · The telecom rental proposition establishes temporary equipment access as a commercial alternative to permanent acquisition, without settling an individual agreement's fulfillment or return terms. ([aggreko.com](https://www.aggreko.com/en-us/sectors/telecommunications))
5. Connected Batteries - Polarium
   · Polarium markets Connected Batteries with cellular connectivity, cloud integration, remote monitoring, and support functions; these descriptions do not settle a customer's enforceable digital-service terms. ([polarium.com](https://polarium.com/connected-batteries/))
6. Polarium Care - Our Services
   · Polarium separately advertises operations, maintenance, lifecycle management, and extended-warranty services, supporting separation of hardware ownership from additional continuing commitments. ([polarium.com](https://polarium.com/services/))
7. Solar & Battery as a Service - IPT Website
   · IPT's advertised provider-owned service includes consumption-based or fixed-payment agreements, distinguishing its ownership-and-upkeep proposition from equipment rental or supply. ([iptpowertech.com](https://iptpowertech.com/solutions/solar-battery-as-a-service))

3.5. Industry Roadmap

In 2026-2027, EU-facing sellers should resolve category applicability, finished-battery accountability, and necessary information rights before affected delivery commitments. Relevant battery passports become mandatory on February xx.xx 2027; relevant due-diligence obligations apply from August xx.xx 2027 following a separate postponement. That postponement does not provide passport relief. The commercial milestone is incorporation of applicable responsibilities into an executable supply agreement, not passage of either date alone.

For 2028-2029, managed-service expansion should follow verified customer fulfillment and enforceable renewal and exit terms. IFC's March xx.xx 2026 financing for IPT PowerTech in Ethiopia, Liberia, and Sierra Leone establishes expansion support, not completed delivery everywhere. Supplier-independence reviews should follow ownership and customer-contract changes: Stryten Energy LLC's completed October xx.xx 2026 acquisition retained the C&D Technologies and Trojan Battery brands, making parent, contracting, and support relationships more informative than brand counts.

For 2030-2032, preserve commercial options across renewals through continuing energy-market permissions, protected telecom duty, accountable service access, and orderly exit. Eligible separate lifecycle arrangements can also preserve equipment choice; EnerSys advertises Americas lead-acid takeback regardless of original manufacturer. Continue mixed use only while its rights and customer-specific benefits justify the additional obligations; otherwise retain dedicated backup and supported equipment purchasing.

Sources & Evidence

1. Gridle Telco Solutions
   · The marketed optimization and trading role establishes a continuing commercial relationship relevant to service renewal and mixed-use optionality; promotional outcomes are not adopted. ([elisaindustriq.com](https://www.elisaindustriq.com/gridle/telecom-energy-management-solutions))
2. How to participate in the reserve markets | Fingrid
   · Finnish reserve participation rests on commercial permissions and agreements, supporting the conditional need to preserve eligible participation relationships across renewals. ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))
3. Recycling | EnerSys
   · EnerSys identifies Americas availability for spent lead-acid collection regardless of original manufacturer, with recycling documentation. Territorial eligibility and individual service commitments remain separate conditions. ([enersys.com](https://www.enersys.com/en-gb/products/services/after-market-services/recycling/))
4. Digital Product Passport for Batteries | European Commission
   · The Commission identifies February xx.xx 2027 as the mandatory passport date for relevant battery categories and assigns creation and maintenance responsibility to the operator placing the finished battery on the market, rather than individual component or module suppliers. ([single-market-economy.ec.europa.eu](https://single-market-economy.ec.europa.eu/single-market/digital-product-passport/batteries_en))
5. Simplification: Council adopts law to stop the clock on due diligence rules for batteries
   · The Council's July xx.xx 2025 announcement records adoption of the postponement of relevant battery due-diligence obligations until August xx.xx 2027. This is a separate obligation from the passport milestone. ([consilium.europa.eu](https://www.consilium.europa.eu/en/press/press-releases/2025/xx.xx/xx.xx/simplification-council-adopts-law-to-stop-the-clock-on-due-diligence-rules-for-batteries/))

6. Solar & Battery as a Service - IPT Website

   · The provider-owned and maintained proposition supplies the commercial premise for assessing continuing service commitments; the page does not establish customer-specific renewal, remedy, or exit terms. ([iptpowertech.com](https://iptpowertech.com/solutions/solar-battery-as-a-service))

7. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone

   · IFC's March xx.xx 2026 announcement establishes financing supporting IPT telecom-energy modernization, operation, and maintenance in Ethiopia, Liberia, and Sierra Leone; prospective benefits do not establish completed fulfillment at every deployment. ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))

8. Stryten Energy Completes Acquisition of C&D Trojan, Creating a Leading Battery Manufacturing Platform for Transportation, Industrial, Critical Infrastructure, and Military Applications

   · Stryten Energy LLC announced completion of its C&D Technologies and Trojan Battery Company acquisition on October xx.xx 2026 while retaining their product brands. The record does not establish immediate integration of customer contracts or warranty support. ([stryten.com](https://www.stryten.com/stryten-energy-completes-acquisition-of-cd-trojan/))

4. Market Overview

4.1. Introduction

[redacted] Owned Equipment, Leased or Rented Equipment, and Managed Backup Capacity represent different purchasing relationships. Battery Technology, Power Interface, Installation Environment, Powering Architecture, Grid Availability, Backup Duty, and Backup Autonomy remain independent commercial classification lenses, not separate additive markets.

The market contains established battery and infrastructure-service propositions alongside commercialized energy-flexibility services. [redacted] Participation in any technology category must be distinguished from documented offering availability, local support, and buyer acceptance.

Figure 5. Global Telecom Battery Backup System Market Size, 2017-2040 (USD Million, Growth %)

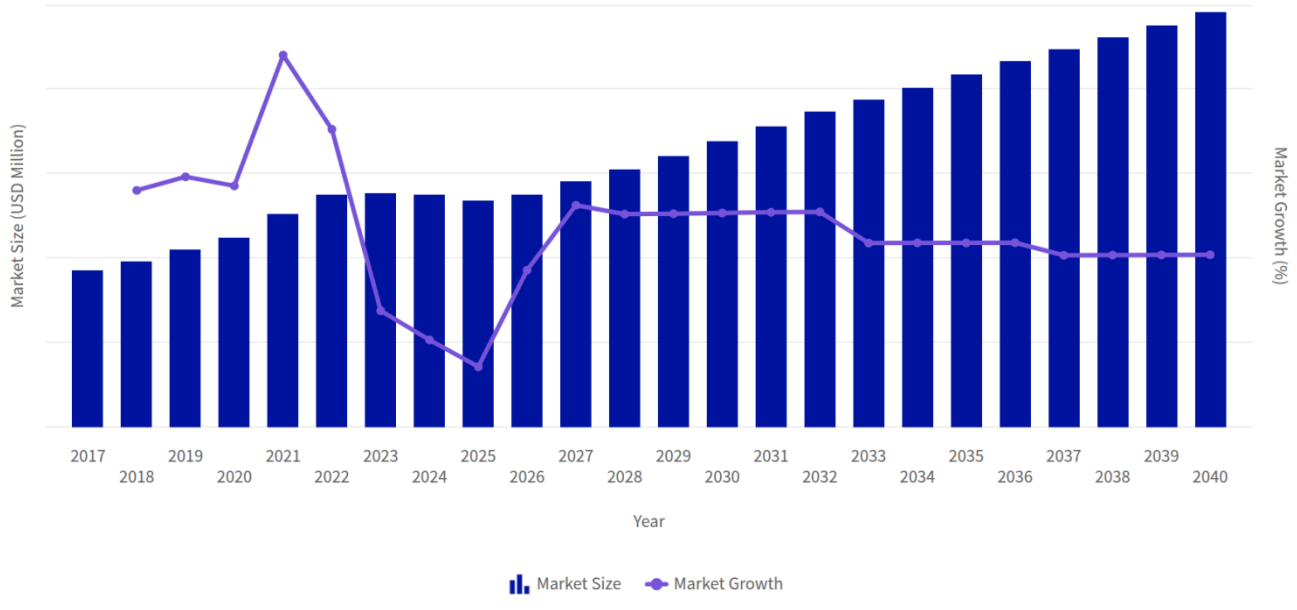


Table 2. Global Telecom Battery Backup System Market Size, 2017-2040 (USD Million, Growth %)

Metric	2017	2018	2019	2020	2021	2022
Market Size (USD Million)	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Market Growth (%)	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 2 - continued

Metric	2023	2024	2025	2026	2027	2028
Market Size (USD Million)	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Market Growth (%)	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 2 - continued

Metric	2029	2030	2031	2032	2033	2034
Market Size (USD Million)	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Market Growth (%)	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 2 - continued

Metric	2035	2036	2037	2038	2039	2040
Market Size (USD Million)	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Market Growth (%)	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Sources & Evidence

1. PowerSafe SBS Batteries | EnerSys
   - EnerSys lists PowerSafe SBS batteries for telecom and other infrastructure applications.
2. Vertiv NetSure M Series
   - Vertiv describes NetSure M Series enclosures with power supply and battery-backup options for telecom applications.
3. Gridle Telco Solutions
   - Elisa Industriq describes Gridle as a virtual-power-plant proposition using telecom RAN backup batteries.
4. China Tower - 2025 Annual Results, March 18, 2026
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))
5. Broadband Commission - The State of Broadband: Our Digital World, 2025
   - Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))
   - Evidence informing the 2040 market-value input; displayed series and growth include calculations: The subscription anchor establishes the starting customer perimeter, not the forecast customer pool or market value. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))
6. Battery Backup - Meriwether Lewis Electric Cooperative
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
7. EnerSys 2026 Proxy Statement and Annual Report
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))

8. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
9. Amara Raja Energy & Mobility - Q2/H1 FY2026 Earnings Presentation, November 6, 2025
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand. ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))
10. IHS Holding Limited - First-Quarter 2026 Financial Statements
    - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement. ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))
11. Ofcom - Mobile RAN Power Resilience: Technical Report and CFI Update, February 2025
    - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))
    - Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))
12. Ofcom - Your Landline Is Going Digital: What You Need to Know
    - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
    - Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
13. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone
    - Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue. ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
    - Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions. ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))

14. Fingrid - How to Participate in the Reserve Markets
· Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue.
([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))
· Evidence informing the 2040 market-value input; displayed series and growth include calculations: The access conditions are a forecast counterforce; the source does not measure worldwide adoption or realized telecom-battery returns.
([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))

4.2. Key Growth Contribution

Existing service-level obligations can sustain telecom battery purchasing independently of discretionary network expansion. IHS identifies battery replacement and servicing within non-discretionary site maintenance, creating a commercial role for accepted offerings such as EnerSys' PowerSafe SBS. Serving this need requires the correct maintenance payer, an accepted replacement boundary, and accountable local support. The constraint is that a required replacement does not automatically justify Complete Backup Systems or a change in Battery Technology; retaining supported infrastructure can preserve the buyer's purchasing flexibility.

Figure 6. Global Telecom Battery Backup System Market, Key Growth Contribution, by Region, 2025-2032 (USD Million)

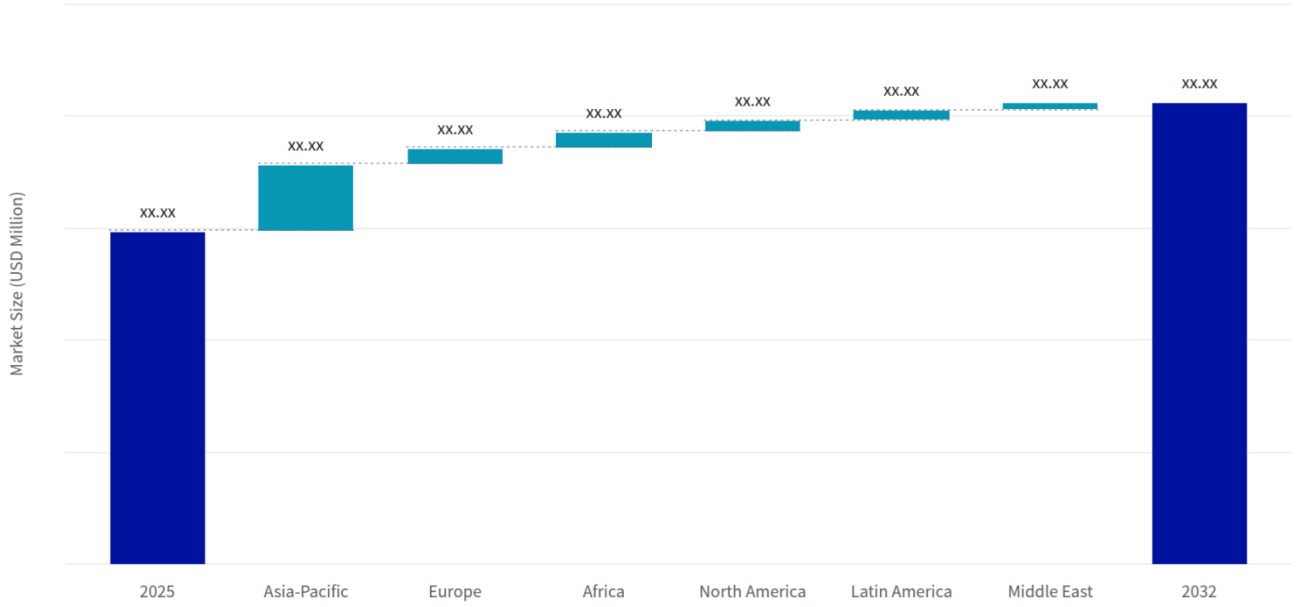


Figure 7. Global Telecom Battery Backup System Market, Key Growth Contribution, by Country, 2025-2032 (CAGR %)

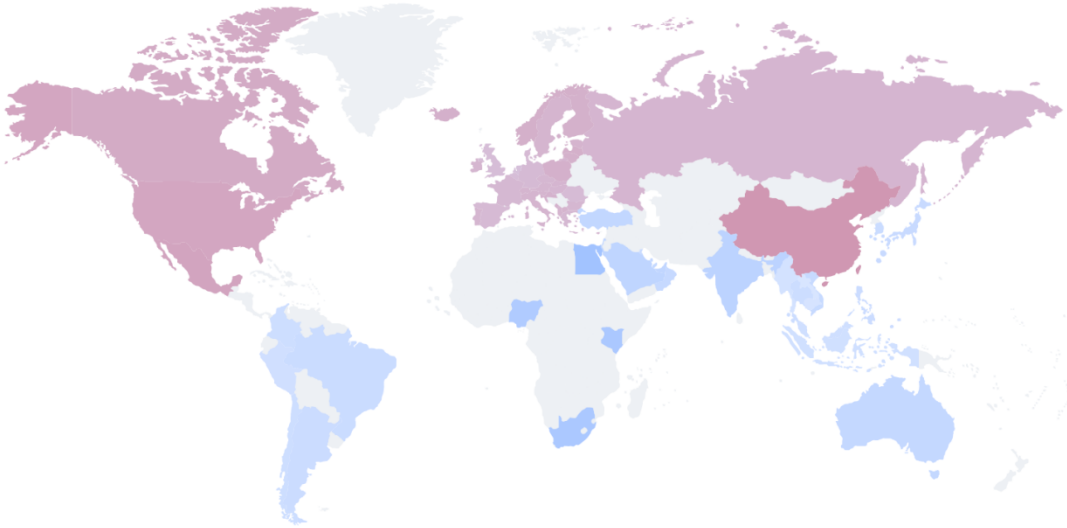


Table 3. Global Telecom Battery Backup System Market, Key Growth Contribution, 2025-2032

Scope	Leading Category	Added Market Size (USD Million)	Growth Share (%)	CAGR (%)
Backup Autonomy	xx.xx	xx.xx	xx.xx	xx.xx
Backup Duty	xx.xx	xx.xx	xx.xx	xx.xx
Battery Technology	xx.xx	xx.xx	xx.xx	xx.xx
Buyer Type	xx.xx	xx.xx	xx.xx	xx.xx
Commercial Delivery Model	xx.xx	xx.xx	xx.xx	xx.xx
Country	xx.xx	xx.xx	xx.xx	xx.xx
Grid Availability	xx.xx	xx.xx	xx.xx	xx.xx
Installation Environment	xx.xx	xx.xx	xx.xx	xx.xx
Network Application	xx.xx	xx.xx	xx.xx	xx.xx
Offering	xx.xx	xx.xx	xx.xx	xx.xx
Power Interface	xx.xx	xx.xx	xx.xx	xx.xx
Powering Architecture	xx.xx	xx.xx	xx.xx	xx.xx
Region	xx.xx	xx.xx	xx.xx	xx.xx
Sales Channel	xx.xx	xx.xx	xx.xx	xx.xx

Sources & Evidence

1. PowerSafe SBS Batteries | EnerSys
   - PowerSafe SBS is a named telecom battery offering. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-sbs/))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Named telecom batteries support the battery-unit offering boundary; allocation weights are assumed.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Named telecom batteries support the battery-unit offering boundary; allocation weights are assumed.
2. IHS Holding Limited First-Quarter 2026 Financial Statements
   - IHS links battery replacement and servicing to non-discretionary maintenance and customer service levels. ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))
3. Broadband Commission - The State of Broadband: Our Digital World, 2025
   - Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))

4. Ofcom - Mobile RAN Power Resilience: Technical Report and CFI Update, February 2025
   - Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Jurisdiction-specific resilience economics qualify a uniform Europe-wide demand uplift.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The evaluated xx.xx-minute alternative supplies a subhour commercial-planning anchor, not observed shipments. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The evaluated xx.xx-minute alternative supplies a subhour commercial-planning anchor, not observed shipments. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: One-hour and two-hour alternatives anchor the analytical Intermediate band. Aggregate scenarios include multiple years of operating costs and are not annual battery revenue. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: One-hour and two-hour alternatives anchor the analytical Intermediate band. Aggregate scenarios include multiple years of operating costs and are not annual battery revenue. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The four-hour alternative anchors the Extended band's lower boundary without establishing a Global minimum or purchasing allocation. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The four-hour alternative anchors the Extended band's lower boundary without establishing a Global minimum or purchasing allocation. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

5. Ofcom - Your Landline Is Going Digital: What You Need to Know
   - Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Restricted provider-funded eligibility constrains operator-funded premises attribution and forecast adoption.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Restricted provider-funded eligibility constrains operator-funded premises attribution and forecast adoption.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Eligibility is not universal household funding; purchaser proportions remain assumptions.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Eligibility is not universal household funding; purchaser proportions remain assumptions.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Eligibility-limited provider backup and the one-hour minimum for qualifying customers constrain premises demand and anchor the Intermediate band's lower boundary. They do not establish universal adoption. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Eligibility-limited provider backup and the one-hour minimum for qualifying customers constrain premises demand and anchor the Intermediate band's lower boundary. They do not establish universal adoption. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
6. Fingrid - How to Participate in the Reserve Markets
   - Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue. ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Applicable owner permission and market agreements are commercial access gates. They constrain forecast mixed-duty adoption without measuring its Global percentage. ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))
7. China Tower announces 2025 annual results - March 18, 2026
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.

8. China Tower - 2025 Annual Results Presentation
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China's spending cycle is retained as a counterforce in the regional forecast.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The xx.xx.149m-site inventory constrains wireless activity; forecast purchasing remains modeled.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The xx.xx.149m-site inventory constrains wireless activity; forecast purchasing remains modeled.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Replacement/improvement CAPEX fell from RMB6837m to RMB5474m, qualifying automatic replacement-led growth.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Replacement/improvement CAPEX fell from RMB6837m to RMB5474m, qualifying automatic replacement-led growth.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Disclosed tower operations establish a material infrastructure purchasing setting, not a global buyer share.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Disclosed tower operations establish a material infrastructure purchasing setting, not a global buyer share.
9. Government of India, Department of Telecommunications - Telecom Statistics India 2025, international comparison tables
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Wireless and fixed-access customer pools are distinguished in the country model.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Wireless and fixed-access customer pools are distinguished in the country model.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.

10. American Tower Corporation - Annual Report on Form 10-K for 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
11. Cellnex - Integrated Annual Report 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.

12. IHS Holding Limited - Annual Report on Form 20-F for 2024
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
13. Australian Government - Mobile Network Hardening Program
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The limited Australian program qualifies extrapolation of resilience funding across Asia-Pacific.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Completed battery enhancements and broader resilience projects provide a delivered regional demand signal, not a global forecast rate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Completed battery enhancements and broader resilience projects provide a delivered regional demand signal, not a global forecast rate.
14. CPUC Requires Wireless Companies to Better Serve Customers in Emergencies - July 16, 2020
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
15. CRTC - Request for Information on Telecommunications Network Resiliency, May 12, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The information request seeks evidence on possible backup requirements and customer equipment costs; it is not an enacted national procurement program.
16. FCC - Internet Access Services: Status as of December 31, 2024, official state-government-hosted copy
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.

17. OECD - High-capacity broadband networks gain ground across OECD, October 13, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Observed mature-market connectivity growth and differing fibre/5G adoption constrain replacement and expansion assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Latin American fibre migration supports a conditional fixed-access expansion premise, not automatic battery attachment.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: High mature-market fibre adoption is retained as a saturation counterforce to the purchasing forecast.
18. Shuangdeng Group - Annual Results Announcement for the Year Ended December 31, 2025
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom-specific sales weakness is a purchasing-cycle counterforce, not a measure of all Asian backup-system demand.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom application revenue provides counterevidence to extrapolating broad energy-storage growth into China's backup forecast.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Audited 2025 telecom revenue of RMB1,xx.xx declined xx.xx%; telecom purchasing weakness is retained as counterevidence to automatic substitution-led aggregate growth. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Audited 2025 telecom revenue of RMB1,xx.xx declined xx.xx%; telecom purchasing weakness is retained as counterevidence to automatic substitution-led aggregate growth. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Telecom-specific results are separated from adjacent data-center and power-storage growth when assessing lithium substitution; the filing does not disclose the modeled Global split. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom-specific results are separated from adjacent data-center and power-storage growth when assessing lithium substitution; the filing does not disclose the modeled Global split. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
19. Vertiv NetSure M Series
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Configured enclosure, power and battery options support broader system classification, not universal bundle inclusion.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Configured enclosure, power and battery options support broader system classification, not universal bundle inclusion.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A marketed outdoor enclosure supports a protection option; global adoption and configuration proportions remain modeled.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A marketed outdoor enclosure supports a protection option; global adoption and configuration proportions remain modeled.

20. Battery Backup - Meriwether Lewis Electric Cooperative
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Separately available replacement batteries support a battery-only replacement route.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Separately available replacement batteries support a battery-only replacement route.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The USD100-plus-tax device is a retail comparator, not an observed 2025 first-sale realization.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The USD100-plus-tax device is a retail comparator, not an observed 2025 first-sale realization.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Customer purchase and replacement responsibilities support household-funded procurement.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Customer purchase and replacement responsibilities support household-funded procurement.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Purchased equipment does not automatically include continuing service-plan coverage.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Purchased equipment does not automatically include continuing service-plan coverage.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Local provider sales establish this route alongside manufacturer-direct purchasing.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Local provider sales establish this route alongside manufacturer-direct purchasing.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The provider advertises approximately five hours for combined voice and internet, supporting service-specific Extended classification, not an observed 2025 purchase mix. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The provider advertises approximately five hours for combined voice and internet, supporting service-specific Extended classification, not an observed 2025 purchase mix. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The same proposition advertises xx.xx-hour voice-only protection, supporting Day-Scale mapping without equating duration with a universally larger purchase basket. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The same proposition advertises xx.xx-hour voice-only protection, supporting Day-Scale mapping without equating duration with a universally larger purchase basket. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
21. EnerSys 2026 Proxy Statement and Annual Report
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Direct customer supply is disclosed within a diversified international business; telecom channel proportions are not disclosed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Direct customer supply is disclosed within a diversified international business; telecom channel proportions are not disclosed.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Distributor supply is disclosed, supporting route occurrence rather than its modeled sales weight.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Distributor supply is disclosed, supporting route occurrence rather than its modeled sales weight.

22. Ofcom - Network and Service Resilience Guidance for Communications Providers, June 16, 2026
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Core is a distinct, comparatively concentrated function with explicit backup expectations; global spending remains estimated.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Core is a distinct, comparatively concentrated function with explicit backup expectations; global spending remains estimated.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The stated xx.xx-xx.xx-fold site-scale distinction motivates lower-value, more numerous transport purchase equivalents.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The stated xx.xx-xx.xx-fold site-scale distinction motivates lower-value, more numerous transport purchase equivalents.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Peering and non-Internet interconnection are distinct functions; attributable backup purchase values are not disclosed.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Peering and non-Internet interconnection are distinct functions; attributable backup purchase values are not disclosed.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: June 2026 guidance identifies approximately four hours as good practice for active fixed-access cabinets. This supports a conditional Extended purchasing shift, not completed orders or a Global mandate. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/network-and-service-resilience-guidance-for-communications-providerspdf?v=xx.xx))

23. Technology and Tools | First Responder Network Authority
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Radio access, transport backhaul and core are separate network functions, supporting functional attribution without duplicate facility counting.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Radio access, transport backhaul and core are separate network functions, supporting functional attribution without duplicate facility counting.

24. BT - Digital Voice for Business Service Schedule, May 2026
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Business customers bear backup-power expense, supporting a distinct institutional/business payer route rather than consumer eligibility extrapolation.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Business customers bear backup-power expense, supporting a distinct institutional/business payer route rather than consumer eligibility extrapolation.

25. Los Angeles Metro - Board Report 2024-1128, UPS Battery Replacement
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Completed and additional UPS battery replacements support continuing underground demand; mixed-load project budgets are not telecom-only revenue.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Completed and additional UPS battery replacements support continuing underground demand; mixed-load project budgets are not telecom-only revenue.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The transit authority's purchasing program supports an institutional own-use role, not its global spending proportion.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The transit authority's purchasing program supports an institutional own-use role, not its global spending proportion.

26. ETSI EN 300 019-1-3 V3.1.1 - Stationary Use at Weatherprotected Locations, May 2026
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Weather-protected categories distinguish enclosure from environmental control; the standard does not measure market mix.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Weather-protected categories distinguish enclosure from environmental control; the standard does not measure market mix.

27. ETSI EN 300 019-1-4 V3.1.1 - Stationary Use at Non-Weatherprotected Locations, May 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Non-weather-protected locations form a distinct classification regime, not a measured global spending pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Non-weather-protected locations form a distinct classification regime, not a measured global spending pool.
28. DC Power Plant / Rectifiers - UPS Rental
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Battery and complete DC-plant rentals establish delivery-category occurrence; global fees and utilization are not disclosed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Battery and complete DC-plant rentals establish delivery-category occurrence; global fees and utilization are not disclosed.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Commercial rental availability is a role premise only; modeled lessor sub-hire procurement remains unverified.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Commercial rental availability is a role premise only; modeled lessor sub-hire procurement remains unverified.
29. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone, March 23, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: USD45m financing and xx.xx planned site modernizations support an expansion signal, not observed backup-only service revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: USD45m financing and xx.xx planned site modernizations support an expansion signal, not observed backup-only service revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Energy-service activity supports the role; the modeled provider-as-buyer subcontract share is not established.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Energy-service activity supports the role; the modeled provider-as-buyer subcontract share is not established.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: More than xx.xx% weak/off-grid project exposure constrains service-cohort concentration, not the global grid mix.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: More than xx.xx% weak/off-grid project exposure constrains service-cohort concentration, not the global grid mix.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The project confirms disconnected-site commercial demand; its weak/off-grid combined statistic does not separate those categories.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The project confirms disconnected-site commercial demand; its weak/off-grid combined statistic does not separate those categories.

30. Helios Towers - Full Year Results 2025, March 12, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Grid-integration investment supplies a connection-improvement counterforce used conditionally in the forecast.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Grid-integration investment supplies a connection-improvement counterforce used conditionally in the forecast.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Reported xx.xx-hour average daily grid availability supports weak-grid commercial exposure, without a global classification share.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Reported xx.xx-hour average daily grid availability supports weak-grid commercial exposure, without a global classification share.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Grid integration and alternative-power investment qualify assumptions of permanently unchanged disconnected-site exposure.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Grid integration and alternative-power investment qualify assumptions of permanently unchanged disconnected-site exposure.
31. Telecommunications | Aggreko US
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Telecom battery-storage rental for temporary continuity supports delivery occurrence, not the estimated global fee scale.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom battery-storage rental for temporary continuity supports delivery occurrence, not the estimated global fee scale.
32. EnerSys PowerSafe SBS Front Terminal Batteries | Alpine Power Systems
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A named battery distributor supports the intermediary route; its listing is not a global channel-sales observation.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A named battery distributor supports the intermediary route; its listing is not a global channel-sales observation.
33. DC Power Services | Vertiv
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Cross-manufacturer projects and narrower upgrades support integration-prime and supported-replacement routes; numerical route proportions remain assumed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Cross-manufacturer projects and narrower upgrades support integration-prime and supported-replacement routes; numerical route proportions remain assumed.

34. Shuangdeng Group Co., Ltd. - Global Offering Prospectus, August 18, 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The company's own five-month 2025 lead-acid realization of RMB520.xx.xx/kWh constrains the relative-price bridge; syndicated industry claims are excluded. Forecast convergence remains assumed. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The company's own five-month 2025 lead-acid realization of RMB520.xx.xx/kWh constrains the relative-price bridge; syndicated industry claims are excluded. Forecast convergence remains assumed. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Own lithium-ion realization of RMB595.xx.xx/kWh is an input to the Lithium-Based value model, not a Global share or a Lithium-Metal sales observation. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Own lithium-ion realization of RMB595.xx.xx/kWh is an input to the Lithium-Based value model, not a Global share or a Lithium-Metal sales observation. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
35. Amara Raja Crosses 1 GWh Lithium Storage Deployment Powering India's Telecom Networks
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The April xx.xx 2026 disclosure reports approximately xx.xx GWh across xx.xx cumulative telecom lithium sites over four years. This is a commercial adoption scale check, not annual Global revenue or a supplier-share input. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The April xx.xx 2026 disclosure reports approximately xx.xx GWh across xx.xx cumulative telecom lithium sites over four years. This is a commercial adoption scale check, not annual Global revenue or a supplier-share input. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
36. HORIEN Salt Battery Solutions and Inlyte Energy Announce a Strategic Partnership
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: HORIEN's March xx.xx 2025 statement identifies sodium-metal-chloride telecom backup. Its separate partnership announcement is not counted as delivered telecom sales. ([horien.com](https://horien.com/wp-content/uploads/2025/xx.xx/Press-Release_HORIEN-Inlyte-International-Version.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: HORIEN's March xx.xx 2025 statement identifies sodium-metal-chloride telecom backup. Its separate partnership announcement is not counted as delivered telecom sales. ([horien.com](https://horien.com/wp-content/uploads/2025/xx.xx/Press-Release_HORIEN-Inlyte-International-Version.pdf))
37. Energy Backup - Phinergy
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Phinergy markets Aluminum-Air continuity offerings to telecom operators and tower companies. The source supports category and buyer mapping, not the modeled installed attachment or replacement numerator. ([phinergy.com](https://phinergy.com/solutions/energy-backup/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Phinergy markets Aluminum-Air continuity offerings to telecom operators and tower companies. The source supports category and buyer mapping, not the modeled installed attachment or replacement numerator. ([phinergy.com](https://phinergy.com/solutions/energy-backup/))

38. Australian Flow Batteries - RFB40X Series

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: RFB40X literature identifies telecom among stationary commercial applications. It supports the qualifying project boundary, not delivered projects, revenue or assumed attachment. ([afb.energy](https://www.afb.energy/wp-content/uploads/2025/xx.xx/Australian-Flow-Batteries-RFB40X-Series-2024.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: RFB40X literature identifies telecom among stationary commercial applications. It supports the qualifying project boundary, not delivered projects, revenue or assumed attachment. ([afb.energy](https://www.afb.energy/wp-content/uploads/2025/xx.xx/Australian-Flow-Batteries-RFB40X-Series-2024.pdf))

39. PowerReserve - Verizon Residential Accessories

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Verizon advertises an alkaline-cell voice-backup device at USD39.xx.xx excluding batteries. This supports a qualifying primary-zinc premises route and price comparator, not assumed Global attachment or first-sale realization. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Verizon advertises an alkaline-cell voice-backup device at USD39.xx.xx excluding batteries. This supports a qualifying primary-zinc premises route and price comparator, not assumed Global attachment or first-sale realization. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Advertised voice-only protection reaches xx.xx hours; internet and television protection are excluded. This supports service-specific Day-Scale classification. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Advertised voice-only protection reaches xx.xx hours; internet and television protection are excluded. This supports service-specific Day-Scale classification. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))

40. Alkaline Manganese Dioxide Handbook and Application Manual - Energizer

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The manufacturer's alkaline manganese-dioxide classification supports the zinc-family mapping for qualifying premises backup. It provides no telecom purchasing weight. ([data.energizer.com](https://data.energizer.com/pdfs/alkaline_appman.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The manufacturer's alkaline manganese-dioxide classification supports the zinc-family mapping for qualifying premises backup. It provides no telecom purchasing weight. ([data.energizer.com](https://data.energizer.com/pdfs/alkaline_appman.pdf))

41. ITU-T Work Programme - Aqueous Zinc-Based Battery Systems for Base Station Applications

- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The aqueous-zinc base-station work item is Under study with December 2027 timing. It constrains the forecast commercialization assumption but establishes neither approval nor customer purchases. ([itu.int](https://www.itu.int/itu-t/workprog/wp_item.aspx?isn=xx.xx))

42. ITU-T L.1397 - Battery System with Integrated Control and Monitoring Information Model

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The October 2025 recommendation names lithium-lead, lithium-sodium and sodium-lead combinations. This supports mixed-family classification, not inseparable pricing or Global prevalence. ([itu.int](https://www.itu.int/rec/dologin_pub.asp?id=T-REC-L.xx.xx-xx.xx-I%xx.xx%21PDF-E&lang=e&type=items))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The October 2025 recommendation names lithium-lead, lithium-sodium and sodium-lead combinations. This supports mixed-family classification, not inseparable pricing or Global prevalence. ([itu.int](https://www.itu.int/rec/dologin_pub.asp?id=T-REC-L.xx.xx-xx.xx-I%xx.xx%21PDF-E&lang=e&type=items))

43. ETSI EN 300 132-1 V2.2.1 - ICT Power Supply Interface: Alternating Current
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The ICT standard identifies the protected-load AC interface, supporting output-side attribution rather than classification by chemistry or normal utility input. It supplies no sales mix. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013201v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The ICT standard identifies the protected-load AC interface, supporting output-side attribution rather than classification by chemistry or normal utility input. It supplies no sales mix. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013201v020201p.pdf))
44. ETSI EN 300 132-2 V2.8.1 - ICT Power Supply Interface: Direct Current
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The ICT standard separately identifies the DC protected-equipment interface, supporting the DC-output boundary independently of battery chemistry. It is not a purchasing census. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013202v020801p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The ICT standard separately identifies the DC protected-equipment interface, supporting the DC-output boundary independently of battery chemistry. It is not a purchasing census. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013202v020801p.pdf))
45. Vertiv NetSure Inverter Series - Converged AC and DC Power System
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: NetSure Inverter Series identifies AC and DC loads supported through a common battery bank. This establishes a combined-output proposition, not its modeled purchasing fraction or future adoption. ([vertiv.com](https://www.vertiv.com/en-us/products-catalog/critical-power/dc-power-systems/vertiv-netsure-inverter-series/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: NetSure Inverter Series identifies AC and DC loads supported through a common battery bank. This establishes a combined-output proposition, not its modeled purchasing fraction or future adoption. ([vertiv.com](https://www.vertiv.com/en-us/products-catalog/critical-power/dc-power-systems/vertiv-netsure-inverter-series/))
46. ETSI EN 302 099 V2.2.1 - Powering of Equipment in Access Network
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Local powering uses a colocated source; allocation follows the backed source rather than receiver inventory. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Local powering uses a colocated source; allocation follows the backed source rather than receiver inventory. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Remote-source backup is distinguished from local backup, supporting the parent commercial boundary but not purchasing weights. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Remote-source backup is distinguished from local backup, supporting the parent commercial boundary but not purchasing weights. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))

47. Set Up Your Battery Backup - AT&T G.Fast Service with BGW210

    · Evidence informing base-year allocation inputs; displayed values and growth are calculated: The provider advertises a xx.xx-hour service window for the particular package, supporting Day-Scale mapping without a universal premises-duration inference. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

    · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The provider advertises a xx.xx-hour service window for the particular package, supporting Day-Scale mapping without a universal premises-duration inference. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

48. DNA Tower Offers Battery Capacity in Electricity Reserve Markets with Elisa DES

    · Evidence informing base-year allocation inputs; displayed values and growth are calculated: The June xx.xx 2025 announcement reports DNA Tower batteries connected to Finnish reserve markets while retaining outage continuity. This establishes a specific mixed-duty implementation, not Global attachment or guaranteed returns. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/press-releases/dna-tower-becomes-worlds-first-tower-company-to-offer-battery-capacity-in-electricity-reserve-markets-with-elisa-des))

    · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The June xx.xx 2025 announcement reports DNA Tower batteries connected to Finnish reserve markets while retaining outage continuity. This establishes a specific mixed-duty implementation, not Global attachment or guaranteed returns. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/press-releases/dna-tower-becomes-worlds-first-tower-company-to-offer-battery-capacity-in-electricity-reserve-markets-with-elisa-des))

49. Case Elisa: Virtual Power Plant in the Telecom Industry

    · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The company case reports over 2,000 aggregated sites and approximately xx.xx MWh. This is an installed commercial scale check, not annual purchasing value or Global prevalence. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/customer-stories/elisacase))

4.3. Industry Ecosystem & Value Chain Analysis

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Contract allocation can change even within an established tower relationship. ■■■ ■■■■■■■■ ■■ ■■■ ■■■■■ ■■■■■■■ ■■ ■■■■ ■■■■ ■■■ ■■■ ■■■■■ ■■■■■■ ■■■■■ ■■■■■■■ ■■■■■■■■ ■■■■■■■■■■ ■■■ ■■■■ ■■■■■■■■ ■■■■■ ■■■■■■■ ■■■ ■■■■■■■ ■■■■■■■■■ ■■■■■■■■ ■■■■■■■■■■■■■ ■■■■■■■■■■■ ■■■■■ ■■■■■■ ■■■■■■■■■ ■■■■ ■■■ ■■■■■■■■■ ■ ■■■■■■■ ■■■■■■■■■■■■■ ■■■■■■■■■■■■■■■ Before contracting, buyers must identify who controls the battery budget, maintenance obligation, and outage exposure.

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Sources & Evidence

1. Vertiv NetSure M Series
   - The enclosure proposition is paired with NetSure DC power and battery options, supporting analysis of bundle boundaries.
2. IHS Holding Limited First-Quarter 2026 Financial Statements
   - IHS reports the unwind of its MTN South Africa power Managed Services agreement and diesel-linked indexation in renewed MTN Nigeria contracts.
3. Recycling | EnerSys
   - The page identifies Americas availability and describes spent lead-acid pickup regardless of manufacturer, with recycling documentation.

4.3.1. Supply-Side Analysis

[illegible] EnerSys's PowerSafe SBS portfolio and Vertiv's Telecom Lithium Batteries listing establish named alternatives for telecom applications, not interchangeable approval across every Battery Technology category. Ordering access, buyer acceptance, warranty scope, and local support remain offering-specific.

EnerSys's fiscal 2026 filing describes company-owned sales and service locations alongside independent representatives. Vertiv separately advertises DC power projects across manufacturers and narrower upgrades instead of complete replacement. [illegible]

Sources & Evidence

1. PowerSafe SBS Batteries | EnerSys
   - The named PowerSafe SBS portfolio establishes a lead-based telecom battery proposition, not universal customer acceptance.
2. EnerSys 2026 Proxy Statement and Annual Report
   - EnerSys describes company-owned sales and service facilities and independent manufacturers' representatives.
3. DC Power Services | Vertiv
   - Vertiv advertises DC power projects regardless of manufacturer and maintenance across industry-accepted battery technologies.
4. Telecom Lithium Batteries | Vertiv
   - Vertiv lists Telecom Lithium Batteries as a named lithium-ion proposition for telecom applications.

4.3.2. Demand-Side Analysis

[illegible] This supports prioritization by network dependency and disruption exposure rather than a universal purchasing threshold. A contract should identify the service, network paths, and assets covered before offerings are compared.

Replacement can be an obligation-driven budget item: IHS's third-quarter 2025 disclosures classify existing-site power-equipment maintenance and replacement as necessary to meet service-level agreements. Household purchasing has a different payer structure. ■■■■■ ■■■■■■■■ ■■■■■■■■■ ■■ ■■■■■ ■■■■ ■■■■■■ ■■■■■■■■■ ■■ ■■■■■■■■■■ ■■■■■■■■■■■■■■■■■■ ■■■■■■■■■■ ■■■■■■■■ ■ ■■■■■■■■■■■■ ■■■■■■■■■■■■ ■■■■■■ ■■■■■■ ■■■■■■ ■■■■ ■■■■■ ■■■■■■■■ ■■■■■■■■■■■■ ■■■■ ■■■■■ ■■■■■■■■ ■■■■■■■■■■■■ ■■■■■■■■■■■■■■ ■■■■ ■■■■ ■ ■■■■■■■■■■ ■■■■■■■ ■■■■■■■■■■ ■■■■■■■■■■■■■

Sources & Evidence

1. Network and Service Resilience Guidance for Communications Providers, June 16, 2026
   - The June xx.xx 2026 guidance differentiates access, aggregation, and core-network power-resilience expectations.
2. IHS Towers 3Q25 Supplemental Information
   - IHS identifies existing-site power-equipment repair, refurbishment, and replacement as non-discretionary maintenance needed for service-level performance.
3. Your landline is going digital: what you need to know
   - Providers must offer free backup solutions to qualifying landline-dependent customers.

4.3.3. Stakeholder Analysis

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Procurement gatekeepers also control participation. ■■■■■■■■■ ■■■ ■■■■ ■■■■■■■■ ■■■■■ ■■■■■■■■■■■■ ■■■■■■■■■■ ■■■■■■■■■■ ■■■■ ■■■■■■■■■■■ ■■■■■■■■■ ■■■ ■■■■■■■■ ■■■■■■■■■■■■■■■■ ■■ ■■■■■■■■■■■■ ■■■ ■■■■■■■■■■■■ An OEM or contractor therefore needs business-compliance standing as well as an appropriate portfolio.

Other stakeholders control separate rights. Fingrid requires permission for reserve use where the participant does not own the resource, while EU extended producer responsibility adds end-of-life accountability. ■■■■■■■ ■■■■■■■■■■ ■■■■■■■■■■■■ ■■■■■■■■■■■■■■■■ ■■■■■■■■■■■■■ ■■■■■■■■■■■■■ ■■■ ■■■■■■■■■ ■■■■■■■■■■■■ ■■■■■■■■■■ ■■■■■■■■■ ■■■■■■■■■■ ■■■■■■■ ■■■■ ■■■■■■■■ ■■ ■■■■■■ ■■ ■■■ ■■■■■■■■■■■■■■

Sources & Evidence

1. Network and Service Resilience Guidance for Communications Providers, June 16, 2026
   - Communications providers retain responsibility for network portions operated through third-party arrangements.
2. Verizon Supplier Code of Conduct
   - Verizon's May 2025 code links continuing compliance to procurement decisions and permits disqualification or termination.
3. How to participate in the reserve markets | Fingrid
   - Reserve providers who do not own the resource require owner permission for reserve use.
4. Council adopts new regulation on batteries and waste batteries
   - The EU battery regulation establishes end-of-life obligations and extended producer responsibility.

4.4. Market Dynamics

Grid conditions and asset-use rights produce different purchasing incentives. ■■■■■ ■■■■ ■■■■■■■■ ■■■■■ ■■■■ ■■■■■■■■■ ■■■■■■■■■■ ■■■■■■■ ■■■■■■■■■ ■■■■■■■■■■■■■■■■ ■■■■■■■■■■ ■■■■■ ■■■■ ■■■■■■■ ■■ ■■■■ ■■■■■■■ ■■ ■■■■■■■■■■ This supports a resilience and energy-management rationale for reviewing site power, but does not establish that every network or chemistry offers the same commercial benefit.

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Sources & Evidence

1. Strategic approach to network and supply emissions: building a sustainable network with ATC
   · MTN's April xx.xx 2025 case describes American Tower lithium-ion storage and renewable-energy initiatives where grid or fuel access is irregular.
2. DNA Tower becomes world's first tower company to offer battery capacity in electricity reserve markets with Elisa DES
   · The June xx.xx 2025 announcement states that DNA Tower Finland connected base-station batteries to Finnish reserve markets using Elisa's service.
3. Nokia adds Virtual Power Plant to its leading energy efficiency solution portfolio
   · Nokia announced VPP Controller Software on February xx.xx 2024, describing a proposition for surplus telecom backup capacity and reserve-market bidding.

4.4.1. Key Drivers

4.4.1.1. Jurisdiction-specific resilience obligations trigger continuity investment

Resilience obligations create a procurement trigger where continuity is a documented provider responsibility. ■■■■■ ■■■■■■■■■ ■■ ■■■■■■■■■■■■■ ■■■■■■■■■■■■■■■■ ■■■■■■■■■■■■ ■■ ■■■■ ■■■■■ ■■■■■■■■■■■■ ■■■■ ■■■ ■■■■ ■■■■■■■■ ■■■■■■■■ ■■■■■■■ ■■■■■■■■■■■■ ■■ ■■■■■■■■■ ■■■■■■■■■■■■■■■ ■■■■■■■■■■ ■■■■■ ■■■ ■■■■■■■■■■■■■■■■■■■■■■ ■■■■■■■ ■■■■■■■■■■■■ ■■■ ■■■■■■■■■ ■■■■■■■■■■■■ ■■■■■■■■■■■■■ Purchasing depends on the applicable obligation and permitted resilience alternatives.

Sources & Evidence

1. Statement: Network and Service Resilience Guidance
   · The June 2026 update states that Ofcom clarified mobile-network backup-power expectations within its resilience guidance.
2. CPUC Requires Wireless Companies to Better Serve Customers in Emergencies
   · The July xx.xx 2020 decision required a xx.xx-hour backup-power arrangement for minimum service in Tier xx.xx and Tier xx.xx High Fire Threat Districts.
   · Resiliency plans encompass backup power, redundancy, temporary facilities, and coordination.

4.4.1.2. Digital-landline migration changes backup responsibility and budget ownership

Digital-landline migration creates a customer-premises power dependency. Ofcom requires a free backup solution for landline-dependent customers without a working mobile phone or reliable mobile signal. ■■■■ ■■■ ■■■■■■■■ ■■■■■■■■■■■■■■■ ■■■■■■■■■■■ ■■■■■■■ ■■■■ ■■■■■■■■■ ■■■■■■ ■■■■■■■■■■■ ■■■■■■■■ ■■■■■■ ■■■■■■■■■■■■ ■■■■■■ ■■■ ■■■■■■■■■ ■■■■■■■■■■■■ ■■■ ■■■ ■■■■■■■■■■ ■■■■ ■■■ ■■■■■■■■■■■■ ■■■■■■■■ ■ ■■■■■■■■■■ ■■■■■■■■ ■■■■■■■■

Sources & Evidence

1. Your landline is going digital: what you need to know
   - Digital landlines depend on mains electricity; eligibility for free backup includes lacking a working mobile phone or reliable mobile signal.

4.4.1.3. Energy-market participation creates an additional battery-use incentive

■■■■■ ■■■■■■■■■ ■■■■■ ■■■■■■■ ■■■■■■■■■■■■ ■■■■■■ ■■■■■■■■■ ■■ ■ ■■■■■■■■■■■■■■■ ■■■■■■■ ■■■■■ ■■■■■■ ■■■ ■■■■■■■■■■■■ ■■■■■■ ■■■■■■■■ ■■■■■■■■ ■■■ ■■■■■■■■ ■■■■■■ ■■ ■■■■■■■■■■ ■■■■■ This demonstrates a commercial role for Backup with Energy Management beyond reserve-only continuity. The purchasing incentive remains conditional on local market access, protected telecom obligations, and acceptable service and warranty terms.

Sources & Evidence

1. Virtual power plant | Elisa
   - Elisa describes a Finnish virtual power plant using mobile-network backup batteries and reports permission for grid-balancing participation.
2. Elisa DES is now Gridle - delivering energy flexibility services at scale
   - The September xx.xx 2025 announcement renamed Elisa Distributed Energy Storage to Gridle and described commercialization beyond Elisa's own telecom sites.

4.4.2. Key Restraints

4.4.2.1. Service-specific backup commitments limit substitution

A backup offering can protect a narrower service than the buyer expects. ■■■■■■■ ■■■■■■ ■■■■■ ■■■■■■■■■■■■ ■■■■■■■■ ■■■■■ ■■■ ■■■■■■■■■ ■■■■■■■ ■■■ ■■■ ■■■■ ■■■■■■■■■ ■■■■■■■■■■■■ ■■ ■■■■■■■■■ ■■■■■■■■■ ■■■■■■■■ ■■■■ ■■■■■■ ■■■■■■■■■■■■ ■■■ ■■■■■■■■ ■■■■■■■■■■■■■■■■■ ■■■■■■■■■■■■ ■■■■■■■■■■■■■ Buyers must establish the protected service boundary rather than treat a voice-backup proposition as comprehensive connectivity continuity.

Sources & Evidence

1. PowerReserve | Verizon Residential Accessories
   - Verizon states that PowerReserve supports voice and emergency calling but not Fios internet, television, or specified connected devices.

4.4.2.2. Staged upgrades can defer complete-system procurement

[redacted] This constrains the automatic conversion of replacement needs into Complete Backup Systems purchases. The counterforce is an existing plant whose support or contractual suitability cannot be preserved through a narrower upgrade.

Sources & Evidence

1. DC Power Services | Vertiv
   · Vertiv describes upgrades and battery changes as alternatives where replacement of the entire DC plant may be unnecessary.

4.4.2.3. Temporary requirements constrain permanent ownership commitments

Temporary continuity needs do not automatically justify permanent equipment ownership. [redacted] This restrains permanent-system commitments without excluding Leased or Rented Equipment from the market.

Sources & Evidence

1. Telecommunications | Aggreko US
   · Aggreko describes telecom battery-storage rentals supporting exchanges, upgrades, maintenance, and remote locations.

4.4.3. Key Opportunities

4.4.3.1. Supported replacement without unnecessary plant-wide procurement

Existing-site maintenance creates a need for replacements that preserve accepted infrastructure rather than automatically expand the procurement bundle. [redacted] A broader system purchase is the alternative when retained responsibilities cannot be supported.

Sources & Evidence

1. DC Power Services | Vertiv
   · Vertiv offers cross-manufacturer projects and alternatives to entire-plant replacement. ([vertiv.com](https://www.vertiv.com/en-us/products/services/dc-power-services/))
2. IHS Holding Limited First-Quarter 2026 Financial Statements
   · Existing-site maintenance includes battery replacement. ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

4.4.3.2. Payer-specific, provider-compatible premises backup

[redacted] Qualifying UK households create provider-funded fulfillment, while MLConnect demonstrates a customer purchase with an accepted Precision Power proposition and retained battery-care duties. The opportunity is an explicitly supported service boundary and payer-specific route, not a universal household entitlement or a generic broadband-continuity promise.

Sources & Evidence

1. Your landline is going digital: what you need to know
   - Qualifying UK landline-dependent customers must receive free backup solutions. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
2. Battery Backup | Meriwether Lewis Electric Cooperative
   - MLConnect recommends Precision Power but retains customer battery-care responsibilities. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))

4.4.3.3. Contractually defined temporary continuity

[redacted] Capture depends on an accepted offering and enforceable delivery, servicing, replacement, and return commitments for the actual period. Continuing site obligations or repeated extensions can make ownership the more suitable alternative.

Sources & Evidence

1. Telecommunications | Aggreko US
   - Aggreko advertises telecom battery-storage rental and maintenance-related support. ([aggreko.com](https://www.aggreko.com/en-us/sectors/telecommunications))

4.4.3.4. Accountable managed fulfillment with explicit retained duties

[redacted] IPT advertises provider-owned and maintained systems, establishing a comparison route. Managed Backup Capacity is suitable only when local fulfillment, protected telecom service, remedies, and exit obligations are assigned; UK provider responsibility is not erased by outsourcing.

Sources & Evidence

1. Network and Service Resilience Guidance for Communications Providers, June 16, 2026
   - UK providers retain resilience responsibility across managed-service arrangements. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/network-and-service-resilience-guidance-for-communications-providerspdf?v=xx.xx))
2. Solar & Battery as a Service - IPT Website
   - IPT advertises provider installation, ownership, and maintenance of solar-and-battery systems. ([iptpowertech.com](https://iptpowertech.com/solutions/solar-battery-as-a-service))

4.4.3.5. Authorized energy flexibility around protected backup assets

The reported DNA Tower Finland implementation demonstrates an additional commercial role for backup assets. Infrastructure owners can assess mixed use when participation rights

and protected telecom obligations coexist. ■■■■■■■ ■■■■■■ ■■■■■■■■■■ ■■■ ■■■■■■■■■■ ■■■■■ ■■■■■■■■■■ ■■■■■■ ■■■■■■■■■■■■■■ ■■■ ■■■■■■■■■■■ ■■ ■■■■■■■■■■■ ■■■■■■■ ■■ ■■ ■■■■■■■■■■ ■■■■■■■■■■■■■ ■■■ ■ ■■■■■■■■■ ■■■■ ■■■■■■■■ ■■■■■■■■■ ■■ ■■■■■■■■■ ■■■■■■■■■■ ■■■■■■■■ ■■■■■ ■■■■■■■■■■■■■

Sources & Evidence

1. How to participate in the reserve markets | Fingrid
   - Finnish participation requires agreements and applicable owner permission. ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))
2. DNA Tower becomes world's first tower company to offer battery capacity in electricity reserve markets with Elisa DES
   - Elisa Industriq reported DNA Tower Finland's reserve-market implementation on June xx.xx 2025. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/press-releases/dna-tower-becomes-worlds-first-tower-company-to-offer-battery-capacity-in-electricity-reserve-markets-with-elisa-des))

4.4.4. Key Challenges

4.4.4.1. Converting service descriptions into site-specific fulfillment commitments

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Sources & Evidence

1. Site & Network Remote Services | Vertiv
   - Vertiv describes continuous support and field service, single-source monitoring accountability, and customized escalation for batteries and other infrastructure.

4.4.4.2. Reconciling telecom continuity contracts with energy-market rights

Battery ownership and software access do not by themselves authorize reserve-market participation. ■■■■■■■ ■■■■■■■■ ■■■■■ ■■■■■■■■■■ ■■■■■ ■■■■■■■■■■■ ■■■■■■■■■■■■■■■■ ■■■■■■ ■■■■■■■■■■■ ■■■ ■■■■■■■■■■ ■■■■■■■■■■■■ ■■■ ■■■■■■■■■ ■■■■■■■■■ ■ ■■■■■■■ ■■■■■■■■■ ■■■■■ ■■■■■■■■ ■■ ■■■■■■■■■■■■■■ ■■■■■■■■ ■■■■ ■■■■■■■■■ ■■■■■ ■■■■■■ ■■■■■ ■■■ ■■■■■■■■■■■ ■■■■■■■■■■ Direct participation and a service-provider route are alternatives, but neither removes the relevant contractual prerequisites.

Sources & Evidence

1. How to participate in the reserve markets | Fingrid
   - Fingrid requires product-specific agreements and specified settlement arrangements.
   - Participants can carry out market entry independently or with service-provider support.

4.4.4.3. Assigning finished-battery data and lifecycle accountability

[redacted] System sellers and importers must establish applicability, data ownership, and continuing accountability before delivery. A battery-component purchase does not automatically discharge the finished-offering obligation.

Sources & Evidence

1. Digital Product Passport for Batteries | European Commission
   - Passport requirements apply to relevant categories from February xx.xx 2027.
   - The operator placing the finished battery on the market is responsible for creating and maintaining the passport, rather than component or module suppliers.

4.5. Porter's Five Forces Analysis

Competitive rivalry spans different commercial objects. EnerSys lists PowerSafe SBS batteries for telecom applications, while Vertiv's NetSure M Series supports a broader enclosure and power proposition with lead-acid or lithium-ion battery options. [redacted]

Entry barriers include procurement compliance and service credibility, not a demonstrated market-wide patent gate. Verizon incorporates continuing supplier-code compliance into purchasing decisions. [redacted]

Substitution is conditional on the continuity obligation. [redacted] Supplier bargaining therefore depends on the supported bundle and service reach, while buyers must distinguish an alternative ownership arrangement from an alternative capable of meeting the same service requirement.

Sources & Evidence

1. PowerSafe SBS Batteries | EnerSys
   - The battery portfolio provides a commercial object distinct from a broader enclosure and system bundle.
2. Vertiv NetSure M Series
   - The portfolio supports lead-acid and lithium-ion battery options without establishing universal interchangeability.
3. EnerSys 2026 Proxy Statement and Annual Report
   - EnerSys states that no single patent is material and emphasizes product quality and customer relationships.
   - EnerSys reports purchasing lead from multiple suppliers and using hedging arrangements.

4. Network and Service Resilience Guidance for Communications Providers, June 16, 2026
   - The guidance recognizes battery and generator arrangements rather than imposing a universal battery-only approach.
5. Verizon Supplier Code of Conduct
   - The policy establishes business-compliance conditions affecting supplier access, separate from product capability.
6. Telecommunications | Aggreko US
   - The rental proposition establishes an ownership alternative rather than universal equivalence to permanent backup systems.

4.6. PESTLE Analysis

Public policy changes both market access and the party funding continuity. UK protections for landline-dependent customers can place the backup obligation on the communications provider. [redacted]

Trade exposure depends on product classification and origin. USTR's September 2024 determination scheduled Section xx.xx changes for covered Chinese non-electric-vehicle lithium-ion batteries in 2026. [redacted]

Environmental procurement increasingly involves infrastructure accountability rather than chemistry labels alone. [redacted] Consequently, sustainability claims, continuity commitments, and lifecycle responsibilities require separate documentation; satisfying one does not establish the others.

Sources & Evidence

1. Your landline is going digital: what you need to know
   - Protected-customer obligations can allocate backup responsibility to the communications provider.
2. Council adopts new regulation on batteries and waste batteries
   - Lifecycle obligations make end-of-life accountability relevant to the commercial relationship.
3. IHS Holding Limited First-Quarter 2026 Financial Statements
   - The first-quarter 2026 disclosure identifies foreign-exchange and financing exposure.
4. Strategic approach to network and supply emissions: building a sustainable network with ATC
   - The collaboration includes enhanced site-level emissions information and shared environmental objectives.
5. Digital Product Passport for Batteries | European Commission
   - The passport timetable is distinct from other battery compliance obligations.

6. Simplification: Council adopts law to stop the clock on due diligence rules for batteries
   - The Council's July xx.xx 2025 announcement postpones relevant battery due-diligence obligations until August xx.xx 2027.
7. USTR Section 301 Four-Year Review Modifications Determination, September 2024
   - USTR's September 2024 determination schedules Section xx.xx changes for covered Chinese non-electric-vehicle lithium-ion batteries in 2026 under a specified tariff classification.
   - This record does not by itself establish every transaction's total applicable treatment.

4.7. Market Outlook

[illegible] IHS also identifies improved grid availability as a potential reduction in generator and battery maintenance expenditure. Suppliers should therefore monitor changes in customer obligations and the accepted replacement boundary rather than assume that every continuity need converts into a complete-system award.

Additional energy duties create a separate conditional path. The reported DNA Tower Finland implementation establishes commercial feasibility within a particular relationship; participation agreements remain a distinct access gate. [illegible]

Sources & Evidence

1. Network and Service Resilience Guidance for Communications Providers, June 16, 2026
   - Ofcom differentiates network-domain expectations and recognizes combined battery-and-generator arrangements.
   ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/network-and-service-resilience-guidance-for-communications-providerspdf?v=xx.xx))
2. How to participate in the reserve markets | Fingrid
   - Software ownership alone does not establish participation rights.
   ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))
3. IHS Holding Limited First-Quarter 2026 Financial Statements
   - IHS states that improved grid availability may reduce generator and battery maintenance expenditure.
   ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

4. DNA Tower becomes world's first tower company to offer battery capacity in electricity reserve markets with Elisa DES
   · The reported implementation establishes a Finnish commercial example, not transferable global access. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/press-releases/dna-tower-becomes-worlds-first-tower-company-to-offer-battery-capacity-in-electricity-reserve-markets-with-elisa-des))

4.7.1. Near-Term Market Outlook (0-2 Years)

For 2026-2027, EU-facing sellers confront separate product-accountability milestones. ■■■■■■■■ ■■■■■■■ ■■■■■■■■■ ■■■■■■ ■■■■■■■■■ ■■ ■■■■■■■■ ■■■ ■■■■■■ ■■■■■ ■■■■■■■■■■■■■ ■■■■■■■■ ■■ ■■■ ■■■■■■■■ ■■■■■■■ ■■■ ■■■■■■■■ ■■■■■■■ ■■ ■■■ ■■■■■■■■ ■■■■■■■■ ■■■■■■■■■■■■■ ■■■■■■■■■■■ ■■■■ ■■■■■■■■■ ■■■■■■ ■■■■■■ ■■■ ■■■■■■ ■■■ ■■■■■■■■■■■ ■■■■■■■ ■■■ ■■■■■■ ■■■■■■■ ■■■ ■■■■■■■■■■ ■■■■■■ ■■■■ ■■■ ■■■■■■■■■ ■■■■■ ■■■ ■■■■■■■■■ ■■■ ■■■■■■■■■■■■ Before making affected delivery commitments, establish the offering's regulatory category, responsible operator, necessary information rights, and continuing accountability.

The near-term commercial indicator is whether those responsibilities are incorporated into an executable supply arrangement, not the date alone. ■■■■■■■■■ ■■■■■■■■■ ■■■ ■■■■■■■■■■ ■■■■■■■■■■■ ■■■■■■■ ■■■■■■■■ ■■■ ■■■■■■■■■■■■■■■ ■■■■■■■■■■ ■■■■■■■ ■■■■■■■ ■■■■■■■ ■■■■■■■■ ■■■■■■■■ ■■■ ■■■■ ■■■■■■■■■■■■ ■■■■■■■ ■■■■■■■ ■■■■■■■■ ■■■■■■■■■■ ■■■■■■ ■■■■■■ ■■■■■■ ■■■■■■■■ ■■■ ■■■■■ ■■■■■■■■■■■ ■■■ ■■■ ■■■■■■■■ ■■■■■■■■■■ ■ ■■■■■■■■ ■■■■■■■■■ ■■■■■■■■■■■ ■■■ ■■■■■■ ■■■ ■■■■■■ ■■■■■ ■■■■■■■■■■■■ ■■■ ■■■■ ■■■ ■■■■■■■■ ■ ■■■■■■■■ ■■■■■■■■■■ ■■■■■■■■■■■ Where applicability or responsibility remains unresolved, defer the affected commitment rather than infer relief from a postponed obligation.

Sources & Evidence

1. Digital Product Passport for Batteries | European Commission
   · Relevant battery passports become mandatory on February xx.xx 2027; the finished-battery market operator carries responsibility. ([single-market-economy.ec.europa.eu](https://single-market-economy.ec.europa.eu/single-market/digital-product-passport/batteries_en))
2. Simplification: Council adopts law to stop the clock on due diligence rules for batteries
   · The Council's July xx.xx 2025 law postpones relevant battery due-diligence obligations until August xx.xx 2027. ([consilium.europa.eu](https://www.consilium.europa.eu/en/press/press-releases/2025/xx.xx/xx.xx/simplification-council-adopts-law-to-stop-the-clock-on-due-diligence-rules-for-batteries/))

4.7.2. Medium-Term Market Outlook (3-5 Years)

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[redacted] A common parent may simplify coordination, but separate brand names do not alone diversify the relationship. Customer contract changes, warranty notices, and support allocations-not the acquisition announcement by itself-should determine changes to a supply framework.

Sources & Evidence

1. Solar & Battery as a Service - IPT Website
   - The service proposition establishes a continuing ownership-and-maintenance relationship. ([iptpowertech.com](https://iptpowertech.com/solutions/solar-battery-as-a-service))
2. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone
   - IFC's March xx.xx 2026 announcement finances IPT telecom-energy modernization, operation, and maintenance in Ethiopia, Liberia, and Sierra Leone. ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
3. Stryten Energy Completes Acquisition of C&D Trojan, Creating a Leading Battery Manufacturing Platform for Transportation, Industrial, Critical Infrastructure, and Military Applications
   - Stryten completed its C&D Technologies and Trojan Battery acquisition on October xx.xx 2026, retaining their product brands. ([stryten.com](https://www.stryten.com/stryten-energy-completes-acquisition-of-cd-trojan/))

4.7.3. Long-Term Market Outlook (5-10 Years)

For 2030-2032, the strategic choice is whether to retain dedicated backup responsibility or sustain an additional energy-service relationship through changing contracts and market conditions. [redacted] Further commitment is justified only when the additional role remains compatible with telecom continuity and the owner's actual commercial results.

[redacted] A bundled lifecycle relationship may simplify coordination, but becomes less attractive if it prevents use of accepted alternatives or fails to cover the destination and battery category. Changes in collection eligibility, warranty support, and responsible counterparties should trigger review rather than an automatic technology or supplier switch.

Sources & Evidence

1. Gridle Telco Solutions
   · Gridle markets aggregation and electricity-market trading around telecom backup batteries. ([elisaindustriq.com](https://www.elisaindustriq.com/gridle/telecom-energy-management-solutions))
2. How to participate in the reserve markets | Fingrid
   · Direct and service-assisted entry retain participation requirements. ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))
3. Recycling | EnerSys
   · EnerSys advertises Americas lead-acid collection regardless of manufacturer, with recycling documentation. ([enersys.com](https://www.enersys.com/en-gb/products/services/after-market-services/recycling/))

4.8. Go-to-Market Strategy

[redacted] An integrator contributes that coordination only through an agreed prime scope. The entrant still needs offering acceptance, continuing warranty allocation, and its own compliance responsibilities; Verizon's supplier code demonstrates that contractor involvement does not substitute for procurement standing.

Channel selection should follow the premises payer. For qualifying UK households, pursue the communications provider's accepted fulfillment route. [redacted]

Delivery-model positioning should distinguish a bounded temporary requirement from continuing energy fulfillment. [redacted] EnerSys' standard service terms illustrate why estimated dates and limited remedies require attention before a buyer treats service marketing as an enforceable continuity promise.

[redacted] A software-only purchase is unsuitable when the buyer needs another party to assume market responsibilities. Dedicated backup remains the alternative when the additional relationship cannot be justified or contractually supported.

Sources & Evidence

1. PowerSafe SBS Batteries | EnerSys
   - EnerSys provides a manufacturer quotation route for PowerSafe SBS. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-sbs/))
2. Gridle Telco Solutions
   - Aggregation and trading are advertised partner capabilities, not guaranteed customer obligations. ([elisaindustriq.com](https://www.elisaindustriq.com/gridle/telecom-energy-management-solutions))
3. DC Power Services | Vertiv
   - The service offering establishes an integration alternative, not customer-specific acceptance. ([vertiv.com](https://www.vertiv.com/en-us/products/services/dc-power-services/))
4. Your landline is going digital: what you need to know
   - Eligibility creates a provider-funded route; mobile alternatives narrow its constituency. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
5. Verizon Supplier Code of Conduct
   - Verizon's May 2025 code links continuing compliance to procurement standing and possible termination. ([verizon.com](https://www.verizon.com/about/our-company/how-we-lead/policies/supplier-code-of-conduct))
6. How to participate in the reserve markets | Fingrid
   - Service support does not waive market agreements. ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))
7. IHS Holding Limited First-Quarter 2026 Financial Statements
   - Disclosed South African and Nigerian arrangements allocate power responsibilities differently. ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))
8. Telecommunications | Aggreko US
   - Temporary equipment support is an evidenced alternative to permanent ownership. ([aggreko.com](https://www.aggreko.com/en-us/sectors/telecommunications))
9. Digital Voice for Business Service Schedule, May 2026
   - BT's May 2026 business terms place secure power and backup provision at the customer's expense. ([business.bt.com](https://business.bt.com/content/dam/bt-business/pdfs/terms/bt-business-agreement/digital-voice-part-a-and-b-v3-xx.xx-may-2026.pdf))
10. EnerSys Delaware Inc. Terms and Conditions for the Purchase of Services
    - EnerSys' standard service terms treat performance dates as estimates and limit remedies. ([terms.enersys.com](https://terms.enersys.com/pdfs/en/Service/Service.pdf))
11. Battery Backup | Meriwether Lewis Electric Cooperative
    - MLConnect permits cooperative or direct purchases and excludes backup from its service plan. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))

12. Solar & Battery as a Service - IPT Website
    - IPT's provider-owned service differs from equipment rental or supply. ([iptpowertech.com](https://iptpowertech.com/solutions/solar-battery-as-a-service))

5. Market Insights

5.1. Consumer Insights & End-User Perspective

Institutional purchasing is often triggered by an existing service obligation rather than a discretionary technology refresh. ▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪ ▪▪ ▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪ ▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪ ▪▪ ▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ Telecommunications Network Operators and Telecom Infrastructure & Tower Operators should identify the maintenance payer, protected service, and replacement responsibility before soliciting comparable bids; the asset user and economic buyer need not be the same party.

▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪ ▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ By contrast, BT's May 2026 Digital Voice for Business schedule places backup-power provision at the business customer's expense. Household Connectivity Purchasers may therefore obtain eligible fulfillment through their provider, while Business & Institutional Connectivity Owners should establish their own contractual funding responsibility rather than assume equivalent consumer protection.

Procurement approval is distinct from product suitability. Verizon's May 2025 supplier code incorporates continuing compliance into purchasing decisions and permits disqualification or termination. ▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪ ▪▪▪▪ ▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪ ▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪

Sources & Evidence

1. Your landline is going digital: what you need to know
   · Ofcom requires providers to offer free backup solutions to landline-dependent customers without a working mobile phone or reliable mobile signal.
   ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
2. Verizon Supplier Code of Conduct
   · Verizon's May 2025 supplier code incorporates continuing compliance into procurement decisions and permits disqualification or termination.
   ([verizon.com](https://www.verizon.com/about/our-company/how-we-lead/policies/supplier-code-of-conduct))
3. IHS Holding Limited First-Quarter 2026 Financial Statements
   · IHS identifies battery replacement and servicing within non-discretionary maintenance needed to meet customer service-level agreements.
   ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))
4. Digital Voice for Business Service Schedule, May 2026
   · BT's May 2026 Digital Voice for Business schedule places secure power supply and backup-power provision at the customer's expense.
   ([business.bt.com](https://business.bt.com/content/dam/bt-business/pdfs/terms/bt-business-agreement/digital-voice-part-a-and-b-v3-xx.xx-may-2026.pdf))

5.2. Consumer Experience Benchmarking

[redacted] These are provider-specific scope benchmarks, not interchangeable guarantees: a purchaser needing broadband continuity should not treat a voice-only proposition as equivalent. Neither description establishes protection against an upstream network outage or continuity for every connected device.

[redacted] Buyers should compare the same site's contracted coverage, response obligations, exclusions, and remedies, then examine comparable service-fulfillment records before selecting on claimed reliability. Broader accountability can simplify escalation, while component-level purchasing preserves supplier choice but leaves coordination with the buyer.

Sources & Evidence

1. PowerReserve | Verizon Residential Accessories
   · Verizon limits PowerReserve to voice, including emergency calling, and excludes Fios internet, television, and specified connected devices. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
2. Site & Network Remote Services | Vertiv
   · Vertiv describes continuous support and field service, customized escalation, and monitoring accountability covering batteries and other critical infrastructure. ([vertiv.com](https://www.vertiv.com/en-ca/services-catalog/maintenance-services/remote-services/site--network-remote-services/))
3. Set up a Battery Back Up | BT Help
   · BT describes its Battery Back Up as supporting the Smart Hub and broadband services, including Digital Voice, during a power cut. ([bt.com](https://www.bt.com/help/home-phone/set-up-battery-back-up))
4. EnerSys Delaware Inc. Terms and Conditions for the Purchase of Services
   · EnerSys' July xx.xx 2025 service terms treat performance dates as estimates and exclude specified consequential losses, illustrating distinctions between service descriptions and contractual remedies. ([terms.enersys.com](https://terms.enersys.com/pdfs/en/Service/Service.pdf))

5.3. Opportunity Mapping

Obligation-driven replacement offers a comparatively concrete account-development route where the maintenance payer and accepted procurement scope are known. [redacted]

[illegible] Verizon's procurement code illustrates an additional business-compliance gate; none of these catalogs establishes automatic account access.

[illegible] Broader broadband protection must be expressly supported rather than inferred from an emergency-calling proposition. These examples establish distinct routes, not interchangeable eligibility across providers.

Temporary continuity is accessible as a defined rental requirement, not as an assumed commitment to buy equipment. [illegible] Equipment Leasing & Rental Providers are potential fleet customers for OEMs only after their actual purchasing authority and asset-support responsibilities are established.

Managed Backup Capacity is a more demanding route because the customer purchases continuing fulfillment rather than temporary access. [illegible] This route warrants priority only where delegated obligations, local delivery, and exit arrangements are enforceable.

[illegible]

■■■■■ ■■■■■■■■■■■■■■■■■ Defer commitment where any central right or service obligation remains unresolved; neither a software description nor an overseas implementation establishes local access. This prioritization concerns evidenced commercial routes, not a supplier-wide substitution preference.

Sources & Evidence

1. PowerSafe SBS Batteries | EnerSys
   · The catalog supports battery-focused procurement, without establishing surrounding plant accountability. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-sbs/))
2. Vertiv NetSure M Series
   · NetSure M Series presents configurable outdoor telecom infrastructure with battery options. ([vertiv.com](https://www.vertiv.com/en-emea/products-catalog/facilities-enclosures-and-racks/outdoor-enclosures/netsure-m-series/))
3. Gridle Telco Solutions
   · The offering supplies a service-assisted comparison to direct participation. ([elisaindustriq.com](https://www.elisaindustriq.com/gridle/telecom-energy-management-solutions))
4. DC Power Services | Vertiv
   · Supported upgrades can be compared with complete replacement. ([vertiv.com](https://www.vertiv.com/en-us/products/services/dc-power-services/))
5. Network and Service Resilience Guidance for Communications Providers, June 16, 2026
   · Outsourcing does not remove the UK provider's public resilience responsibility. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/network-and-service-resilience-guidance-for-communications-providerspdf?v=xx.xx))
6. Your landline is going digital: what you need to know
   · Emergency-contact obligations do not establish universal household battery funding. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
7. Verizon Supplier Code of Conduct
   · Procurement compliance is separate from offering-specific acceptance. ([verizon.com](https://www.verizon.com/about/our-company/how-we-lead/policies/supplier-code-of-conduct))
8. How to participate in the reserve markets | Fingrid
   · Owner permission, product agreements, and applicable settlement arrangements are separate prerequisites. ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))
9. IHS Holding Limited First-Quarter 2026 Financial Statements
   · Maintenance obligations and power-contract allocation are distinct purchasing considerations. ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))
10. DNA Tower becomes world's first tower company to offer battery capacity in electricity reserve markets with Elisa DES
    · A named telecom deployment supports service-route assessment without proving another customer's outcomes. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/press-releases/dna-tower-becomes-worlds-first-tower-company-to-offer-battery-capacity-in-electricity-reserve-markets-with-elisa-des))
11. Telecommunications | Aggreko US
    · The telecom proposition includes support during upgrades and maintenance. ([aggreko.com](https://www.aggreko.com/en-us/sectors/telecommunications))

12. Digital Voice for Business Service Schedule, May 2026
    · Business backup funding differs from qualifying household protection. ([business.bt.com](https://business.bt.com/content/dam/bt-business/pdfs/terms/bt-business-agreement/digital-voice-part-a-and-b-v3-xx.xx-may-2026.pdf))
13. Battery Backup | Meriwether Lewis Electric Cooperative
    · Provider compatibility, protected services, and continuing care are separate purchasing conditions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
14. Solar & Battery as a Service - IPT Website
    · Telecom is an advertised application; dedicated backup obligations still require agreement. ([iptpowertech.com](https://iptpowertech.com/solutions/solar-battery-as-a-service))
15. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone
    · The financed initiative establishes expansion support, not completed fulfillment at every deployment. ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))

5.4. Distribution Channel Analysis

[illegible] A distributor can consolidate equipment and service purchasing, but its listing does not establish manufacturer-confirmed authorization, stock, or a site-specific response commitment. Buyers should verify those conditions and identify whether the manufacturer, reseller, or separate service provider owns each obligation.

Systems Integrator and Contractor Supply is particularly relevant when the purchased object extends beyond Battery Units and Assemblies. [illegible] The prime contract should distinguish integration acceptance from each supplier's continuing warranty responsibility.

Telecom Service Provider Supply introduces a service-platform gate. [illegible] A retailer's equipment sale does not itself establish the provider's acceptance or responsibility for continuity.

Sources & Evidence

1. PowerSafe SBS Batteries | EnerSys
    · EnerSys lists PowerSafe SBS for telecom applications and provides a manufacturer quotation route. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-sbs/))

2. DC Power Services | Vertiv
   · Vertiv offers DC power projects across manufacturers and describes upgrades as alternatives to replacing an entire DC plant. ([vertiv.com](https://www.vertiv.com/en-us/products/services/dc-power-services/))
3. PowerReserve | Verizon Residential Accessories
   · PowerReserve eligibility depends on the customer's installed Verizon equipment, and Verizon provides product support.
   ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
4. Set up a Battery Back Up | BT Help
   · BT directs customers to contact it to request a Battery Back Up.
   ([bt.com](https://www.bt.com/help/home-phone/set-up-battery-back-up))
5. EnerSys PowerSafe SBS Front Terminal Batteries | Alpine Power Systems
   · Alpine lists EnerSys PowerSafe SBS Front Terminal batteries, describes itself as an approved EnerSys distributor, and advertises associated monitoring and recycling services. Manufacturer confirmation and site-specific commitments remain separate.
   ([alpinepowersystems.com](https://alpinepowersystems.com/products/enersys-powersafe-sbs-front-terminal))

5.5. Pricing Trend Analysis

Commercial terms depend on cost-adjustment rights and the obligation purchased, rather than Battery Technology alone. EnerSys discloses lead-linked adjustment agreements, hedging, and delays between cost movements and customer adjustments, alongside competitive pressure. ■■■■ ■■■■■■■■■■■ ■ ■■■■■■ ■■■■■■■■■■■ ■■■■■■ ■■■■■■■■■■ ■■■ ■■■■■■■■ ■■■■■■■■ ■■■ ■■■■■■■■ ■■■■■■■■■■■ ■■■■■■ ■■■■■■ ■■■■■■■■■■■ ■■■■■■ ■■■■■■■■■■■ ■■■■ ■■■■■■■■ ■■■■■■ ■■■ ■■■■■■■■■ ■■■ ■■■■■■■■■■ ■■■■■■ ■■■■■■■■ ■■■ ■■■■■■■■■ ■■ ■■■■ ■■■■■■ ■■■ ■■■■■■■■ ■■■■■■■■■ ■■■■■■ ■■■■■■■■■ ■ ■■■■■■■■■ ■■■■■■■ ■■■■■■■■■■

Managed Backup Capacity introduces different exposures. IHS's first-quarter 2026 disclosure describes Nigerian power indexation and delayed foreign-exchange resets, while its South African arrangement allocates power responsibilities differently. ■■■■■ ■■■ ■■■■■■■■■■■■■■■■■■■■■■■■ ■■■■■■■■■ ■■■ ■■■■■■■■■■ ■■■■■■■■■ ■■■■■■■■■■■ ■■■■■■■■ ■■■■■■■■■■■■■■ ■■■■■■■■■ ■■■ ■■■■■ ■■■■■■■■■ ■■■■■■ ■■■■■ ■■■■■■■■■■ ■■■■■■■■ ■■■■■ ■■■ ■■■■■ ■■■■■■■■ ■■■■■■ ■■■ ■■■■■■■■ ■■■■■■■■■ ■■■■■■■■■■ ■■ ■■■■■■■■■■■ ■■■■■■■■■■■■ ■■■■■■■■■■ ■■■■■■■■■■ ■■■ ■■■■■ ■■■■■■■■ ■■■■■ ■■■■■■■■ ■■■ ■■■■■■■ ■■■■■■■■

Tariffs add a classification-dependent contracting condition. ■■■■■■ ■■■■■■■■■ ■■■■ ■■■■■■■■■■■■ ■■■■■■■■■ ■■■■■■■ ■■■ ■■■■■■■ ■■■■■■■ ■■■■■■■■■■■■■■■■■■■■■ ■■■■■■■■■■■ ■■■■■■■■■ ■■ ■■■■■ ■■■■■■■■■ ■■■■■■ ■■■■■■ ■■■■■■■■■ ■■■■■■■■■ ■■■ ■■■ ■■■■■■ ■■■■■■■ ■■■■■■■■■■■■■■■ ■■■ ■■■■■■ ■■■ ■■■■■ ■■■ ■■■■■ ■■■■ ■■■■■■■■■ ■■■■■■■■■■■ ■■■■■■■■ ■■■ ■■■■■■ ■■■■■■■■■■ ■■■■■■■■■ ■■■ ■■■■■■ ■■■ ■■ ■■■■■■■■■ ■■■■■■■ ■■■■■■■■■■ ■■■■■■■■ ■■■■■■■■■■■■■ ■■■ ■■■■■■■■■■ ■■■■■■■■ A historical tariff notice alone does not settle the complete treatment of a particular shipment.

Sources & Evidence

1. EnerSys 2026 Proxy Statement and Annual Report
   · EnerSys discloses lead-linked pricing agreements, hedging, adjustment delays, and competitive pricing pressure across its diversified business. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))
2. IHS Holding Limited First-Quarter 2026 Financial Statements
   · IHS describes Nigerian power indexation, delayed foreign-exchange resets, and a different South African power-service allocation; these are contract examples, not battery-equipment pricing benchmarks. ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))
3. USTR Section 301 Four-Year Review Modifications Determination, September 2024
   · USTR's September 2024 determination scheduled product-specific Section xx.xx changes for covered Chinese non-electric-vehicle lithium-ion batteries in 2026. It does not establish every transaction's complete tariff treatment. ([ustr.gov](https://ustr.gov/sites/default/files/Section%xx.xx%20Modifications%20Determination%20FRN%xx.xx%28Sept%2012%xx.xx%xx.xx%xx.xx%28FINAL%xx.xx.pdf))

5.6. Regulatory Compliance & Standards Framework

[redacted] Separately, California's July xx.xx 2020 action required xx.xx-hour backup power for minimum service and coverage in Tier xx.xx and Tier xx.xx High Fire Threat Districts. Operators should map the applicable obligation before selecting equipment or managed capacity; these records do not establish a global battery-only requirement.

EU market access requires separate treatment of regulatory roles and dates. The European Commission identifies February xx.xx 2027 for mandatory passports in relevant battery categories and assigns accountability to the operator placing the finished battery on the market. [redacted]

Backup with Energy Management adds another access regime. [redacted] Infrastructure owners should confirm the participant role and compatibility with their telecom continuity contract before committing assets; service-provider support is an alternative to direct entry, not a waiver of eligibility.

Intellectual-property rights remain offering-specific. [redacted] Entrants must verify applicable product and jurisdiction rights separately from regulatory acceptance.

Sources & Evidence

1. EnerSys 2026 Proxy Statement and Annual Report
   · EnerSys reports numerous patents and licenses but does not consider any single patent material to its business; this does not establish product-specific freedom to operate. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))
2. Network and Service Resilience Guidance for Communications Providers, June 16, 2026
   · Ofcom's June xx.xx 2026 guidance explains statutory resilience duties and retains communications-provider responsibility for network portions operated by third parties. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/network-and-service-resilience-guidance-for-communications-providerspdf?v=xx.xx))
3. How to participate in the reserve markets | Fingrid
   · Fingrid requires owner permission where applicable, reserve-product agreements, and specified settlement arrangements; service-provider assistance does not remove these participation conditions. ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))
4. CPUC Requires Wireless Companies to Better Serve Customers in Emergencies
   · The CPUC's July xx.xx 2020 action required xx.xx-hour backup power for minimum service and coverage in Tier xx.xx and Tier xx.xx High Fire Threat Districts, alongside broader resilience planning. ([docs.cpuc.ca.gov](https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M343/K979/xx.xx.PDF))
5. Digital Product Passport for Batteries | European Commission
   · The Commission identifies February xx.xx 2027 for mandatory passports in relevant battery categories and assigns responsibility to the operator placing the finished battery on the EU market. ([single-market-economy.ec.europa.eu](https://single-market-economy.ec.europa.eu/single-market/digital-product-passport/batteries_en))
6. Simplification: Council adopts law to stop the clock on due diligence rules for batteries
   · The Council's July xx.xx 2025 announcement postponed relevant battery due-diligence obligations until August xx.xx 2027, separately from passport obligations. ([consilium.europa.eu](https://www.consilium.europa.eu/en/press/press-releases/2025/xx.xx/xx.xx/simplification-council-adopts-law-to-stop-the-clock-on-due-diligence-rules-for-batteries/))

5.7. ESG & Sustainability Analysis

For tower-based backup, environmental purchasing depends on attributable site information across organizational boundaries. MTN's April 2025 American Tower case describes storage and renewable-energy initiatives together with improved site-level emissions visibility. ■■■■ ■■■■■■■■ ■■ ■■■■■■■■■■■■■■■■■■ ■■■■■■■■■ ■■■■■■■ ■■■■■■■■■■■■■■ ■■■■■ ■■■ ■■■■■■■■ ■■■■■■■■■ ■■■ ■ ■■■■■■■■■■ ■■■■ ■■■ ■■■■■■■ ■■■■■■■■■ ■■■ ■ ■■■■■■■■ ■■■■■■■■■■ ■■■■■■■■■■ ■■■■■■■■■ ■■■■■■■■■ ■■■■■■■ ■■■■■■■ ■■■■■■■ ■■■■■■■ ■■■■■■■■■■■■■■■ ■■■ ■■■■■■■■■■■ ■■■ ■■■■■■■■■ ■■■■■■■■■ ■■■■■■■■■ ■■■■■■■■■■ ■■■■■■■■■ ■■■■■■■ ■■■■■■■■■ ■■■ ■■■■■■■ ■■■■■■■■ ■■■■■■■■■■ ■■■ ■■■■■■ ■■■■■■ ■■■■■■■■■■■ ■■ ■■■■■■■■■■ ■■■■■■■■■■■ ■■■ ■■■ ■■■■■■ ■■■■■■■■ ■■■■■■■■■

End-of-life accountability creates a separate purchasing choice. ■■■■■■■ ■■■■■■■■■ ■■■■■■■■ ■■■■■■■■ ■■■■■■■■■ ■■■■■■■■■■ ■■■■■■■■■ ■■ ■■■■■■■■ ■■■■■■■■■■■■■ ■■■■ ■■■■■■■■■ ■■■■■■■■■■■■■ ■■ ■■■■■■■■ ■■■■■■■■■■■ ■■■■■■■■■■ ■■■■■■■■■■■■■ ■■■ ■■■■■■■■ ■■■■■■■■■■■■■■■■■■ ■■■■■■ ■■■■■■ ■■■■ ■■■ ■■■■■■■■■■■ ■■ ■■■ ■■■■■■■■ ■■■■■■ Asset owners must still confirm territorial coverage, accepted chemistry, documentation, and who

owns the waste-management obligation; the described service does not establish equivalent treatment for every included Battery Technology.

Supplier governance also affects continuing access. Verizon expects environmental management, assessment of subcontractor supply chains, and tracking of waste managed on its behalf. [illegible]

Sources & Evidence

1. Verizon Supplier Code of Conduct
   · Verizon expects environmental management, subcontractor supply-chain assessment, and tracking and reporting of waste managed on its behalf. ([verizon.com](https://www.verizon.com/about/our-company/how-we-lead/policies/supplier-code-of-conduct))
2. Recycling | EnerSys
   · EnerSys identifies Americas availability for spent lead-acid collection regardless of manufacturer, with recycling certificates. This does not establish equivalent coverage for every chemistry or territory. ([enersys.com](https://www.enersys.com/en-gb/products/services/after-market-services/recycling/))
3. Strategic approach to network and supply emissions: building a sustainable network with ATC
   · MTN's April xx.xx 2025 case describes its American Tower collaboration on storage, renewable energy, and improved site-level emissions information; it does not establish comparative battery lifecycle superiority. ([mtn.com](https://www.mtn.com/case-study/strategic-approach-to-network-and-supply-emissions-building-a-sustainable-network-with-atc/))

5.8. Disruption & Risk Scenarios

[illegible] Buyers should preserve accepted temporary-support options while obtaining comparable permanent bids; Aggreko provides an advertised bridging route. Alternative resilience arrangements may satisfy the obligation, so a battery-only purchase should not be assumed necessary.

A revised tower-power agreement could move the purchasing budget and maintenance responsibility away from an established sales account. [illegible] An unchanged tower-access relationship is insufficient evidence that the power relationship also remains unchanged.

Failure to establish applicable EU passport accountability before relevant deliveries from February xx.xx 2027 could disrupt a seller's market-access plan. [illegible] This scenario does not assert that any named supplier is noncompliant.

[illegible] Contracts should define an orderly route to dedicated backup use or another accepted service arrangement, including outstanding obligations. The principal uncertainty is customer-specific allocation and realized economics, not evidence that the reported Finnish implementation has failed.

Sources & Evidence

1. Gridle Telco Solutions
   · Continuing optimization and trading create an additional service relationship. ([elisaindustriq.com](https://www.elisaindustriq.com/gridle/telecom-energy-management-solutions))
2. Network and Service Resilience Guidance for Communications Providers, June 16, 2026
   · Power, access, fuel, and interconnection are distinct continuity dependencies. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/network-and-service-resilience-guidance-for-communications-providerspdf?v=xx.xx))
3. How to participate in the reserve markets | Fingrid
   · Participation obligations persist independently of the software relationship. ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))
4. IHS Holding Limited First-Quarter 2026 Financial Statements
   · The South African power-service unwind changed IHS's fulfillment responsibility. ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))
5. Telecommunications | Aggreko US
   · The offering supports consideration of temporary bridging, not assumed local availability. ([aggreko.com](https://www.aggreko.com/en-us/sectors/telecommunications))
6. Digital Product Passport for Batteries | European Commission
   · Component documentation does not automatically discharge finished-battery passport accountability. ([single-market-economy.ec.europa.eu](https://single-market-economy.ec.europa.eu/single-market/digital-product-passport/batteries_en))

5.9. Return on Investment & Cost-Benefit Analysis

For an existing network asset owner, the relevant investment comparison is the least extensive accepted purchase that fulfills the same continuity obligation. ▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪ ▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪ ▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪ ▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ Eligible Americas lead-acid owners can also compare independent takeback with bundled lifecycle support, preserving sourcing choice while accepting additional coordination.

▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪ ▪▪▪▪▪ ▪▪▪ ▪ ▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪ ▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪ ▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪ ▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪ ▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ Its attractiveness depends on the local service boundary, remedies, counterparty continuity, and exit terms. Buyers should compare retained responsibilities across the alternatives before accepting recurring commitments; an apparently comprehensive package is unsuitable when critical obligations remain excluded.

For a tower owner, energy flexibility is an optional incremental commercial relationship rather than a justification for continuity investment by itself. Supplementary income must be assessed against software or service commitments, participation administration, settlement responsibilities, oversight, and any agreed additional maintenance exposure. ▪▪▪ ▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪ ▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪

Sources & Evidence

1. Vertiv NetSure M Series
   - The configurable package provides a broader purchasing alternative; final battery inclusion requires an explicit quotation. ([vertiv.com](https://www.vertiv.com/en-emea/products-catalog/facilities-enclosures-and-racks/outdoor-enclosures/netsure-m-series/))
2. Gridle Telco Solutions
   - The advertised commercial role supports examining supplementary income; promotional returns are not adopted. ([elisaindustriq.com](https://www.elisaindustriq.com/gridle/telecom-energy-management-solutions))
3. DC Power Services | Vertiv
   - Vertiv explicitly presents upgrading versus replacing a DC plant as a cost-benefit choice. ([vertiv.com](https://www.vertiv.com/en-us/products/services/dc-power-services/))

4. How to participate in the reserve markets | Fingrid
   · Market roles introduce agreements and settlement responsibilities. ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))
5. IHS Holding Limited First-Quarter 2026 Financial Statements
   · Required maintenance supports contractual continuity, not demonstrated investment returns. ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))
6. Recycling | EnerSys
   · Independent collection offers a lifecycle alternative; site eligibility and commitments require confirmation. ([enersys.com](https://www.enersys.com/en-gb/products/services/after-market-services/recycling/))
7. Telecommunications | Aggreko US
   · Rental establishes a different commitment period from permanent equipment ownership. ([aggreko.com](https://www.aggreko.com/en-us/sectors/telecommunications))
8. EnerSys Delaware Inc. Terms and Conditions for the Purchase of Services
   · The July xx.xx 2025 terms exclude specified consequential losses; contracting service does not establish complete outage-risk transfer. ([terms.enersys.com](https://terms.enersys.com/pdfs/en/Service/Service.pdf))
9. Solar & Battery as a Service - IPT Website
   · Ownership and upkeep can be assigned to the provider under the advertised service. ([iptpowertech.com](https://iptpowertech.com/solutions/solar-battery-as-a-service))

6. Cumulative Impact of Artificial Intelligence 2026

AI has a documented commercial role in Backup with Energy Management, rather than merely a hypothetical application. Elisa Industriq's June 2025 announcement reports DNA Tower Finland's connection of base-station batteries to Finnish reserve markets using its AI-based Distributed Energy Storage solution. ■■■■■■ ■■■■■■■■■ ■■■■■■■■■■■ ■■■■■■■■■■■■ ■■■■■■■■■■■■ ■■■ ■■■■■■■■■■■■■■■■■■ ■■■■■■■ ■■■ ■■■■■■■ ■■■■■■■■■■ ■■■ ■■■■■■■■■ ■■■■■■ ■■ ■■ ■■■■■■■■■■ ■■■■■■■■ ■■■ ■■■■■■■■■■■■■ ■■■■■■■■■■■■ ■■■■■■ ■■■■■■ ■■■■■■■ ■■■■■■■ ■■■■■■ ■■■■■■■■■■■ ■■■■■■■■■■ ■■■■■■ ■■■ ■■■■■■■■■■■■■ ■■ ■■■■■■■■■■ ■■■■■■■■ ■■■■■■■■■

Implementation requires commercial rights as well as software integration. Fingrid's owner-permission and market-agreement conditions remain relevant to the Finnish example. ■■■■■■■ ■■■■■■■■■■■■■■ ■ ■■■■■ ■■■■■■■■■ ■■■■■■ ■■■■■■■■■ ■■■■■ ■■■■■■ ■■■■■ ■■■■■■■■■■ ■■■■■■■■■■■ ■■■ ■■■■■■■■ ■■■■■ ■■■■■■ ■■■■■■■■■■■ ■■■■■ ■■■■ ■ ■■■■■■■■ ■■■■■■■■■■■■ ■■■■■■■■ ■■■ ■■■ ■■■■■■ ■■■■■■■■■■ ■■■■■ ■■■■■■ ■■■■■■■■■■■■■■ ■■■■■■■■■■ ■■■■■■■■ ■■■■■■■■ ■■■ ■■■■■■ ■■■■■ ■■■■■■■■■■■■■■■■■ ■■■■ ■■■ ■■■■■■■■■■■■■■ ■■■■■■■

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Sources & Evidence

1. Gridle Telco Solutions
   · Gridle describes AI-supported monitoring, forecasting, aggregation, and electricity-market trading for telecom backup batteries; supplier descriptions do not independently establish customer outcomes. ([elisaindustriq.com](https://www.elisaindustriq.com/gridle/telecom-energy-management-solutions))
2. Network and Service Resilience Guidance for Communications Providers, June 16, 2026
   · Ofcom identifies potential significant outages from failures in machine-learning software or logic affecting networks and services. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/network-and-service-resilience-guidance-for-communications-providerspdf?v=xx.xx))
3. How to participate in the reserve markets | Fingrid
   · Finnish reserve-market eligibility depends on asset permissions and contractual market roles rather than possession of optimization software alone. ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))

4. DNA Tower becomes world's first tower company to offer battery capacity in electricity reserve markets with Elisa DES

   · Elisa Industriq's June 2025 announcement reports DNA Tower Finland's connection of base-station batteries to Finnish reserve markets using its AI-based Distributed Energy Storage solution. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/press-releases/dna-tower-becomes-worlds-first-tower-company-to-offer-battery-capacity-in-electricity-reserve-markets-with-elisa-des))

5. Elisa's Ethical Principles for Data and Artificial Intelligence, 2021

   · Elisa's published 2021 Data and AI principles retain human accountability and address intended data use, protection, security, and auditability; policy publication does not establish individual-contract implementation. ([static.elisa.com](https://static.elisa.com/v2/image/2tqybbhjs47b/3NlAhU5S11vQxTe4vKgLqH/2021%20ELISA%20Ethical%20principles%20for%20Data%20and%20AI.pdf?w=xx.xx))

7. Telecom Battery Backup System Market, by Offering

[illegible] EnerSys lists PowerSafe SBS as a telecom battery offering, while Vertiv's NetSure M Series combines an enclosure proposition with DC power and battery options. A system quotation should therefore identify its included equipment and acceptance obligations; the presence of battery options does not establish that every configured package includes them.

Existing infrastructure can favor a narrower purchase. Vertiv offers cross-manufacturer DC power projects and describes upgrades as alternatives to replacing an entire plant. [illegible] Buyers should separate the equipment purchase from ongoing fulfillment obligations. Suppliers bidding either offering class should make these exclusions explicit rather than imply that a broader hardware package necessarily transfers maintenance or end-of-life responsibility.

Figure 8. Global Telecom Battery Backup System Market Size, by Offering, 2025 (%)

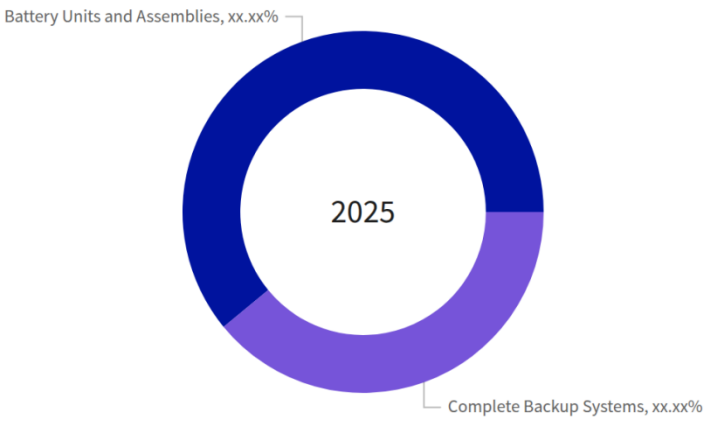

Figure 9. Global Telecom Battery Backup System Market, by Offering, 2032 (USD Million)

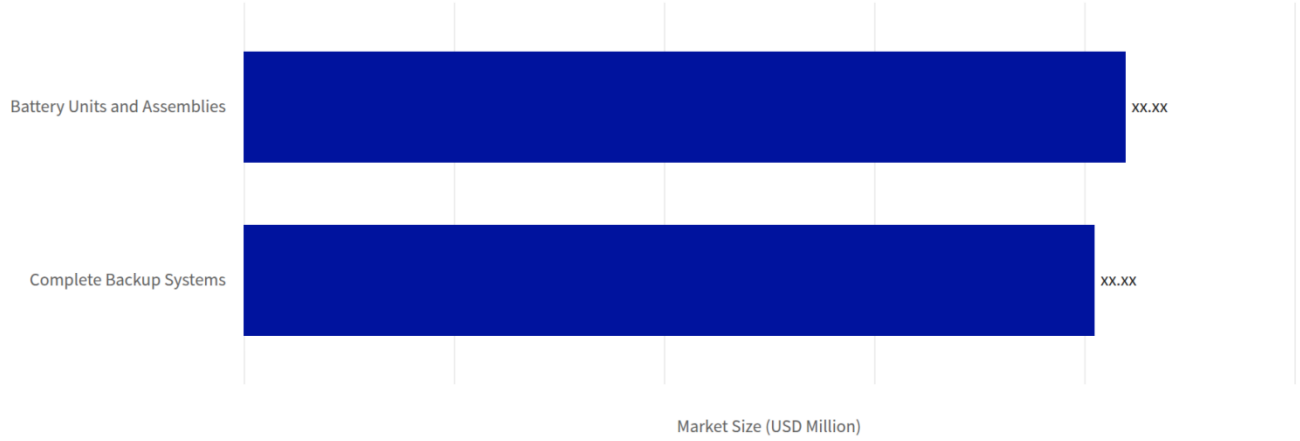

Table 4. Global Telecom Battery Backup System Market, by Offering growth contribution, 2025-2032

Category	2025 value (USD Million)	2032 value (USD Million)	Added value (USD Million)	2025 share (%)	2032 share (%)	Change (pp)	Growth share (%)	CAGR (%)
Battery Units and Assemblies	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Complete Backup Systems	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scope total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 5. Global Telecom Battery Backup System Market Size, by Offering, 2017-2032 (USD Million)

Offering	2023	2024	2025	2026	2027	2032	CAGR (%)
Battery Units and Assemblies	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Complete Backup Systems	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. PowerSafe SBS Batteries | EnerSys

   · EnerSys lists PowerSafe SBS batteries for telecom applications, establishing a named battery offering distinct from a broader configured infrastructure package. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-sbs/))

   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: Named telecom batteries support the battery-unit offering boundary; allocation weights are assumed.

   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Named telecom batteries support the battery-unit offering boundary; allocation weights are assumed.

2. Vertiv NetSure M Series
   - Vertiv describes NetSure M Series as an outdoor enclosure proposition paired with DC power and battery options; the description does not establish each customer's final bundle. ([vertiv.com](https://www.vertiv.com/en-emea/products-catalog/facilities-enclosures-and-racks/outdoor-enclosures/netsure-m-series/))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Configured enclosure, power and battery options support broader system classification, not universal bundle inclusion.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Configured enclosure, power and battery options support broader system classification, not universal bundle inclusion.
3. DC Power Services | Vertiv
   - Vertiv offers cross-manufacturer DC power projects and describes upgrades as alternatives to replacing an entire plant. The resulting replacement-versus-system choice remains conditional on continuing support. ([vertiv.com](https://www.vertiv.com/en-us/products/services/dc-power-services/))
4. Battery Backup | Meriwether Lewis Electric Cooperative
   - MLConnect describes the backup device as a purchased product and assigns battery acquisition, replacement, and disposal responsibility to the customer. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Taxonomy evidence: The provider separately offers purchased backup devices and replacement batteries, supporting distinct finished-hardware deliverables. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Taxonomy evidence: The connectivity provider identifies purchased backup equipment and separately purchasable replacement batteries, corroborating distinct finished-hardware deliverables. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Separately available replacement batteries support a battery-only replacement route.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Separately available replacement batteries support a battery-only replacement route.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The USD100-plus-tax device is a retail comparator, not an observed 2025 first-sale realization.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The USD100-plus-tax device is a retail comparator, not an observed 2025 first-sale realization.
5. China Tower - 2025 Annual Results, March 18, 2026
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Replacement/improvement CAPEX fell from RMB6837m to RMB5474m, qualifying automatic replacement-led growth.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Replacement/improvement CAPEX fell from RMB6837m to RMB5474m, qualifying automatic replacement-led growth.
6. Broadband Commission - The State of Broadband: Our Digital World, 2025
   - Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))

7. EnerSys 2026 Proxy Statement and Annual Report

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate.
([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))

8. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

9. Amara Raja Energy & Mobility - Q2/H1 FY2026 Earnings Presentation, November 6, 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand.
([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))

10. IHS Holding Limited - First-Quarter 2026 Financial Statements

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement.
([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

11. Ofcom - Mobile RAN Power Resilience: Technical Report and CFI Update, February 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

12. Ofcom - Your Landline Is Going Digital: What You Need to Know

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool.
([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate.
([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

13. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone
    - Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue.
    ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
    - Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions.
    ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
14. Fingrid - How to Participate in the Reserve Markets
    - Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue.
    ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))

7.1. Battery Units and Assemblies

Table 6. Global Telecom Battery Backup System Market Size, by Battery Units and Assemblies, by Region, 2017-2032 (USD Million)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 7. Global Telecom Battery Backup System Market Size, by Battery Units and Assemblies, by Group, 2017-2032 (USD Million)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 8. Global Telecom Battery Backup System Market Size, by Battery Units and Assemblies, by Country, 2017-2032 (USD Million)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. Battery Backup - Meriwether Lewis Electric Cooperative
   - Taxonomy evidence: Replacement batteries are separately purchasable. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Taxonomy evidence: Replacement batteries are separately offered for purchase rather than treated solely as inseparable elements of a new system. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Separately available replacement batteries support a battery-only replacement route.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Separately available replacement batteries support a battery-only replacement route.
2. IEC 60896-22:2004 | IEC
   - Taxonomy evidence: The scope identifies stationary lead-acid cells and monobloc batteries for telecom applications, supporting finished battery deliverables. ([webstore.iec.ch](https://webstore.iec.ch/en/publication/xx.xx))
   - Taxonomy evidence: The scope separately identifies stationary lead-acid cells and monobloc batteries used in telecom and UPS applications, supporting finished battery deliverables rather than only complete systems. ([webstore.iec.ch](https://webstore.iec.ch/en/publication/xx.xx))

3. ITU-T L.1397 (10/2025) - Battery system with integrated control and monitoring information model
   · Taxonomy evidence: The telecom recommendation recognizes battery cells, modules, strings, packs, and battery systems, including integrated control, without equating every battery assembly with a complete UPS. ([itu.int](https://www.itu.int/rec/dologin_pub.asp?id=T-REC-L.xx.xx-xx.xx-I%xx.xx%21PDF-E&lang=e&type=items))
4. China Tower - 2025 Annual Results, March 18, 2026
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))
   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China's spending cycle is retained as a counterforce in the regional forecast.
   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: Replacement/improvement CAPEX fell from RMB6837m to RMB5474m, qualifying automatic replacement-led growth.
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Replacement/improvement CAPEX fell from RMB6837m to RMB5474m, qualifying automatic replacement-led growth.
5. Broadband Commission - The State of Broadband: Our Digital World, 2025
   · Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))
6. EnerSys 2026 Proxy Statement and Annual Report
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))
7. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom-specific sales weakness is a purchasing-cycle counterforce, not a measure of all Asian backup-system demand.
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom application revenue provides counterevidence to extrapolating broad energy-storage growth into China's backup forecast.
8. Amara Raja Energy & Mobility - Q2/H1 FY2026 Earnings Presentation, November 6, 2025
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand. ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))

9. IHS Holding Limited - First-Quarter 2026 Financial Statements

   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement.
   ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

10. Ofcom - Mobile RAN Power Resilience: Technical Report and CFI Update, February 2025

    · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue.
    ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

    · Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation.
    ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

    · Evidence informing base-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

    · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

    · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Jurisdiction-specific resilience economics qualify a uniform Europe-wide demand uplift.

11. Ofcom - Your Landline Is Going Digital: What You Need to Know

    · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool.
    ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

    · Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate.
    ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

12. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone

    · Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue.
    ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))

    · Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions.
    ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))

13. Fingrid - How to Participate in the Reserve Markets
    - Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue.
    ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))
14. China Tower announces 2025 annual results - March 18, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.
15. Government of India, Department of Telecommunications - Telecom Statistics India 2025, international comparison tables
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Wireless and fixed-access customer pools are distinguished in the country model.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Wireless and fixed-access customer pools are distinguished in the country model.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.

16. American Tower Corporation - Annual Report on Form 10-K for 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
17. Cellnex - Integrated Annual Report 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.

18. IHS Holding Limited - Annual Report on Form 20-F for 2024
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
19. Australian Government - Mobile Network Hardening Program
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The limited Australian program qualifies extrapolation of resilience funding across Asia-Pacific.
20. CPUC Requires Wireless Companies to Better Serve Customers in Emergencies - July 16, 2020
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
21. CRTC - Request for Information on Telecommunications Network Resiliency, May 12, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The information request seeks evidence on possible backup requirements and customer equipment costs; it is not an enacted national procurement program.
22. FCC - Internet Access Services: Status as of December 31, 2024, official state-government-hosted copy
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
23. OECD - High-capacity broadband networks gain ground across OECD, October 13, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Observed mature-market connectivity growth and differing fibre/5G adoption constrain replacement and expansion assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Latin American fibre migration supports a conditional fixed-access expansion premise, not automatic battery attachment.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: High mature-market fibre adoption is retained as a saturation counterforce to the purchasing forecast.

24. PowerSafe SBS Batteries | EnerSys
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Named telecom batteries support the battery-unit offering boundary; allocation weights are assumed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Named telecom batteries support the battery-unit offering boundary; allocation weights are assumed.

7.2. Complete Backup Systems

Table 9. Global Telecom Battery Backup System Market Size, by Complete Backup Systems, by Region, 2017-2032 (USD Million)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 10. Global Telecom Battery Backup System Market Size, by Complete Backup Systems, by Group, 2017-2032 (USD Million)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 11. Global Telecom Battery Backup System Market Size, by Complete Backup Systems, by Country, 2017-2032 (USD Million)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. Battery Backup - Meriwether Lewis Electric Cooperative
   - Taxonomy evidence: A purchased backup device protects the provider's ONT and gateway. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Taxonomy evidence: The provider offers a purchased battery-backup device protecting its optical network terminal and connectivity equipment. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The USD100-plus-tax device is a retail comparator, not an observed 2025 first-sale realization.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The USD100-plus-tax device is a retail comparator, not an observed 2025 first-sale realization.
2. IEC 62040-3:2021 | IEC
   - Taxonomy evidence: The publication distinguishes complete UPS equipment from individual functional units and identifies continuity of load power as its principal function. ([webstore.iec.ch](https://webstore.iec.ch/en/publication/xx.xx))
   - Taxonomy evidence: The standard identifies complete electronic UPS equipment whose principal function is continuity of load power. ([webstore.iec.ch](https://webstore.iec.ch/en/publication/xx.xx))

3. IEC 62040-5-3:2016 | IEC
   · Taxonomy evidence: The standard distinguishes a complete DC UPS from individual functional units and identifies continuity of DC load power as its principal function. ([webstore.iec.ch](https://webstore.iec.ch/en/publication/xx.xx))
4. TEC 66160:2024 - Hybrid (AC+DC) Uninterrupted Power Supply System
   · Taxonomy evidence: The official telecom classification recognizes a complete hybrid UPS supplying uninterrupted AC and DC power. Only attributable battery-backup hardware falls within this market's frozen perimeter. ([tec.gov.in](https://tec.gov.in/pdf/GRFA/Final%20TEC_%20GR_%20Hybrid%20UPS_June%202024_21062024.pdf))
5. China Tower - 2025 Annual Results, March 18, 2026
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))
   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China's spending cycle is retained as a counterforce in the regional forecast.
6. Broadband Commission - The State of Broadband: Our Digital World, 2025
   · Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))
7. EnerSys 2026 Proxy Statement and Annual Report
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))
8. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom-specific sales weakness is a purchasing-cycle counterforce, not a measure of all Asian backup-system demand.
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom application revenue provides counterevidence to extrapolating broad energy-storage growth into China's backup forecast.
9. Amara Raja Energy & Mobility - Q2/H1 FY2026 Earnings Presentation, November 6, 2025
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand. ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))

10. IHS Holding Limited - First-Quarter 2026 Financial Statements

    · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement.
    ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

11. Ofcom - Mobile RAN Power Resilience: Technical Report and CFI Update, February 2025

    · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue.
    ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

    · Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation.
    ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

    · Evidence informing base-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

    · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

    · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Jurisdiction-specific resilience economics qualify a uniform Europe-wide demand uplift.

12. Ofcom - Your Landline Is Going Digital: What You Need to Know

    · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool.
    ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

    · Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate.
    ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

13. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone

    · Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue.
    ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))

    · Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions.
    ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))

14. Fingrid - How to Participate in the Reserve Markets
- Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue.
([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))

15. China Tower announces 2025 annual results - March 18, 2026
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.

16. Government of India, Department of Telecommunications - Telecom Statistics India 2025, international comparison tables
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Wireless and fixed-access customer pools are distinguished in the country model.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Wireless and fixed-access customer pools are distinguished in the country model.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.

17. American Tower Corporation - Annual Report on Form 10-K for 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
18. Cellnex - Integrated Annual Report 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.

19. IHS Holding Limited - Annual Report on Form 20-F for 2024
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
20. Australian Government - Mobile Network Hardening Program
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The limited Australian program qualifies extrapolation of resilience funding across Asia-Pacific.
21. CPUC Requires Wireless Companies to Better Serve Customers in Emergencies - July 16, 2020
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
22. CRTC - Request for Information on Telecommunications Network Resiliency, May 12, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The information request seeks evidence on possible backup requirements and customer equipment costs; it is not an enacted national procurement program.
23. FCC - Internet Access Services: Status as of December 31, 2024, official state-government-hosted copy
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
24. OECD - High-capacity broadband networks gain ground across OECD, October 13, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Observed mature-market connectivity growth and differing fibre/5G adoption constrain replacement and expansion assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Latin American fibre migration supports a conditional fixed-access expansion premise, not automatic battery attachment.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: High mature-market fibre adoption is retained as a saturation counterforce to the purchasing forecast.

25. Vertiv NetSure M Series
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Configured enclosure, power and battery options support broader system classification, not universal bundle inclusion.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Configured enclosure, power and battery options support broader system classification, not universal bundle inclusion.

8. Telecom Battery Backup System Market, by Battery Technology

Battery Technology differentiates supplier screening and support commitments, not merely a chemistry label. EnerSys' central-office portfolio identifies Flooded Lead-Acid and Valve-Regulated Lead-Acid alternatives; ETSI describes Absorbent Glass Mat and Gel telecom examples, and EnerSys explicitly lists PowerSafe OPzV as a Gel offering for small cells, macro cells, and switching centers. ■■■■■ ■■■■■■■ ■■■■■■■ ■■■■■■■■ ■■■■■■■■■■ ■■■■■■■■■■■■ ■■■■■■ ■■■■■■■■■■ ■■■ ■■ ■■■ ■■■■■■■■■ ■■■■■■■■■■■■■■ ■■■■■■■■■■ ■■■■■■■■■ ■■■■■■■ ■■■■■■ ■■■■■■■ ■■■ ■■■■■ ■■■■■■■■■ ■■■■■■■■■■ ■■■ ■■■■■■■■■■ ■■■■■■■ ■■■■■■■■■■ ■■■■■■ ■■■■■■■■ ■■■■■■■■■■■■■■

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Sodium-Based and Metal-Air have supplier propositions beyond stationary-technology recognition. ■■■■■■ ■■■■■■■■■■ ■■■■■■■■■■■■■■■■■■■■■■ ■■■■■■■ ■■■■■■■ ■■■ ■■■■■■ ■■■■■■ ■■■■■■■ ■■■■■ ■■■ ■■ ■■■■■ ■■■ ■■■■■■■ ■■■■ ■■■■■■■■ ■■■ ■■■■ ■■■■■ ■■■■ ■ ■■■■■■■■■■ ■■■■■■ ■■■■■■■■ ■■■■■■■ ■■■■■■■■■■■■ ■■■■■■ ■■ ■■■■■■■ ■■■■■■■■■ ■■■ ■■■■■■ ■■■■■■■■■■ ■■■ ■■■■■■■■■■ ■■■■ ■■■■■■■■■ ■■■■■■■■■■■■ ■■■■■■■ ■■ ■■■■■■■ ■■■■■■■■■■■■■ ■■■■■■■■■ ■■■■■ ■■■■■■■■■■ ■■■■■■ ■■■■■■■■■■ ■■■■■■■■■ ■■■■■■■■■■■■ ■■■ ■■■■■■■■■ ■■■■■■■■■■■■ ■■ ■■■■■ ■■■■■■■■ Buyers considering substitution should confirm the seller, protected telecom obligation, warranty allocation, and destination support before commitment.

Other evidence types require a different commitment threshold. ■■■■■■■■■■■■■ ■■■■■■■ ■■ ■■■■■■ ■■■■■■■■■■■■■■■■■■ ■■■■■■■■■■■ ■■■ ■■■■■■■■■■■■■ ■■■■■ ■■■■ ■■■ ■■■■■■■■■ ■■ ■■■■■■■■■■ ■■■■■■■ ■■■■■■ ■■■■■■■■■■■■ ■■■■■■■■■■ ■■■■ ■■■■■■■■■ ■■■■■■■■■■ ■■■ ■■■■■■ ■■■■■■ ■■■ ■■■■■■■ ■■■ ■■■■■ ■■■■■■■■■■ ■■■■■■■■■■■■■ ■■■ ■■■■■■■■■■ ■■■■■■■ ■■■■ ■■■ ■■■■■■■ ■■■■■■■■■■■ ■■■■■ ■■■■■■■ ■■■■■■■■■■■■■ ■■■ ■■■■■■■■ ■■■■■■■■■■■■ ■■■■■ ■■■■■■■■■■■■ ■■■■ ■■■■ ■■■■■■■ ■■■■■ ■■■■■ ■■■■ ■■■■■■■■■ ■■■■ ■■■■■■■■ ■■■■■ ■■■■■■ ■■■■■■■■■■■ ■■■■■■■■■ ■■■■■■■■■■■■ ■■■ ■■■■■■■■ ■■■■■■■■■■■ ■■ ■■ ■■■■■■■■■ ■■■■■■■■■■■■■■■ Buyers should obtain a dated offering and fulfillment commitment rather than infer commercial absence or readiness from these records.

Multi-Chemistry creates a separate accountability question. ▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪ ▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪ All included technologies remain in scope, regardless of the strength of evidence for an individual supplier or transaction.

Figure 10. Global Telecom Battery Backup System Market Size, by Battery Technology, 2025 (%)

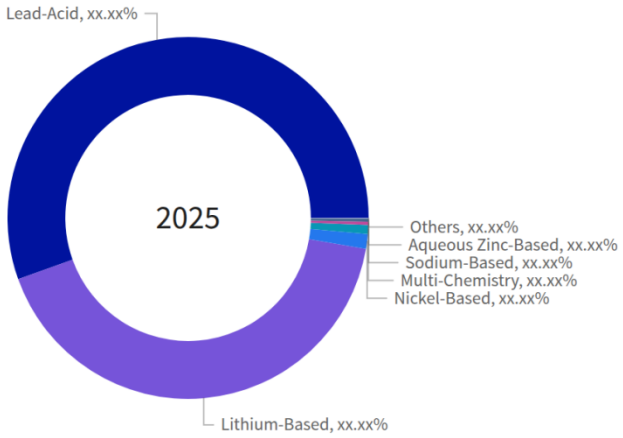

Figure 11. Global Telecom Battery Backup System Market, by Battery Technology, 2032 (USD Million)

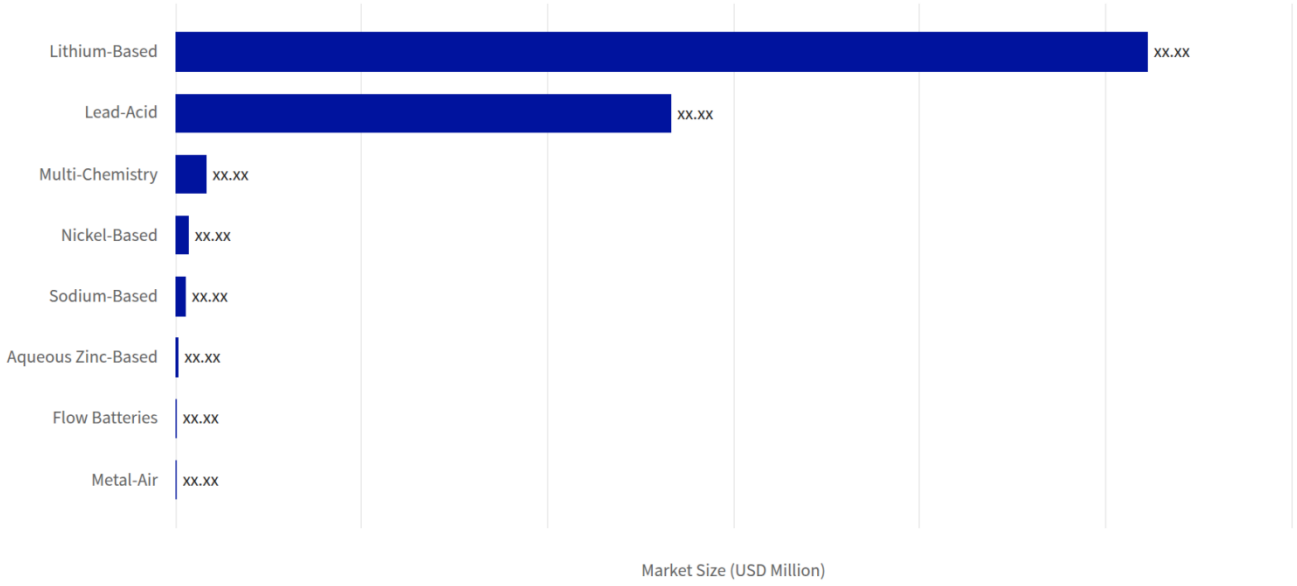

Table 12. Global Telecom Battery Backup System Market, by Battery Technology growth contribution, 2025-2032

Category	2025 value (USD Million)	2032 value (USD Million)	Added value (USD Million)	2025 share (%)	2032 share (%)	Change (pp)	Growth share (%)	CAGR (%)
Aqueous Zinc-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Flow Batteries	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lithium-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Metal-Air	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Multi-Chemistry	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Sodium-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scope total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 13. Global Telecom Battery Backup System Market Size, by Battery Technology, 2017-2032 (USD Million)

Battery Technology	2023	2024	2025	2026	2027	2032	CAGR (%)
Aqueous Zinc-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Flow Batteries	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lithium-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Metal-Air	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Multi-Chemistry	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Sodium-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. Telecom Lithium Batteries | Vertiv
   - Vertiv lists Telecom Lithium Batteries as a Lithium-Ion offering for telecom applications and provides a sales-contact route. The catalog does not establish customer-specific acceptance or destination fulfillment.
2. PowerSafe NiCd Batteries | EnerSys
   - EnerSys identifies PowerSafe NiCd as Nickel-Cadmium and lists central offices or switching centers and outside plant among its applications.

3. HORIEN Salt Battery Solutions and Inlyte Energy Announce a Strategic Partnership
   - HORIEN's March xx.xx 2025 company statement identifies sodium-metal-chloride storage and telecommunications backup as its own business proposition. The separate Inlyte memorandum is not treated as completed telecom commercialization.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: HORIEN's March xx.xx 2025 statement identifies sodium-metal-chloride telecom backup. Its separate partnership announcement is not counted as delivered telecom sales. ([horien.com](https://horien.com/wp-content/uploads/2025/xx.xx/Press-Release_HORIEN-Inlyte-International-Version.pdf))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: HORIEN's March xx.xx 2025 statement identifies sodium-metal-chloride telecom backup. Its separate partnership announcement is not counted as delivered telecom sales. ([horien.com](https://horien.com/wp-content/uploads/2025/xx.xx/Press-Release_HORIEN-Inlyte-International-Version.pdf))
4. HORIEN TL Range | Telecom Batteries | Alpine Power Systems
   - Alpine Power Systems lists HORIEN TL Range sodium-metal-chloride batteries for telecom base stations and core sites and provides a quotation route. This establishes Alpine's advertised channel proposition, not confirmed stock, manufacturer authorization, or customer acceptance.
5. Energy Backup | Phinergy
   - Phinergy markets Aluminum-Air backup systems and explicitly identifies telecom operators and tower companies as purchasing constituencies. Its portfolio does not independently establish comparative performance or another customer's acceptance.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Phinergy markets Aluminum-Air continuity offerings to telecom operators and tower companies. The source supports category and buyer mapping, not the modeled installed attachment or replacement numerator. ([phinergy.com](https://phinergy.com/solutions/energy-backup/))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Phinergy markets Aluminum-Air continuity offerings to telecom operators and tower companies. The source supports category and buyer mapping, not the modeled installed attachment or replacement numerator. ([phinergy.com](https://phinergy.com/solutions/energy-backup/))
6. Phinergy Ltd. Report for the First Half Ended June 30, 2026
   - Phinergy's first-half 2026 report discloses a March xx.xx 2026 agreement with Swisscom Broadcast AG and an initial purchase for demonstration. Further purchasing intentions are expressly nonbinding; the transaction does not establish broad end-customer rollout.
7. Central Office Power Systems | EnerSys
   - EnerSys' central-office portfolio identifies Flooded Lead-Acid, Valve-Regulated Lead-Acid, and Lithium-Ion alternatives. Portfolio inclusion does not establish interchangeable customer acceptance.
8. ETSI TS 103 553-2 V1.1.1 - Innovative Energy Storage Technology for Stationary Use; Part 2: Battery
   - ETSI TS xx.xx xx.xx-xx.xx published in November 2021, discusses Lithium-Metal within its stationary-battery overview and includes Absorbent Glass Mat and Gel telecom examples. These classification and application examples do not establish a current supplier delivery commitment.
   - Taxonomy evidence: The stationary-battery overview recognizes lead, nickel, lithium, sodium, metal-air, and flow technologies; it is not a census of commercial telecom sales. ([etsi.org](https://www.etsi.org/deliver/etsi_ts/103500_103599/xx.xx/xx.xx.01_60/ts_10355302v010101p.pdf))
   - Taxonomy evidence: The stationary technology overview distinguishes lead, nickel, lithium-ion, sodium, metal-air, and flow technologies; it does not establish an exhaustive commercial market partition. ([etsi.org](https://www.etsi.org/deliver/etsi_ts/103500_103599/xx.xx/xx.xx.01_60/ts_10355302v010101p.pdf))
9. PowerSafe OPzV Batteries | EnerSys
   - EnerSys lists Gel as the PowerSafe OPzV chemistry and identifies small cells, macro cells, and central offices or switching centers among its applications.

10. FDK Ni-MH Battery Is Chosen for the Cellect 600 Product of Alpha Technologies
    - FDK's October xx.xx 2015 announcement identifies its Nickel-Metal Hydride battery in Alpha Technologies' Cellect xx.xx small-cell power supply. The historical announcement does not establish current destination-specific fulfillment.
11. Products | Encell Technology
    - Encell's product page identifies its Fused Iron Nickel-Iron battery and includes telecom among its intended applications. Undated supplier positioning does not establish a current customer-specific fulfillment commitment.
12. Telecom/5G | ZAF Energy Systems
    - ZAF positions Nickel-Zinc for telecom and 5G applications. Its supplier description does not establish a dated local delivery or support commitment.
13. Australian Flow Batteries - RFB40X Series
    - Australian Flow Batteries identifies RFB40X as a vanadium flow series for stationary applications including telecom. The product literature does not establish a customer's current telecom-backup contract or local fulfillment.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: RFB40X literature identifies telecom among stationary commercial applications. It supports the qualifying project boundary, not delivered projects, revenue or assumed attachment. ([afb.energy](https://www.afb.energy/wp-content/uploads/2025/xx.xx/Australian-Flow-Batteries-RFB40X-Series-2024.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: RFB40X literature identifies telecom among stationary commercial applications. It supports the qualifying project boundary, not delivered projects, revenue or assumed attachment. ([afb.energy](https://www.afb.energy/wp-content/uploads/2025/xx.xx/Australian-Flow-Batteries-RFB40X-Series-2024.pdf))
14. ITU-T Work Programme - Aqueous Zinc-Based Battery Systems for Base Station Applications
    - ITU's Aqueous Zinc-Based Battery Systems for Base Station Applications work item has Under study status and December 2027 timing. This establishes standards-development status, not an approved recommendation or a customer procurement commitment.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The aqueous-zinc base-station work item is Under study with December 2027 timing. It constrains the forecast commercialization assumption but establishes neither approval nor customer purchases. ([itu.int](https://www.itu.int/itu-t/workprog/wp_item.aspx?isn=xx.xx))
15. ITU-T L.1397 - Battery System with Integrated Control and Monitoring Information Model
    - ITU-T L.xx.xx approved on October xx.xx 2025, names hybrid lithium-lead, lithium-sodium, and sodium-lead combinations in its information model. Category recognition does not identify a currently available supplier package or assign contractual accountability.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The October 2025 recommendation names lithium-lead, lithium-sodium and sodium-lead combinations. This supports mixed-family classification, not inseparable pricing or Global prevalence. ([itu.int](https://www.itu.int/rec/dologin_pub.asp?id=T-REC-L.xx.xx-xx.xx-I%xx.xx%21PDF-E&lang=e&type=items))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The October 2025 recommendation names lithium-lead, lithium-sodium and sodium-lead combinations. This supports mixed-family classification, not inseparable pricing or Global prevalence. ([itu.int](https://www.itu.int/rec/dologin_pub.asp?id=T-REC-L.xx.xx-xx.xx-I%xx.xx%21PDF-E&lang=e&type=items))
16. China Tower - 2025 Annual Results, March 18, 2026
    - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))

17. Broadband Commission - The State of Broadband: Our Digital World, 2025

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))

18. Battery Backup - Meriwether Lewis Electric Cooperative

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))

19. EnerSys 2026 Proxy Statement and Annual Report

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))

20. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: Audited 2025 telecom revenue of RMB1,xx.xx declined xx.xx%; telecom purchasing weakness is retained as counterevidence to automatic substitution-led aggregate growth. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Audited 2025 telecom revenue of RMB1,xx.xx declined xx.xx%; telecom purchasing weakness is retained as counterevidence to automatic substitution-led aggregate growth. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: Telecom-specific results are separated from adjacent data-center and power-storage growth when assessing lithium substitution; the filing does not disclose the modeled Global split. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom-specific results are separated from adjacent data-center and power-storage growth when assessing lithium substitution; the filing does not disclose the modeled Global split. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

21. Amara Raja Energy & Mobility - Q2/H1 FY2026 Earnings Presentation, November 6, 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand. ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))

22. IHS Holding Limited - First-Quarter 2026 Financial Statements

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement. ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

23. Ofcom - Mobile RAN Power Resilience: Technical Report and CFI Update, February 2025
· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))
· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))
24. Ofcom - Your Landline Is Going Digital: What You Need to Know
· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool.
([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate.
([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
25. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone
· Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue.
([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
· Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions.
([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
26. Fingrid - How to Participate in the Reserve Markets
· Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue.
([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))

27. Shuangdeng Group Co., Ltd. - Global Offering Prospectus, August 18, 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The company's own five-month 2025 lead-acid realization of RMB520.xx.xx/kWh constrains the relative-price bridge; syndicated industry claims are excluded. Forecast convergence remains assumed. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The company's own five-month 2025 lead-acid realization of RMB520.xx.xx/kWh constrains the relative-price bridge; syndicated industry claims are excluded. Forecast convergence remains assumed. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Own lithium-ion realization of RMB595.xx.xx/kWh is an input to the Lithium-Based value model, not a Global share or a Lithium-Metal sales observation. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Own lithium-ion realization of RMB595.xx.xx/kWh is an input to the Lithium-Based value model, not a Global share or a Lithium-Metal sales observation. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
28. Amara Raja Crosses 1 GWh Lithium Storage Deployment Powering India's Telecom Networks
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The April xx.xx 2026 disclosure reports approximately xx.xx GWh across xx.xx cumulative telecom lithium sites over four years. This is a commercial adoption scale check, not annual Global revenue or a supplier-share input. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The April xx.xx 2026 disclosure reports approximately xx.xx GWh across xx.xx cumulative telecom lithium sites over four years. This is a commercial adoption scale check, not annual Global revenue or a supplier-share input. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
29. PowerReserve - Verizon Residential Accessories
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Verizon advertises an alkaline-cell voice-backup device at USD39.xx.xx excluding batteries. This supports a qualifying primary-zinc premises route and price comparator, not assumed Global attachment or first-sale realization. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Verizon advertises an alkaline-cell voice-backup device at USD39.xx.xx excluding batteries. This supports a qualifying primary-zinc premises route and price comparator, not assumed Global attachment or first-sale realization. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
30. Alkaline Manganese Dioxide Handbook and Application Manual - Energizer
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The manufacturer's alkaline manganese-dioxide classification supports the zinc-family mapping for qualifying premises backup. It provides no telecom purchasing weight. ([data.energizer.com](https://data.energizer.com/pdfs/alkaline_appman.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The manufacturer's alkaline manganese-dioxide classification supports the zinc-family mapping for qualifying premises backup. It provides no telecom purchasing weight. ([data.energizer.com](https://data.energizer.com/pdfs/alkaline_appman.pdf))

8.1. Lead-Acid

Table 14. Global Telecom Battery Backup System Market, by Lead-Acid growth contribution, 2025-2032

Category	2025 value (USD Million)	2032 value (USD Million)	Added value (USD Million)	2025 share (%)	2032 share (%)	Change (pp)	Growth share (%)	CAGR (%)
Flooded Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	N/A	xx.xx
Valve-Regulated Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	N/A	xx.xx
Scope total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**N/A**	**xx.xx**

Table 15. Global Telecom Battery Backup System Market Size, by Lead-Acid, by Region, 2017-2032 (USD Million)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 16. Global Telecom Battery Backup System Market Size, by Lead-Acid, by Group, 2017-2032 (USD Million)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 17. Global Telecom Battery Backup System Market Size, by Lead-Acid, by Country, 2017-2032 (USD Million)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. IEC 60896-22:2004 | IEC
   - Taxonomy evidence: Stationary lead-acid is explicitly recognized for telecom and UPS applications. ([webstore.iec.ch](https://webstore.iec.ch/en/publication/xx.xx))
   - Taxonomy evidence: The standard establishes a stationary lead-acid battery category with explicit telecom applicability. ([webstore.iec.ch](https://webstore.iec.ch/en/publication/xx.xx))
2. IEC 60896-11:2002 | IEC
   - Taxonomy evidence: The stationary lead-acid classification separately identifies vented construction, supporting separation from valve-regulated products. ([webstore.iec.ch](https://webstore.iec.ch/en/publication/xx.xx))

3. China Tower - 2025 Annual Results, March 18, 2026
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))
   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China's spending cycle is retained as a counterforce in the regional forecast.
4. Broadband Commission - The State of Broadband: Our Digital World, 2025
   · Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))
5. Battery Backup - Meriwether Lewis Electric Cooperative
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
6. EnerSys 2026 Proxy Statement and Annual Report
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))
7. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom-specific sales weakness is a purchasing-cycle counterforce, not a measure of all Asian backup-system demand.
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom application revenue provides counterevidence to extrapolating broad energy-storage growth into China's backup forecast.
   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: Audited 2025 telecom revenue of RMB1,xx.xx declined xx.xx%; telecom purchasing weakness is retained as counterevidence to automatic substitution-led aggregate growth. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Audited 2025 telecom revenue of RMB1,xx.xx declined xx.xx%; telecom purchasing weakness is retained as counterevidence to automatic substitution-led aggregate growth. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

8. Amara Raja Energy & Mobility - Q2/H1 FY2026 Earnings Presentation, November 6, 2025
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand.
   ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))
9. IHS Holding Limited - First-Quarter 2026 Financial Statements
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement.
   ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))
10. Ofcom - Mobile RAN Power Resilience: Technical Report and CFI Update, February 2025
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue.
   ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))
   · Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation.
   ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))
   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Jurisdiction-specific resilience economics qualify a uniform Europe-wide demand uplift.
11. Ofcom - Your Landline Is Going Digital: What You Need to Know
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool.
   ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
   · Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate.
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12. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone
    - Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue.
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    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.

15. Government of India, Department of Telecommunications - Telecom Statistics India 2025, international comparison tables

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
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- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Wireless and fixed-access customer pools are distinguished in the country model.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Wireless and fixed-access customer pools are distinguished in the country model.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.

16. American Tower Corporation - Annual Report on Form 10-K for 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
17. Cellnex - Integrated Annual Report 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.

18. IHS Holding Limited - Annual Report on Form 20-F for 2024
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
19. Australian Government - Mobile Network Hardening Program
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The limited Australian program qualifies extrapolation of resilience funding across Asia-Pacific.
20. CPUC Requires Wireless Companies to Better Serve Customers in Emergencies - July 16, 2020
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
21. CRTC - Request for Information on Telecommunications Network Resiliency, May 12, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The information request seeks evidence on possible backup requirements and customer equipment costs; it is not an enacted national procurement program.
22. FCC - Internet Access Services: Status as of December 31, 2024, official state-government-hosted copy
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
23. OECD - High-capacity broadband networks gain ground across OECD, October 13, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Observed mature-market connectivity growth and differing fibre/5G adoption constrain replacement and expansion assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Latin American fibre migration supports a conditional fixed-access expansion premise, not automatic battery attachment.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: High mature-market fibre adoption is retained as a saturation counterforce to the purchasing forecast.

24. Shuangdeng Group Co., Ltd. - Global Offering Prospectus, August 18, 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The company's own five-month 2025 lead-acid realization of RMB520.xx.xx/kWh constrains the relative-price bridge; syndicated industry claims are excluded. Forecast convergence remains assumed. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The company's own five-month 2025 lead-acid realization of RMB520.xx.xx/kWh constrains the relative-price bridge; syndicated industry claims are excluded. Forecast convergence remains assumed. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
25. Central Office Power Systems - EnerSys
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The central-office portfolio identifies Flooded Lead-Acid as a distinct telecom alternative, supporting the legacy-network category mapping but not its purchasing fraction. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The central-office portfolio identifies Flooded Lead-Acid as a distinct telecom alternative, supporting the legacy-network category mapping but not its purchasing fraction. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The portfolio separately identifies Valve-Regulated Lead-Acid, supporting the within-lead construction boundary used by the model. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The portfolio separately identifies Valve-Regulated Lead-Acid, supporting the within-lead construction boundary used by the model. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))

8.1.1. Valve-Regulated Lead-Acid

Table 18. Global Telecom Battery Backup System Market, by Valve-Regulated Lead-Acid growth contribution, 2025-2032

Category	2025 value (USD Million)	2032 value (USD Million)	Added value (USD Million)	2025 share (%)	2032 share (%)	Change (pp)	Growth share (%)	CAGR (%)
Absorbent Glass Mat	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	N/A	xx.xx
Gel	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	N/A	xx.xx
Scope total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**N/A**	**xx.xx**

Table 19. Global Telecom Battery Backup System Market Size, by Valve-Regulated Lead-Acid, by Region, 2017-2032 (USD Million)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 20. Global Telecom Battery Backup System Market Size, by Valve-Regulated Lead-Acid, by Group, 2017-2032 (USD Million)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 21. Global Telecom Battery Backup System Market Size, by Valve-Regulated Lead-Acid, by Country, 2017-2032 (USD Million)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. IEC 60896-22:2004 | IEC

   · Taxonomy evidence: The publication specifically covers valve-regulated stationary lead-acid construction. ([webstore.iec.ch](https://webstore.iec.ch/en/publication/xx.xx))

   · Taxonomy evidence: Its scope is specifically valve-regulated stationary lead-acid batteries, distinguishing this construction category. ([webstore.iec.ch](https://webstore.iec.ch/en/publication/xx.xx))

2. China Tower - 2025 Annual Results, March 18, 2026

   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))

   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.

   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.

   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China's spending cycle is retained as a counterforce in the regional forecast.

3. Broadband Commission - The State of Broadband: Our Digital World, 2025
   · Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))
4. Battery Backup - Meriwether Lewis Electric Cooperative
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
5. EnerSys 2026 Proxy Statement and Annual Report
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))
6. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom-specific sales weakness is a purchasing-cycle counterforce, not a measure of all Asian backup-system demand.
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom application revenue provides counterevidence to extrapolating broad energy-storage growth into China's backup forecast.
7. Amara Raja Energy & Mobility - Q2/H1 FY2026 Earnings Presentation, November 6, 2025
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand. ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))
8. IHS Holding Limited - First-Quarter 2026 Financial Statements
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement. ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

9. Ofcom - Mobile RAN Power Resilience: Technical Report and CFI Update, February 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Jurisdiction-specific resilience economics qualify a uniform Europe-wide demand uplift.

10. Ofcom - Your Landline Is Going Digital: What You Need to Know

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool.
([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate.
([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

11. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue.
([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))

· Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions.
([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))

12. Fingrid - How to Participate in the Reserve Markets

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue.
([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))

13. China Tower announces 2025 annual results - March 18, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.
14. Government of India, Department of Telecommunications - Telecom Statistics India 2025, international comparison tables
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Wireless and fixed-access customer pools are distinguished in the country model.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Wireless and fixed-access customer pools are distinguished in the country model.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.

15. American Tower Corporation - Annual Report on Form 10-K for 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
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    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
16. Cellnex - Integrated Annual Report 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.

17. IHS Holding Limited - Annual Report on Form 20-F for 2024
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
18. Australian Government - Mobile Network Hardening Program
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The limited Australian program qualifies extrapolation of resilience funding across Asia-Pacific.
19. CPUC Requires Wireless Companies to Better Serve Customers in Emergencies - July 16, 2020
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
20. CRTC - Request for Information on Telecommunications Network Resiliency, May 12, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The information request seeks evidence on possible backup requirements and customer equipment costs; it is not an enacted national procurement program.
21. FCC - Internet Access Services: Status as of December 31, 2024, official state-government-hosted copy
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
22. OECD - High-capacity broadband networks gain ground across OECD, October 13, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Observed mature-market connectivity growth and differing fibre/5G adoption constrain replacement and expansion assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Latin American fibre migration supports a conditional fixed-access expansion premise, not automatic battery attachment.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: High mature-market fibre adoption is retained as a saturation counterforce to the purchasing forecast.

23. Central Office Power Systems - EnerSys
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The portfolio separately identifies Valve-Regulated Lead-Acid, supporting the within-lead construction boundary used by the model. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The portfolio separately identifies Valve-Regulated Lead-Acid, supporting the within-lead construction boundary used by the model. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))
24. PowerSafe OPzV Batteries - EnerSys
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: EnerSys identifies OPzV as Gel and lists telecom applications. This supports commercial subtype mapping, not the assumed Gel/AGM volume or price mix. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-opzv/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: EnerSys identifies OPzV as Gel and lists telecom applications. This supports commercial subtype mapping, not the assumed Gel/AGM volume or price mix. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-opzv/))

8.1.1.1. Absorbent Glass Mat

Table 22. Global Telecom Battery Backup System Market Size, by Absorbent Glass Mat, by Region, 2017-2032 (USD Million)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 23. Global Telecom Battery Backup System Market Size, by Absorbent Glass Mat, by Group, 2017-2032 (USD Million)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 24. Global Telecom Battery Backup System Market Size, by Absorbent Glass Mat, by Country, 2017-2032 (USD Million)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

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   - Taxonomy evidence: The telecom/ICT implementation examples identify AGM valve-regulated backup batteries. ([etsi.org](https://www.etsi.org/deliver/etsi_ts/103500_103599/xx.xx/xx.xx.01_60/ts_10355302v010101p.pdf))
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   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China's spending cycle is retained as a counterforce in the regional forecast.

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· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

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([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Jurisdiction-specific resilience economics qualify a uniform Europe-wide demand uplift.

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· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool.
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    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
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8.1.1.2. Gel

Table 25. Global Telecom Battery Backup System Market Size, by Gel, by Region, 2017-2032 (USD Million)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 26. Global Telecom Battery Backup System Market Size, by Gel, by Group, 2017-2032 (USD Million)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 27. Global Telecom Battery Backup System Market Size, by Gel, by Country, 2017-2032 (USD Million)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

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   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom-specific sales weakness is a purchasing-cycle counterforce, not a measure of all Asian backup-system demand.
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   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement. ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

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· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Jurisdiction-specific resilience economics qualify a uniform Europe-wide demand uplift.

10. Ofcom - Your Landline Is Going Digital: What You Need to Know

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool.
([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate.
([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

11. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue.
([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))

· Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions.
([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))

12. Fingrid - How to Participate in the Reserve Markets

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue.
([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))

13. China Tower announces 2025 annual results - March 18, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
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    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.
14. Government of India, Department of Telecommunications - Telecom Statistics India 2025, international comparison tables
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
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    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
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17. IHS Holding Limited - Annual Report on Form 20-F for 2024
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
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    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The limited Australian program qualifies extrapolation of resilience funding across Asia-Pacific.
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22. OECD - High-capacity broadband networks gain ground across OECD, October 13, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Observed mature-market connectivity growth and differing fibre/5G adoption constrain replacement and expansion assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Latin American fibre migration supports a conditional fixed-access expansion premise, not automatic battery attachment.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: High mature-market fibre adoption is retained as a saturation counterforce to the purchasing forecast.

23. PowerSafe OPzV Batteries - EnerSys

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: EnerSys identifies OPzV as Gel and lists telecom applications. This supports commercial subtype mapping, not the assumed Gel/AGM volume or price mix. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-opzv/))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: EnerSys identifies OPzV as Gel and lists telecom applications. This supports commercial subtype mapping, not the assumed Gel/AGM volume or price mix. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-opzv/))

8.1.2. Flooded Lead-Acid

Table 28. Global Telecom Battery Backup System Market Size, by Flooded Lead-Acid, by Region, 2017-2032 (USD Million)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 29. Global Telecom Battery Backup System Market Size, by Flooded Lead-Acid, by Group, 2017-2032 (USD Million)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 30. Global Telecom Battery Backup System Market Size, by Flooded Lead-Acid, by Country, 2017-2032 (USD Million)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. IEC 60896-11:2002 | IEC
   - Taxonomy evidence: The publication's scope is restricted to vented stationary lead-acid batteries; it does not establish telecom sales volumes. ([webstore.iec.ch](https://webstore.iec.ch/en/publication/xx.xx))
   - Taxonomy evidence: The stationary lead-acid classification separately covers vented types, providing the category basis for flooded stationary batteries. ([webstore.iec.ch](https://webstore.iec.ch/en/publication/xx.xx))
2. China Tower - 2025 Annual Results, March 18, 2026
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China's spending cycle is retained as a counterforce in the regional forecast.

3. Broadband Commission - The State of Broadband: Our Digital World, 2025
   · Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))
4. Battery Backup - Meriwether Lewis Electric Cooperative
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
5. EnerSys 2026 Proxy Statement and Annual Report
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))
6. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom-specific sales weakness is a purchasing-cycle counterforce, not a measure of all Asian backup-system demand.
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom application revenue provides counterevidence to extrapolating broad energy-storage growth into China's backup forecast.
7. Amara Raja Energy & Mobility - Q2/H1 FY2026 Earnings Presentation, November 6, 2025
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand. ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))
8. IHS Holding Limited - First-Quarter 2026 Financial Statements
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement. ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

9. Ofcom - Mobile RAN Power Resilience: Technical Report and CFI Update, February 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Jurisdiction-specific resilience economics qualify a uniform Europe-wide demand uplift.

10. Ofcom - Your Landline Is Going Digital: What You Need to Know

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool.
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22. OECD - High-capacity broadband networks gain ground across OECD, October 13, 2026
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Observed mature-market connectivity growth and differing fibre/5G adoption constrain replacement and expansion assumptions.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Latin American fibre migration supports a conditional fixed-access expansion premise, not automatic battery attachment.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: High mature-market fibre adoption is retained as a saturation counterforce to the purchasing forecast.

23. Central Office Power Systems - EnerSys

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The central-office portfolio identifies Flooded Lead-Acid as a distinct telecom alternative, supporting the legacy-network category mapping but not its purchasing fraction. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The central-office portfolio identifies Flooded Lead-Acid as a distinct telecom alternative, supporting the legacy-network category mapping but not its purchasing fraction. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))

8.2. Lithium-Based

Table 31. Global Telecom Battery Backup System Market, by Lithium-Based growth contribution, 2025-2032

Category	2025 value (USD Million)	2032 value (USD Million)	Added value (USD Million)	2025 share (%)	2032 share (%)	Change (pp)	Growth share (%)	CAGR (%)
Lithium-Ion	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lithium-Metal	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scope total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 32. Global Telecom Battery Backup System Market Size, by Lithium-Based, by Region, 2017-2032 (USD Million)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 33. Global Telecom Battery Backup System Market Size, by Lithium-Based, by Group, 2017-2032 (USD Million)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 34. Global Telecom Battery Backup System Market Size, by Lithium-Based, by Country, 2017-2032 (USD Million)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. IEC 62619:2022 | IEC
   - Taxonomy evidence: The industrial secondary-lithium scope expressly includes stationary telecom and UPS applications. ([webstore.iec.ch](https://webstore.iec.ch/en/publication/xx.xx))
   - Taxonomy evidence: The international industrial secondary-lithium classification explicitly includes telecom and UPS stationary applications. ([webstore.iec.ch](https://webstore.iec.ch/en/publication/xx.xx))
2. China Tower - 2025 Annual Results, March 18, 2026
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China's spending cycle is retained as a counterforce in the regional forecast.

3. Broadband Commission - The State of Broadband: Our Digital World, 2025
   · Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))
4. Battery Backup - Meriwether Lewis Electric Cooperative
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
5. EnerSys 2026 Proxy Statement and Annual Report
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))
6. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom-specific sales weakness is a purchasing-cycle counterforce, not a measure of all Asian backup-system demand.
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom application revenue provides counterevidence to extrapolating broad energy-storage growth into China's backup forecast.
   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: Telecom-specific results are separated from adjacent data-center and power-storage growth when assessing lithium substitution; the filing does not disclose the modeled Global split. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom-specific results are separated from adjacent data-center and power-storage growth when assessing lithium substitution; the filing does not disclose the modeled Global split. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
7. Amara Raja Energy & Mobility - Q2/H1 FY2026 Earnings Presentation, November 6, 2025
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand. ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))
8. IHS Holding Limited - First-Quarter 2026 Financial Statements
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement. ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

9. Ofcom - Mobile RAN Power Resilience: Technical Report and CFI Update, February 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Jurisdiction-specific resilience economics qualify a uniform Europe-wide demand uplift.

10. Ofcom - Your Landline Is Going Digital: What You Need to Know

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool.
([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate.
([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

11. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue.
([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))

· Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions.
([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))

12. Fingrid - How to Participate in the Reserve Markets

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue.
([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))

13. China Tower announces 2025 annual results - March 18, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.
14. Government of India, Department of Telecommunications - Telecom Statistics India 2025, international comparison tables
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Wireless and fixed-access customer pools are distinguished in the country model.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Wireless and fixed-access customer pools are distinguished in the country model.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.

15. American Tower Corporation - Annual Report on Form 10-K for 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
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    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.
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17. IHS Holding Limited - Annual Report on Form 20-F for 2024
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
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    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
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    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The limited Australian program qualifies extrapolation of resilience funding across Asia-Pacific.
19. CPUC Requires Wireless Companies to Better Serve Customers in Emergencies - July 16, 2020
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
20. CRTC - Request for Information on Telecommunications Network Resiliency, May 12, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The information request seeks evidence on possible backup requirements and customer equipment costs; it is not an enacted national procurement program.
21. FCC - Internet Access Services: Status as of December 31, 2024, official state-government-hosted copy
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
22. OECD - High-capacity broadband networks gain ground across OECD, October 13, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Observed mature-market connectivity growth and differing fibre/5G adoption constrain replacement and expansion assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Latin American fibre migration supports a conditional fixed-access expansion premise, not automatic battery attachment.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: High mature-market fibre adoption is retained as a saturation counterforce to the purchasing forecast.

23. Shuangdeng Group Co., Ltd. - Global Offering Prospectus, August 18, 2025

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: Own lithium-ion realization of RMB595.xx.xx/kWh is an input to the Lithium-Based value model, not a Global share or a Lithium-Metal sales observation. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Own lithium-ion realization of RMB595.xx.xx/kWh is an input to the Lithium-Based value model, not a Global share or a Lithium-Metal sales observation. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))

24. Amara Raja Crosses 1 GWh Lithium Storage Deployment Powering India's Telecom Networks

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The April xx.xx 2026 disclosure reports approximately xx.xx GWh across xx.xx cumulative telecom lithium sites over four years. This is a commercial adoption scale check, not annual Global revenue or a supplier-share input. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The April xx.xx 2026 disclosure reports approximately xx.xx GWh across xx.xx cumulative telecom lithium sites over four years. This is a commercial adoption scale check, not annual Global revenue or a supplier-share input. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The disclosed deployment identifies lithium-ion commercialization at scale, supporting the subtype's established commercial position without directly measuring its conditional Global share. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The disclosed deployment identifies lithium-ion commercialization at scale, supporting the subtype's established commercial position without directly measuring its conditional Global share. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))

25. Bolloré - 2017 Registration Document

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The official filing identifies LMP professional outage-protection applications including telecom relays. This is a dated commercial boundary input, not evidence of 2025 telecom shipment value. ([bollore.com](https://www.bollore.com/wp-content/uploads/2018/xx.xx/bollore_ddr_2017_gb_bag-xx.xx-juin.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The official filing identifies LMP professional outage-protection applications including telecom relays. This is a dated commercial boundary input, not evidence of 2025 telecom shipment value. ([bollore.com](https://www.bollore.com/wp-content/uploads/2018/xx.xx/bollore_ddr_2017_gb_bag-xx.xx-juin.pdf))

26. Bolloré - Business Report 2025

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The 2025 report establishes continuing Lithium Metal Polymer commercial applications in electricity storage and buses, while omitting separately attributable telecom sales. It constrains the low-access expected-purchase model; no capacity-to-sales conversion is used. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The 2025 report establishes continuing Lithium Metal Polymer commercial applications in electricity storage and buses, while omitting separately attributable telecom sales. It constrains the low-access expected-purchase model; no capacity-to-sales conversion is used. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The report preserves the distinction between LMP and conventional lithium-ion, supporting the exhaustive subtype attribution rule rather than treating polymer packaging as Lithium-Metal. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The report preserves the distinction between LMP and conventional lithium-ion, supporting the exhaustive subtype attribution rule rather than treating polymer packaging as Lithium-Metal. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))

27. AT&T to Replace U-Verse Cabinet Batteries - Fierce Network, January 15, 2008

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The January xx.xx 2008 report corroborates AT&T's replacement of approximately xx.xx Avestor batteries after the supplier's closure. The obsolete stock is therefore not carried into the 2025 or 2032 purchasing numerator. ([fierce-network.com](https://www.fierce-network.com/telecom/at-t-to-replace-u-verse-cabinet-batteries))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The January xx.xx 2008 report corroborates AT&T's replacement of approximately xx.xx Avestor batteries after the supplier's closure. The obsolete stock is therefore not carried into the 2025 or 2032 purchasing numerator. ([fierce-network.com](https://www.fierce-network.com/telecom/at-t-to-replace-u-verse-cabinet-batteries))

8.2.1. Lithium-Ion

Table 35. Global Telecom Battery Backup System Market Size, by Lithium-Ion, by Region, 2017-2032 (USD Million)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 36. Global Telecom Battery Backup System Market Size, by Lithium-Ion, by Group, 2017-2032 (USD Million)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 37. Global Telecom Battery Backup System Market Size, by Lithium-Ion, by Country, 2017-2032 (USD Million)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

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   · Taxonomy evidence: The secondary-lithium category supports telecom applicability, not worldwide sales or electrode-subtype allocation. ([webstore.iec.ch](https://webstore.iec.ch/en/publication/xx.xx))

   · Taxonomy evidence: The scope establishes industrial secondary lithium batteries as relevant to stationary telecom backup; it does not establish worldwide sales or subtype shares. ([webstore.iec.ch](https://webstore.iec.ch/en/publication/xx.xx))

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   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))
   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China's spending cycle is retained as a counterforce in the regional forecast.
3. Broadband Commission - The State of Broadband: Our Digital World, 2025
   · Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))
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6. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom-specific sales weakness is a purchasing-cycle counterforce, not a measure of all Asian backup-system demand.
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9. Ofcom - Mobile RAN Power Resilience: Technical Report and CFI Update, February 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

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([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

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· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool.
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    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
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    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.
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    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The limited Australian program qualifies extrapolation of resilience funding across Asia-Pacific.
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    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
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    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The information request seeks evidence on possible backup requirements and customer equipment costs; it is not an enacted national procurement program.
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    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Observed mature-market connectivity growth and differing fibre/5G adoption constrain replacement and expansion assumptions.
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    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The disclosed deployment identifies lithium-ion commercialization at scale, supporting the subtype's established commercial position without directly measuring its conditional Global share. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
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    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The report preserves the distinction between LMP and conventional lithium-ion, supporting the exhaustive subtype attribution rule rather than treating polymer packaging as Lithium-Metal. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))

8.2.2. Lithium-Metal

Table 38. Global Telecom Battery Backup System Market Size, by Lithium-Metal, by Region, 2017-2032 (USD Million)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 39. Global Telecom Battery Backup System Market Size, by Lithium-Metal, by Group, 2017-2032 (USD Million)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 40. Global Telecom Battery Backup System Market Size, by Lithium-Metal, by Country, 2017-2032 (USD Million)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

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   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.

   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.

   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China's spending cycle is retained as a counterforce in the regional forecast.

4. Broadband Commission - The State of Broadband: Our Digital World, 2025
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5. Battery Backup - Meriwether Lewis Electric Cooperative
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   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom-specific sales weakness is a purchasing-cycle counterforce, not a measure of all Asian backup-system demand.
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom application revenue provides counterevidence to extrapolating broad energy-storage growth into China's backup forecast.
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   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand. ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))
9. IHS Holding Limited - First-Quarter 2026 Financial Statements
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement. ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

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· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Jurisdiction-specific resilience economics qualify a uniform Europe-wide demand uplift.

11. Ofcom - Your Landline Is Going Digital: What You Need to Know

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool.
([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate.
([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

12. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue.
([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))

· Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions.
([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))

13. Fingrid - How to Participate in the Reserve Markets

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue.
([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))

14. China Tower announces 2025 annual results - March 18, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.
15. Government of India, Department of Telecommunications - Telecom Statistics India 2025, international comparison tables
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Wireless and fixed-access customer pools are distinguished in the country model.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Wireless and fixed-access customer pools are distinguished in the country model.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.

16. American Tower Corporation - Annual Report on Form 10-K for 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
17. Cellnex - Integrated Annual Report 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.

18. IHS Holding Limited - Annual Report on Form 20-F for 2024
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
19. Australian Government - Mobile Network Hardening Program
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The limited Australian program qualifies extrapolation of resilience funding across Asia-Pacific.
20. CPUC Requires Wireless Companies to Better Serve Customers in Emergencies - July 16, 2020
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
21. CRTC - Request for Information on Telecommunications Network Resiliency, May 12, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The information request seeks evidence on possible backup requirements and customer equipment costs; it is not an enacted national procurement program.
22. FCC - Internet Access Services: Status as of December 31, 2024, official state-government-hosted copy
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
23. OECD - High-capacity broadband networks gain ground across OECD, October 13, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Observed mature-market connectivity growth and differing fibre/5G adoption constrain replacement and expansion assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Latin American fibre migration supports a conditional fixed-access expansion premise, not automatic battery attachment.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: High mature-market fibre adoption is retained as a saturation counterforce to the purchasing forecast.

24. Bolloré - 2017 Registration Document

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The official filing identifies LMP professional outage-protection applications including telecom relays. This is a dated commercial boundary input, not evidence of 2025 telecom shipment value. ([bollore.com](https://www.bollore.com/wp-content/uploads/2018/xx.xx/bollore_ddr_2017_gb_bag-xx.xx-juin.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The official filing identifies LMP professional outage-protection applications including telecom relays. This is a dated commercial boundary input, not evidence of 2025 telecom shipment value. ([bollore.com](https://www.bollore.com/wp-content/uploads/2018/xx.xx/bollore_ddr_2017_gb_bag-xx.xx-juin.pdf))

25. Bolloré - Business Report 2025

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The 2025 report establishes continuing Lithium Metal Polymer commercial applications in electricity storage and buses, while omitting separately attributable telecom sales. It constrains the low-access expected-purchase model; no capacity-to-sales conversion is used. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The 2025 report establishes continuing Lithium Metal Polymer commercial applications in electricity storage and buses, while omitting separately attributable telecom sales. It constrains the low-access expected-purchase model; no capacity-to-sales conversion is used. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))

26. AT&T to Replace U-Verse Cabinet Batteries - Fierce Network, January 15, 2008

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The January xx.xx 2008 report corroborates AT&T's replacement of approximately xx.xx Avestor batteries after the supplier's closure. The obsolete stock is therefore not carried into the 2025 or 2032 purchasing numerator. ([fierce-network.com](https://www.fierce-network.com/telecom/at-t-to-replace-u-verse-cabinet-batteries))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The January xx.xx 2008 report corroborates AT&T's replacement of approximately xx.xx Avestor batteries after the supplier's closure. The obsolete stock is therefore not carried into the 2025 or 2032 purchasing numerator. ([fierce-network.com](https://www.fierce-network.com/telecom/at-t-to-replace-u-verse-cabinet-batteries))

8.3. Nickel-Based

Table 41. Global Telecom Battery Backup System Market, by Nickel-Based growth contribution, 2025-2032

Category	2025 value (USD Million)	2032 value (USD Million)	Added value (USD Million)	2025 share (%)	2032 share (%)	Change (pp)	Growth share (%)	CAGR (%)
Nickel-Cadmium	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Iron	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Metal Hydride	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Zinc	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scope total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 42. Global Telecom Battery Backup System Market Size, by Nickel-Based, by Region, 2017-2032 (USD Million)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 43. Global Telecom Battery Backup System Market Size, by Nickel-Based, by Group, 2017-2032 (USD Million)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 44. Global Telecom Battery Backup System Market Size, by Nickel-Based, by Country, 2017-2032 (USD Million)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. ETSI TS 103 553-2 V1.1.1 (2021-11) - Innovative energy storage technology for stationary use; Part 2: Battery
   - Taxonomy evidence: Nickel-cadmium, nickel-metal-hydride, nickel-iron, and nickel-zinc are grouped under nickel-based batteries. ([etsi.org](https://www.etsi.org/deliver/etsi_ts/103500_103599/xx.xx/xx.xx.01_60/ts_10355302v010101p.pdf))
   - Taxonomy evidence: The overview groups nickel-iron, nickel-cadmium, nickel-zinc, and nickel-metal-hydride technologies under nickel-based batteries. ([etsi.org](https://www.etsi.org/deliver/etsi_ts/103500_103599/xx.xx/xx.xx.01_60/ts_10355302v010101p.pdf))
2. China Tower - 2025 Annual Results, March 18, 2026
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China's spending cycle is retained as a counterforce in the regional forecast.

3. Broadband Commission - The State of Broadband: Our Digital World, 2025
   · Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))
4. Battery Backup - Meriwether Lewis Electric Cooperative
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
5. EnerSys 2026 Proxy Statement and Annual Report
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))
6. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom-specific sales weakness is a purchasing-cycle counterforce, not a measure of all Asian backup-system demand.
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom application revenue provides counterevidence to extrapolating broad energy-storage growth into China's backup forecast.
7. Amara Raja Energy & Mobility - Q2/H1 FY2026 Earnings Presentation, November 6, 2025
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand. ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))
8. IHS Holding Limited - First-Quarter 2026 Financial Statements
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement. ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

9. Ofcom - Mobile RAN Power Resilience: Technical Report and CFI Update, February 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Jurisdiction-specific resilience economics qualify a uniform Europe-wide demand uplift.

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· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool.
([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate.
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([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))

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12. Fingrid - How to Participate in the Reserve Markets

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue.
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    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
16. Cellnex - Integrated Annual Report 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.

17. IHS Holding Limited - Annual Report on Form 20-F for 2024
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
18. Australian Government - Mobile Network Hardening Program
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The limited Australian program qualifies extrapolation of resilience funding across Asia-Pacific.
19. CPUC Requires Wireless Companies to Better Serve Customers in Emergencies - July 16, 2020
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
20. CRTC - Request for Information on Telecommunications Network Resiliency, May 12, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The information request seeks evidence on possible backup requirements and customer equipment costs; it is not an enacted national procurement program.
21. FCC - Internet Access Services: Status as of December 31, 2024, official state-government-hosted copy
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
22. OECD - High-capacity broadband networks gain ground across OECD, October 13, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Observed mature-market connectivity growth and differing fibre/5G adoption constrain replacement and expansion assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Latin American fibre migration supports a conditional fixed-access expansion premise, not automatic battery attachment.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: High mature-market fibre adoption is retained as a saturation counterforce to the purchasing forecast.

23. PowerSafe NiCd Batteries - EnerSys
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: EnerSys identifies Nickel-Cadmium for central offices and outside plant, supporting the modeled legacy telecom cohort but not its installed attachment or replacement spending. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-nicd/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: EnerSys identifies Nickel-Cadmium for central offices and outside plant, supporting the modeled legacy telecom cohort but not its installed attachment or replacement spending. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-nicd/))
24. FDK Ni-MH Battery Is Chosen for the Cellect 600 Product of Alpha Technologies
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The October xx.xx 2015 announcement identifies NiMH in Alpha's Cellect xx.xx small-cell backup proposition. It supports a historical cohort rather than current fulfillment or assumed surviving stock. ([fdk.com](https://www.fdk.com/whatsnew-e/release20151019-e.html))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The October xx.xx 2015 announcement identifies NiMH in Alpha's Cellect xx.xx small-cell backup proposition. It supports a historical cohort rather than current fulfillment or assumed surviving stock. ([fdk.com](https://www.fdk.com/whatsnew-e/release20151019-e.html))
25. Products - Encell Technology
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Encell positions its Fused Iron Nickel-Iron battery for telecom. This supports the commercial category lead, while current purchases and attachment remain modeled. ([encell.com](https://encell.com/products/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Encell positions its Fused Iron Nickel-Iron battery for telecom. This supports the commercial category lead, while current purchases and attachment remain modeled. ([encell.com](https://encell.com/products/))
26. Telecom/5G - ZAF Energy Systems
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: ZAF positions Nickel-Zinc for telecom/5G. Its supplier proposition supports application mapping, not the modeled annual attachment or threefold forecast value multiplier. ([zafsys.com](https://zafsys.com/telecom-5g/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: ZAF positions Nickel-Zinc for telecom/5G. Its supplier proposition supports application mapping, not the modeled annual attachment or threefold forecast value multiplier. ([zafsys.com](https://zafsys.com/telecom-5g/))

8.3.1. Nickel-Cadmium

Table 45. Global Telecom Battery Backup System Market Size, by Nickel-Cadmium, by Region, 2017-2032 (USD Million)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 46. Global Telecom Battery Backup System Market Size, by Nickel-Cadmium, by Group, 2017-2032 (USD Million)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 47. Global Telecom Battery Backup System Market Size, by Nickel-Cadmium, by Country, 2017-2032 (USD Million)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. ETSI TS 103 553-2 V1.1.1 (2021-11) - Innovative energy storage technology for stationary use; Part 2: Battery
   · Taxonomy evidence: Nickel-cadmium is a named stationary-battery chemistry; this does not establish current telecom purchases.
   ([etsi.org](https://www.etsi.org/deliver/etsi_ts/103500_103599/xx.xx/xx.xx.01_60/ts_10355302v010101p.pdf))

2. IEC 60623:2026 | IEC
   - Taxonomy evidence: The August xx.xx 2026 publication recognizes vented nickel-cadmium industrial cells and battery systems. It establishes construction/category identity, not 2025 telecom adoption. ([webstore.iec.ch](https://webstore.iec.ch/en/publication/xx.xx))
   - Taxonomy evidence: The August xx.xx 2026 publication identifies vented nickel-cadmium industrial cells and battery systems as a distinct category. ([webstore.iec.ch](https://webstore.iec.ch/en/publication/xx.xx))
3. IEC 60622:2026 | IEC
   - Taxonomy evidence: The September xx.xx 2026 publication separately recognizes sealed nickel-cadmium industrial construction; sealed and vented products remain within the retained chemistry category. ([webstore.iec.ch](https://webstore.iec.ch/en/publication/xx.xx))
   - Taxonomy evidence: The September xx.xx 2026 publication separately recognizes sealed nickel-cadmium industrial cells and battery systems, supporting construction breadth within the same chemistry category. ([webstore.iec.ch](https://webstore.iec.ch/en/publication/xx.xx))
4. China Tower - 2025 Annual Results, March 18, 2026
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China's spending cycle is retained as a counterforce in the regional forecast.
5. Broadband Commission - The State of Broadband: Our Digital World, 2025
   - Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))
6. Battery Backup - Meriwether Lewis Electric Cooperative
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
7. EnerSys 2026 Proxy Statement and Annual Report
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))
8. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom-specific sales weakness is a purchasing-cycle counterforce, not a measure of all Asian backup-system demand.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom application revenue provides counterevidence to extrapolating broad energy-storage growth into China's backup forecast.

9. Amara Raja Energy & Mobility - Q2/H1 FY2026 Earnings Presentation, November 6, 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand.
([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))

10. IHS Holding Limited - First-Quarter 2026 Financial Statements

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement.
([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

11. Ofcom - Mobile RAN Power Resilience: Technical Report and CFI Update, February 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Jurisdiction-specific resilience economics qualify a uniform Europe-wide demand uplift.

12. Ofcom - Your Landline Is Going Digital: What You Need to Know

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool.
([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate.
([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

13. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone
    - Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue.
    ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
    - Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions.
    ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
14. Fingrid - How to Participate in the Reserve Markets
    - Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue.
    ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))
15. China Tower announces 2025 annual results - March 18, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.

16. Government of India, Department of Telecommunications - Telecom Statistics India 2025, international comparison tables
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Wireless and fixed-access customer pools are distinguished in the country model.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Wireless and fixed-access customer pools are distinguished in the country model.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.

17. American Tower Corporation - Annual Report on Form 10-K for 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
18. Cellnex - Integrated Annual Report 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.

19. IHS Holding Limited - Annual Report on Form 20-F for 2024
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
20. Australian Government - Mobile Network Hardening Program
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The limited Australian program qualifies extrapolation of resilience funding across Asia-Pacific.
21. CPUC Requires Wireless Companies to Better Serve Customers in Emergencies - July 16, 2020
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
22. CRTC - Request for Information on Telecommunications Network Resiliency, May 12, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The information request seeks evidence on possible backup requirements and customer equipment costs; it is not an enacted national procurement program.
23. FCC - Internet Access Services: Status as of December 31, 2024, official state-government-hosted copy
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
24. OECD - High-capacity broadband networks gain ground across OECD, October 13, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Observed mature-market connectivity growth and differing fibre/5G adoption constrain replacement and expansion assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Latin American fibre migration supports a conditional fixed-access expansion premise, not automatic battery attachment.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: High mature-market fibre adoption is retained as a saturation counterforce to the purchasing forecast.

25. PowerSafe NiCd Batteries - EnerSys
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: EnerSys identifies Nickel-Cadmium for central offices and outside plant, supporting the modeled legacy telecom cohort but not its installed attachment or replacement spending. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-nicd/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: EnerSys identifies Nickel-Cadmium for central offices and outside plant, supporting the modeled legacy telecom cohort but not its installed attachment or replacement spending. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-nicd/))

8.3.2. Nickel-Zinc

Table 48. Global Telecom Battery Backup System Market Size, by Nickel-Zinc, by Region, 2017-2032 (USD Million)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 49. Global Telecom Battery Backup System Market Size, by Nickel-Zinc, by Group, 2017-2032 (USD Million)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 50. Global Telecom Battery Backup System Market Size, by Nickel-Zinc, by Country, 2017-2032 (USD Million)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

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   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China's spending cycle is retained as a counterforce in the regional forecast.

4. Broadband Commission - The State of Broadband: Our Digital World, 2025
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   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
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([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

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· Evidence informing base-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

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8.3.3. Nickel-Metal Hydride

Table 51. Global Telecom Battery Backup System Market Size, by Nickel-Metal Hydride, by Region, 2017-2032 (USD Million)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 52. Global Telecom Battery Backup System Market Size, by Nickel-Metal Hydride, by Group, 2017-2032 (USD Million)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 53. Global Telecom Battery Backup System Market Size, by Nickel-Metal Hydride, by Country, 2017-2032 (USD Million)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

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   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom-specific sales weakness is a purchasing-cycle counterforce, not a measure of all Asian backup-system demand.
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom application revenue provides counterevidence to extrapolating broad energy-storage growth into China's backup forecast.
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   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand. ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))
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   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement. ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

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· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Jurisdiction-specific resilience economics qualify a uniform Europe-wide demand uplift.

10. Ofcom - Your Landline Is Going Digital: What You Need to Know

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool.
([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate.
([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

11. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue.
([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))

· Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions.
([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))

12. Fingrid - How to Participate in the Reserve Markets

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue.
([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))

13. China Tower announces 2025 annual results - March 18, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
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    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.
14. Government of India, Department of Telecommunications - Telecom Statistics India 2025, international comparison tables
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
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17. IHS Holding Limited - Annual Report on Form 20-F for 2024
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
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18. Australian Government - Mobile Network Hardening Program
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The limited Australian program qualifies extrapolation of resilience funding across Asia-Pacific.
19. CPUC Requires Wireless Companies to Better Serve Customers in Emergencies - July 16, 2020
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
20. CRTC - Request for Information on Telecommunications Network Resiliency, May 12, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The information request seeks evidence on possible backup requirements and customer equipment costs; it is not an enacted national procurement program.
21. FCC - Internet Access Services: Status as of December 31, 2024, official state-government-hosted copy
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
22. OECD - High-capacity broadband networks gain ground across OECD, October 13, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Observed mature-market connectivity growth and differing fibre/5G adoption constrain replacement and expansion assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Latin American fibre migration supports a conditional fixed-access expansion premise, not automatic battery attachment.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: High mature-market fibre adoption is retained as a saturation counterforce to the purchasing forecast.

23. FDK Ni-MH Battery Is Chosen for the Cellect 600 Product of Alpha Technologies

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The October xx.xx 2015 announcement identifies NiMH in Alpha's Cellect xx.xx small-cell backup proposition. It supports a historical cohort rather than current fulfillment or assumed surviving stock. ([fdk.com](https://www.fdk.com/whatsnew-e/release20151019-e.html))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The October xx.xx 2015 announcement identifies NiMH in Alpha's Cellect xx.xx small-cell backup proposition. It supports a historical cohort rather than current fulfillment or assumed surviving stock. ([fdk.com](https://www.fdk.com/whatsnew-e/release20151019-e.html))

8.3.4. Nickel-Iron

Table 54. Global Telecom Battery Backup System Market Size, by Nickel-Iron, by Region, 2017-2032 (USD Million)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 55. Global Telecom Battery Backup System Market Size, by Nickel-Iron, by Group, 2017-2032 (USD Million)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 56. Global Telecom Battery Backup System Market Size, by Nickel-Iron, by Country, 2017-2032 (USD Million)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

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   - Taxonomy evidence: Nickel-iron is separately named, without proof of current telecom commercialization. ([etsi.org](https://www.etsi.org/deliver/etsi_ts/103500_103599/xx.xx/xx.xx.01_60/ts_10355302v010101p.pdf))
2. ETSI TR 102 532 V1.1.1 (2009-06) - The use of alternative energy solutions in telecommunications installations
   - Taxonomy evidence: Nickel-iron batteries appear as a distinct named technology in the telecommunications energy-storage overview. ([etsi.org](https://www.etsi.org/deliver/etsi_tr/102500_102599/xx.xx/xx.xx.01_60/tr_102532v010101p.pdf))
3. China Tower - 2025 Annual Results, March 18, 2026
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China's spending cycle is retained as a counterforce in the regional forecast.

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   · Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))
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   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
6. EnerSys 2026 Proxy Statement and Annual Report
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))
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   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement. ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

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· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

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19. Australian Government - Mobile Network Hardening Program
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The limited Australian program qualifies extrapolation of resilience funding across Asia-Pacific.

20. CPUC Requires Wireless Companies to Better Serve Customers in Emergencies - July 16, 2020
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.

21. CRTC - Request for Information on Telecommunications Network Resiliency, May 12, 2026
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The information request seeks evidence on possible backup requirements and customer equipment costs; it is not an enacted national procurement program.

22. FCC - Internet Access Services: Status as of December 31, 2024, official state-government-hosted copy
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.

23. OECD - High-capacity broadband networks gain ground across OECD, October 13, 2026
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Observed mature-market connectivity growth and differing fibre/5G adoption constrain replacement and expansion assumptions.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Latin American fibre migration supports a conditional fixed-access expansion premise, not automatic battery attachment.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: High mature-market fibre adoption is retained as a saturation counterforce to the purchasing forecast.

24. Products - Encell Technology
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Encell positions its Fused Iron Nickel-Iron battery for telecom. This supports the commercial category lead, while current purchases and attachment remain modeled. ([encell.com](https://encell.com/products/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Encell positions its Fused Iron Nickel-Iron battery for telecom. This supports the commercial category lead, while current purchases and attachment remain modeled. ([encell.com](https://encell.com/products/))

8.4. Multi-Chemistry

Table 57. Global Telecom Battery Backup System Market Size, by Multi-Chemistry, by Region, 2017-2032 (USD Million)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 58. Global Telecom Battery Backup System Market Size, by Multi-Chemistry, by Group, 2017-2032 (USD Million)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 59. Global Telecom Battery Backup System Market Size, by Multi-Chemistry, by Country, 2017-2032 (USD Million)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. ITU-T L.1397 (10/2025) - Battery system with integrated control and monitoring information model

   · Taxonomy evidence: The October 2025 telecom recommendation expressly names hybrid lithium-lead, lithium-sodium, and sodium-lead battery modes. It does not establish inseparable transaction pricing or Global prevalence. ([itu.int](https://www.itu.int/rec/dologin_pub.asp?id=T-REC-L.xx.xx-xx.xx-I%xx.xx%21PDF-E&lang=e&type=items))

   · Taxonomy evidence: The recommendation expressly identifies lithium-lead, lithium-sodium, and sodium-lead battery combinations. It does not establish their global prevalence or transaction pricing. ([itu.int](https://www.itu.int/rec/dologin_pub.asp?id=T-REC-L.xx.xx-xx.xx-I%xx.xx%21PDF-E&lang=e&type=items))

   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: The October 2025 recommendation names lithium-lead, lithium-sodium and sodium-lead combinations. This supports mixed-family classification, not inseparable pricing or Global prevalence. ([itu.int](https://www.itu.int/rec/dologin_pub.asp?id=T-REC-L.xx.xx-xx.xx-I%xx.xx%21PDF-E&lang=e&type=items))

   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The October 2025 recommendation names lithium-lead, lithium-sodium and sodium-lead combinations. This supports mixed-family classification, not inseparable pricing or Global prevalence. ([itu.int](https://www.itu.int/rec/dologin_pub.asp?id=T-REC-L.xx.xx-xx.xx-I%xx.xx%21PDF-E&lang=e&type=items))

2. China Tower - 2025 Annual Results, March 18, 2026
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))
   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China's spending cycle is retained as a counterforce in the regional forecast.
3. Broadband Commission - The State of Broadband: Our Digital World, 2025
   · Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))
4. Battery Backup - Meriwether Lewis Electric Cooperative
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
5. EnerSys 2026 Proxy Statement and Annual Report
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))
6. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom-specific sales weakness is a purchasing-cycle counterforce, not a measure of all Asian backup-system demand.
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom application revenue provides counterevidence to extrapolating broad energy-storage growth into China's backup forecast.
7. Amara Raja Energy & Mobility - Q2/H1 FY2026 Earnings Presentation, November 6, 2025
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand. ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))
8. IHS Holding Limited - First-Quarter 2026 Financial Statements
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement. ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

9. Ofcom - Mobile RAN Power Resilience: Technical Report and CFI Update, February 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Jurisdiction-specific resilience economics qualify a uniform Europe-wide demand uplift.

10. Ofcom - Your Landline Is Going Digital: What You Need to Know

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool.
([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate.
([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

11. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue.
([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))

· Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions.
([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))

12. Fingrid - How to Participate in the Reserve Markets

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue.
([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))

13. China Tower announces 2025 annual results - March 18, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.
14. Government of India, Department of Telecommunications - Telecom Statistics India 2025, international comparison tables
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Wireless and fixed-access customer pools are distinguished in the country model.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Wireless and fixed-access customer pools are distinguished in the country model.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.

15. American Tower Corporation - Annual Report on Form 10-K for 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
16. Cellnex - Integrated Annual Report 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.

17. IHS Holding Limited - Annual Report on Form 20-F for 2024
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
18. Australian Government - Mobile Network Hardening Program
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The limited Australian program qualifies extrapolation of resilience funding across Asia-Pacific.
19. CPUC Requires Wireless Companies to Better Serve Customers in Emergencies - July 16, 2020
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
20. CRTC - Request for Information on Telecommunications Network Resiliency, May 12, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The information request seeks evidence on possible backup requirements and customer equipment costs; it is not an enacted national procurement program.
21. FCC - Internet Access Services: Status as of December 31, 2024, official state-government-hosted copy
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
22. OECD - High-capacity broadband networks gain ground across OECD, October 13, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Observed mature-market connectivity growth and differing fibre/5G adoption constrain replacement and expansion assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Latin American fibre migration supports a conditional fixed-access expansion premise, not automatic battery attachment.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: High mature-market fibre adoption is retained as a saturation counterforce to the purchasing forecast.

8.5. Sodium-Based

Table 60. Global Telecom Battery Backup System Market Size, by Sodium-Based, by Region, 2017-2032 (USD Million)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 61. Global Telecom Battery Backup System Market Size, by Sodium-Based, by Group, 2017-2032 (USD Million)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 62. Global Telecom Battery Backup System Market Size, by Sodium-Based, by Country, 2017-2032 (USD Million)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. IEC 62984-3:2020 | IEC

   · Taxonomy evidence: The official publication identifies sodium-based stationary batteries as a distinct classification. Its scope does not establish attributable telecom-backup sales. ([webstore.iec.ch](https://webstore.iec.ch/en/publication/xx.xx))

   · Taxonomy evidence: The international sodium-based stationary-battery classification includes sodium-sulfur and sodium-nickel chloride; application-specific telecom sales are not established by this scope. ([webstore.iec.ch](https://webstore.iec.ch/en/publication/xx.xx))

2. ITU-T L.1221 (11/2018) - Innovative energy storage technology for stationary use: Battery

   · Taxonomy evidence: The classification discusses sodium battery technologies within stationary storage, while distinguishing technological possibilities from established applications. ([itu.int](https://www.itu.int/rec/dologin_pub.asp?id=T-REC-L.xx.xx-xx.xx-I%xx.xx%21PDF-E&lang=e&type=items))

3. China Tower - 2025 Annual Results, March 18, 2026
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China's spending cycle is retained as a counterforce in the regional forecast.
4. Broadband Commission - The State of Broadband: Our Digital World, 2025
   - Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))
5. Battery Backup - Meriwether Lewis Electric Cooperative
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
6. EnerSys 2026 Proxy Statement and Annual Report
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))
7. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom-specific sales weakness is a purchasing-cycle counterforce, not a measure of all Asian backup-system demand.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom application revenue provides counterevidence to extrapolating broad energy-storage growth into China's backup forecast.
8. Amara Raja Energy & Mobility - Q2/H1 FY2026 Earnings Presentation, November 6, 2025
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand. ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))
9. IHS Holding Limited - First-Quarter 2026 Financial Statements
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement. ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

10. Ofcom - Mobile RAN Power Resilience: Technical Report and CFI Update, February 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Jurisdiction-specific resilience economics qualify a uniform Europe-wide demand uplift.

11. Ofcom - Your Landline Is Going Digital: What You Need to Know

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool.
([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate.
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· Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue.
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· Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions.
([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))

13. Fingrid - How to Participate in the Reserve Markets

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue.
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    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
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    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.
15. Government of India, Department of Telecommunications - Telecom Statistics India 2025, international comparison tables
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Wireless and fixed-access customer pools are distinguished in the country model.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Wireless and fixed-access customer pools are distinguished in the country model.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.

16. American Tower Corporation - Annual Report on Form 10-K for 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
17. Cellnex - Integrated Annual Report 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.

18. IHS Holding Limited - Annual Report on Form 20-F for 2024
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
19. Australian Government - Mobile Network Hardening Program
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The limited Australian program qualifies extrapolation of resilience funding across Asia-Pacific.
20. CPUC Requires Wireless Companies to Better Serve Customers in Emergencies - July 16, 2020
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
21. CRTC - Request for Information on Telecommunications Network Resiliency, May 12, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The information request seeks evidence on possible backup requirements and customer equipment costs; it is not an enacted national procurement program.
22. FCC - Internet Access Services: Status as of December 31, 2024, official state-government-hosted copy
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
23. OECD - High-capacity broadband networks gain ground across OECD, October 13, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Observed mature-market connectivity growth and differing fibre/5G adoption constrain replacement and expansion assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Latin American fibre migration supports a conditional fixed-access expansion premise, not automatic battery attachment.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: High mature-market fibre adoption is retained as a saturation counterforce to the purchasing forecast.

24. HORIEN Salt Battery Solutions and Inlyte Energy Announce a Strategic Partnership
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: HORIEN's March xx.xx 2025 statement identifies sodium-metal-chloride telecom backup. Its separate partnership announcement is not counted as delivered telecom sales. ([horien.com](https://horien.com/wp-content/uploads/2025/xx.xx/Press-Release_HORIEN-Inlyte-International-Version.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: HORIEN's March xx.xx 2025 statement identifies sodium-metal-chloride telecom backup. Its separate partnership announcement is not counted as delivered telecom sales. ([horien.com](https://horien.com/wp-content/uploads/2025/xx.xx/Press-Release_HORIEN-Inlyte-International-Version.pdf))

8.6. Aqueous Zinc-Based

Table 63. Global Telecom Battery Backup System Market Size, by Aqueous Zinc-Based, by Region, 2017-2032 (USD Million)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 64. Global Telecom Battery Backup System Market Size, by Aqueous Zinc-Based, by Group, 2017-2032 (USD Million)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 65. Global Telecom Battery Backup System Market Size, by Aqueous Zinc-Based, by Country, 2017-2032 (USD Million)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. ITU-T Work Programme - Aqueous Zinc-Based Battery Systems for Base Station Applications

   · Taxonomy evidence: The inspected official work item names Aqueous Zinc-Based Battery Systems for Base Station Applications, lists its status as Under study, and gives December 2027 timing. Approval and commercial deployment are not established. ([itu.int](https://www.itu.int/itu-t/workprog/wp_item.aspx?isn=xx.xx))

   · Taxonomy evidence: The official work programme names aqueous zinc-based battery systems for base-station applications. Its status is under study, with a December 2027 target; neither approval nor marketed deployment is established. ([itu.int](https://www.itu.int/itu-t/workprog/wp_item.aspx?isn=xx.xx))

   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The aqueous-zinc base-station work item is Under study with December 2027 timing. It constrains the forecast commercialization assumption but establishes neither approval nor customer purchases. ([itu.int](https://www.itu.int/itu-t/workprog/wp_item.aspx?isn=xx.xx))

2. China Tower - 2025 Annual Results, March 18, 2026
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
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   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand. ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))
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([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

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([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate.
([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

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([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))

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    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Wireless and fixed-access customer pools are distinguished in the country model.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Wireless and fixed-access customer pools are distinguished in the country model.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.

15. American Tower Corporation - Annual Report on Form 10-K for 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
16. Cellnex - Integrated Annual Report 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.

17. IHS Holding Limited - Annual Report on Form 20-F for 2024
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
18. Australian Government - Mobile Network Hardening Program
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The limited Australian program qualifies extrapolation of resilience funding across Asia-Pacific.
19. CPUC Requires Wireless Companies to Better Serve Customers in Emergencies - July 16, 2020
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
20. CRTC - Request for Information on Telecommunications Network Resiliency, May 12, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The information request seeks evidence on possible backup requirements and customer equipment costs; it is not an enacted national procurement program.
21. FCC - Internet Access Services: Status as of December 31, 2024, official state-government-hosted copy
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
22. OECD - High-capacity broadband networks gain ground across OECD, October 13, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Observed mature-market connectivity growth and differing fibre/5G adoption constrain replacement and expansion assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Latin American fibre migration supports a conditional fixed-access expansion premise, not automatic battery attachment.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: High mature-market fibre adoption is retained as a saturation counterforce to the purchasing forecast.

23. PowerReserve - Verizon Residential Accessories
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Verizon advertises an alkaline-cell voice-backup device at USD39.xx.xx excluding batteries. This supports a qualifying primary-zinc premises route and price comparator, not assumed Global attachment or first-sale realization. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Verizon advertises an alkaline-cell voice-backup device at USD39.xx.xx excluding batteries. This supports a qualifying primary-zinc premises route and price comparator, not assumed Global attachment or first-sale realization. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
24. Alkaline Manganese Dioxide Handbook and Application Manual - Energizer
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The manufacturer's alkaline manganese-dioxide classification supports the zinc-family mapping for qualifying premises backup. It provides no telecom purchasing weight. ([data.energizer.com](https://data.energizer.com/pdfs/alkaline_appman.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The manufacturer's alkaline manganese-dioxide classification supports the zinc-family mapping for qualifying premises backup. It provides no telecom purchasing weight. ([data.energizer.com](https://data.energizer.com/pdfs/alkaline_appman.pdf))

8.7. Flow Batteries

Table 66. Global Telecom Battery Backup System Market Size, by Flow Batteries, by Region, 2017-2032 (USD Million)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 67. Global Telecom Battery Backup System Market Size, by Flow Batteries, by Group, 2017-2032 (USD Million)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 68. Global Telecom Battery Backup System Market Size, by Flow Batteries, by Country, 2017-2032 (USD Million)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. ETSI TS 103 553-2 V1.1.1 (2021-11) - Innovative energy storage technology for stationary use; Part 2: Battery
   · Taxonomy evidence: Flow batteries are separately recognized; qualifying telecom transactions remain unestablished by this classification.
   ([etsi.org](https://www.etsi.org/deliver/etsi_ts/103500_103599/xx.xx/xx.xx.01_60/ts_10355302v010101p.pdf))
2. ITU-T L.1221 (11/2018) - Innovative energy storage technology for stationary use: Battery
   · Taxonomy evidence: Flow batteries are separately recognized in the stationary technology overview, rather than classified solely by their constituent metals.
   ([itu.int](https://www.itu.int/rec/dologin_pub.asp?id=T-REC-L.xx.xx-xx.xx-I%xx.xx%21PDF-E&lang=e&type=items))
3. Vodafone Sustainability Framework 2021
   · Taxonomy evidence: Vodafone's 2021 financing framework names flow batteries among network-energy storage project technologies. This is demand-side category recognition, not proof of completed purchases or an exclusively backup-related revenue perimeter.
   ([vodafone.com](https://www.vodafone.com/~/media/Files/V/vodafone/corp/documents/debt-investor/vodafone-sustainability-framework.pdf))

4. China Tower - 2025 Annual Results, March 18, 2026
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue.
   ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))
   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China's spending cycle is retained as a counterforce in the regional forecast.
5. Broadband Commission - The State of Broadband: Our Digital World, 2025
   · Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))
6. Battery Backup - Meriwether Lewis Electric Cooperative
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions.
   ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
7. EnerSys 2026 Proxy Statement and Annual Report
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate.
   ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))
8. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom-specific sales weakness is a purchasing-cycle counterforce, not a measure of all Asian backup-system demand.
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom application revenue provides counterevidence to extrapolating broad energy-storage growth into China's backup forecast.
9. Amara Raja Energy & Mobility - Q2/H1 FY2026 Earnings Presentation, November 6, 2025
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand.
   ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))
10. IHS Holding Limited - First-Quarter 2026 Financial Statements
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement.
   ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

11. Ofcom - Mobile RAN Power Resilience: Technical Report and CFI Update, February 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Jurisdiction-specific resilience economics qualify a uniform Europe-wide demand uplift.

12. Ofcom - Your Landline Is Going Digital: What You Need to Know

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool.
([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate.
([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

13. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue.
([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))

· Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions.
([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))

14. Fingrid - How to Participate in the Reserve Markets

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue.
([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))

15. China Tower announces 2025 annual results - March 18, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.
16. Government of India, Department of Telecommunications - Telecom Statistics India 2025, international comparison tables
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Wireless and fixed-access customer pools are distinguished in the country model.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Wireless and fixed-access customer pools are distinguished in the country model.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.

17. American Tower Corporation - Annual Report on Form 10-K for 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
18. Cellnex - Integrated Annual Report 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.

19. IHS Holding Limited - Annual Report on Form 20-F for 2024
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
20. Australian Government - Mobile Network Hardening Program
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The limited Australian program qualifies extrapolation of resilience funding across Asia-Pacific.
21. CPUC Requires Wireless Companies to Better Serve Customers in Emergencies - July 16, 2020
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
22. CRTC - Request for Information on Telecommunications Network Resiliency, May 12, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The information request seeks evidence on possible backup requirements and customer equipment costs; it is not an enacted national procurement program.
23. FCC - Internet Access Services: Status as of December 31, 2024, official state-government-hosted copy
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
24. OECD - High-capacity broadband networks gain ground across OECD, October 13, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Observed mature-market connectivity growth and differing fibre/5G adoption constrain replacement and expansion assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Latin American fibre migration supports a conditional fixed-access expansion premise, not automatic battery attachment.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: High mature-market fibre adoption is retained as a saturation counterforce to the purchasing forecast.

25. Australian Flow Batteries - RFB40X Series

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: RFB40X literature identifies telecom among stationary commercial applications. It supports the qualifying project boundary, not delivered projects, revenue or assumed attachment. ([afb.energy](https://www.afb.energy/wp-content/uploads/2025/xx.xx/Australian-Flow-Batteries-RFB40X-Series-2024.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: RFB40X literature identifies telecom among stationary commercial applications. It supports the qualifying project boundary, not delivered projects, revenue or assumed attachment. ([afb.energy](https://www.afb.energy/wp-content/uploads/2025/xx.xx/Australian-Flow-Batteries-RFB40X-Series-2024.pdf))

8.8. Metal-Air

Table 69. Global Telecom Battery Backup System Market Size, by Metal-Air, by Region, 2017-2032 (USD Million)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 70. Global Telecom Battery Backup System Market Size, by Metal-Air, by Group, 2017-2032 (USD Million)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 71. Global Telecom Battery Backup System Market Size, by Metal-Air, by Country, 2017-2032 (USD Million)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. ETSI TS 103 553-2 V1.1.1 (2021-11) - Innovative energy storage technology for stationary use; Part 2: Battery
   · Taxonomy evidence: Metal-air is recognized as a stationary technology grouping rather than merely a constituent-metal label.
   ([etsi.org](https://www.etsi.org/deliver/etsi_ts/103500_103599/xx.xx/xx.xx.01_60/ts_10355302v010101p.pdf))
2. ITU-T L.1221 (11/2018) - Innovative energy storage technology for stationary use: Battery
   · Taxonomy evidence: Metal-air is a recognized stationary-battery technology grouping, with zinc and aluminum among its named variants; this is not proof of current commercial telecom adoption.
   ([itu.int](https://www.itu.int/rec/dologin_pub.asp?id=T-REC-L.xx.xx-xx.xx-I%xx.xx%21PDF-E&lang=e&type=items))

3. China Tower - 2025 Annual Results, March 18, 2026
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China's spending cycle is retained as a counterforce in the regional forecast.
4. Broadband Commission - The State of Broadband: Our Digital World, 2025
   - Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))
5. Battery Backup - Meriwether Lewis Electric Cooperative
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
6. EnerSys 2026 Proxy Statement and Annual Report
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))
7. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom-specific sales weakness is a purchasing-cycle counterforce, not a measure of all Asian backup-system demand.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom application revenue provides counterevidence to extrapolating broad energy-storage growth into China's backup forecast.
8. Amara Raja Energy & Mobility - Q2/H1 FY2026 Earnings Presentation, November 6, 2025
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand. ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))
9. IHS Holding Limited - First-Quarter 2026 Financial Statements
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement. ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

10. Ofcom - Mobile RAN Power Resilience: Technical Report and CFI Update, February 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Jurisdiction-specific resilience economics qualify a uniform Europe-wide demand uplift.

11. Ofcom - Your Landline Is Going Digital: What You Need to Know

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool.
([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate.
([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

12. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue.
([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))

· Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions.
([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))

13. Fingrid - How to Participate in the Reserve Markets

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue.
([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))

14. China Tower announces 2025 annual results - March 18, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.
15. Government of India, Department of Telecommunications - Telecom Statistics India 2025, international comparison tables
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Wireless and fixed-access customer pools are distinguished in the country model.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Wireless and fixed-access customer pools are distinguished in the country model.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.

16. American Tower Corporation - Annual Report on Form 10-K for 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
17. Cellnex - Integrated Annual Report 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.

18. IHS Holding Limited - Annual Report on Form 20-F for 2024
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
19. Australian Government - Mobile Network Hardening Program
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The limited Australian program qualifies extrapolation of resilience funding across Asia-Pacific.
20. CPUC Requires Wireless Companies to Better Serve Customers in Emergencies - July 16, 2020
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
21. CRTC - Request for Information on Telecommunications Network Resiliency, May 12, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The information request seeks evidence on possible backup requirements and customer equipment costs; it is not an enacted national procurement program.
22. FCC - Internet Access Services: Status as of December 31, 2024, official state-government-hosted copy
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
23. OECD - High-capacity broadband networks gain ground across OECD, October 13, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Observed mature-market connectivity growth and differing fibre/5G adoption constrain replacement and expansion assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Latin American fibre migration supports a conditional fixed-access expansion premise, not automatic battery attachment.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: High mature-market fibre adoption is retained as a saturation counterforce to the purchasing forecast.

24. Energy Backup - Phinergy

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Phinergy markets Aluminum-Air continuity offerings to telecom operators and tower companies. The source supports category and buyer mapping, not the modeled installed attachment or replacement numerator. ([phinergy.com](https://phinergy.com/solutions/energy-backup/))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Phinergy markets Aluminum-Air continuity offerings to telecom operators and tower companies. The source supports category and buyer mapping, not the modeled installed attachment or replacement numerator. ([phinergy.com](https://phinergy.com/solutions/energy-backup/))

9. Telecom Battery Backup System Market, by Power Interface

Power Interface determines which protected equipment a backup proposition can commercially serve. ETSI publishes separate AC and DC equipment-interface standards, locating compatibility at the boundary between the power supply and the consuming ICT equipment. ■■■■■■ ■■■■■■■■■ ■■ ■■■■■■ ■■ ■■ ■■■■■■ ■■■■■■ ■■■■■■■■■ ■■■■■■■ ■■■ ■■■■■■■■ ■■■■■■■■■■■■■■■■■■■ ■■■■■■■■■ ■■ ■■■ ■■■■■■■■ ■■■■■■■■■ ■■■■■■■ ■■■■■■■■■ ■■■ ■■■ ■■■■■■ ■■■■■■■■ ■■■■■■■■■■■ ■■■■■■ ■■■ ■■■ ■■■■■■■■■■■ ■■■ ■■■■ ■■■■■■■■■■■■

Combined AC/DC Output can consolidate a mixed-load purchase. ■■■■■■■■ ■■■■■■■ ■■■■■■■■ ■■■■■■ ■■■■■■■■■■ ■■■■■■■■■ ■■ ■■■ ■■ ■■■■■ ■■■■■■■■■ ■■■■■■■ ■ ■■■■■■ ■■■■■■■ ■■■■■ ■■■ ■ ■■■■■■ ■■■■■■■■■■ ■■■■■■■■■■ ■■■■■ ■■■■■■■■■■■■ ■ ■■■■■ ■■■■■■■■■■■■■■■■ ■■■■■■■■■■■■ ■■■ ■■ ■■■■■■■■■■ ■■■■■ ■■■■■ ■■■■■■■■■■■■■■■■■■■ ■■■■■■■ ■■■■■■■ ■■ ■■■ ■■■■■■■■ ■■■■■■■■■ Suppliers should identify which outputs receive backup within the quoted package and who accepts responsibility for both.

■■■ ■■■■■■■■■■ ■■■■■■ ■■ ■■■■■■■■■■■■ ■■■■■■■■■■■■■■ ■■■■■■ ■■■■■■■■■■ ■■■■■■■■■■ ■■■■■■ ■■■■■■■■■■ ■ ■■■■■■■■ ■■■■■■■■■■■ ■■■ ■■■■■■ ■■■■■ ■■■■■■■■■■ ■■■■■ ■■■■ ■■■■■■■ ■■■■■ ■■■ ■■■■■■■■ ■■■ ■■■■■■■■■ Separate AC Output and DC Output purchases preserve independent supplier selection but leave the buyer or integrator responsible for their respective boundaries. The decision should change when the protected-equipment mix changes, or when the proposed common package cannot carry an enforceable commitment for both outputs.

Figure 12. Global Telecom Battery Backup System Market Size, by Power Interface, 2025 (%)

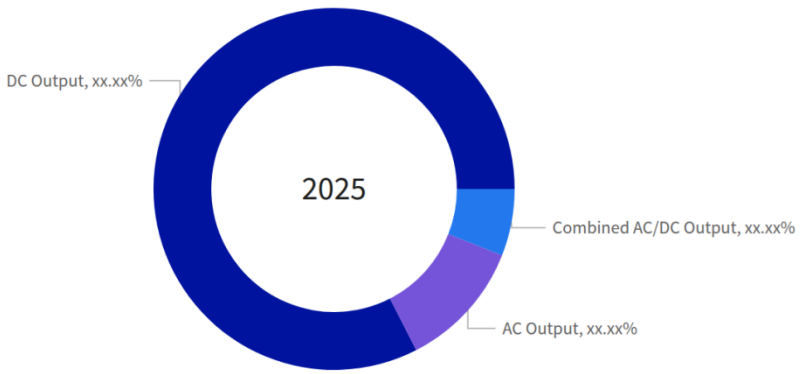

Figure 13. Global Telecom Battery Backup System Market, by Power Interface, 2032 (USD Million)

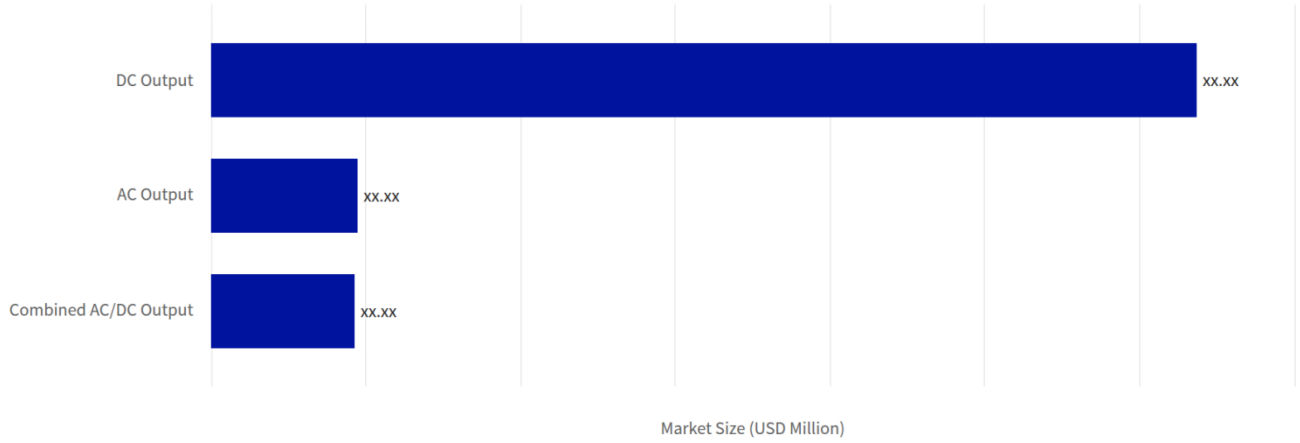

Table 72. Global Telecom Battery Backup System Market, by Power Interface growth contribution, 2025-2032

Category	2025 value (USD Million)	2032 value (USD Million)	Added value (USD Million)	2025 share (%)	2032 share (%)	Change (pp)	Growth share (%)	CAGR (%)
AC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Combined AC/DC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
DC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scope total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 73. Global Telecom Battery Backup System Market Size, by Power Interface, 2017-2032 (USD Million)

Power Interface	2023	2024	2025	2026	2027	2032	CAGR (%)
AC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Combined AC/DC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
DC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. ETSI EN 300 132-1 V2.2.1 - ICT Power Supply Interface: Alternating Current
   - ETSI's AC interface standard locates compatibility between power-supply equipment and consuming ICT equipment at the AC interface. Only interface scope is used. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013201v020201p.pdf))
   - Taxonomy evidence: The AC interface classification is distinct from the separately published DC interface category; neither determines battery chemistry. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013201v020201p.pdf))
   - Taxonomy evidence: The standards series distinguishes AC and DC equipment interfaces, corroborating classification by load-side electrical compatibility rather than battery chemistry. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013201v020201p.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The ICT standard identifies the protected-load AC interface, supporting output-side attribution rather than classification by chemistry or normal utility input. It supplies no sales mix. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013201v020201p.pdf))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The ICT standard identifies the protected-load AC interface, supporting output-side attribution rather than classification by chemistry or normal utility input. It supplies no sales mix. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013201v020201p.pdf))
2. ETSI EN 300 132-2 V2.8.1 - ICT Power Supply Interface: Direct Current
   - ETSI's DC interface standard locates the interface between the power-supply system and consuming ICT equipment and identifies DC backup in that system. Only the commercial compatibility boundary is used. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013202v020801p.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The ICT standard separately identifies the DC protected-equipment interface, supporting the DC-output boundary independently of battery chemistry. It is not a purchasing census. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013202v020801p.pdf))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The ICT standard separately identifies the DC protected-equipment interface, supporting the DC-output boundary independently of battery chemistry. It is not a purchasing census. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013202v020801p.pdf))
3. Vertiv NetSure Inverter Series - Converged AC and DC Power System
   - Vertiv describes NetSure Inverter Series as supporting AC and DC loads with a common battery bank and single management interface. This supports a named combined-output proposition, not every customer's contracted configuration. ([vertiv.com](https://www.vertiv.com/en-us/products-catalog/critical-power/dc-power-systems/vertiv-netsure-inverter-series/))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: NetSure Inverter Series identifies AC and DC loads supported through a common battery bank. This establishes a combined-output proposition, not its modeled purchasing fraction or future adoption. ([vertiv.com](https://www.vertiv.com/en-us/products-catalog/critical-power/dc-power-systems/vertiv-netsure-inverter-series/))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: NetSure Inverter Series identifies AC and DC loads supported through a common battery bank. This establishes a combined-output proposition, not its modeled purchasing fraction or future adoption. ([vertiv.com](https://www.vertiv.com/en-us/products-catalog/critical-power/dc-power-systems/vertiv-netsure-inverter-series/))
4. Telecommunication Engineering Centre - Standards/Specifications, TEC 66160:2024 entry
   - Taxonomy evidence: The telecom catalog recognizes a hybrid AC/DC continuity-equipment category alongside single-current interface classifications; its national listing is not a worldwide mandate. ([tec.gov.in](https://tec.gov.in/standards-specifications))

5. TEC 66160:2024 - Hybrid (AC+DC) Uninterrupted Power Supply System
   · Taxonomy evidence: The record supplies a telecom-specific combined-output classification basis; its national requirements are not treated as worldwide mandates. ([tec.gov.in](https://tec.gov.in/pdf/GRFA/Final%20TEC_%20GR_%20Hybrid%20UPS_June%202024_21062024.pdf))
6. China Tower - 2025 Annual Results, March 18, 2026
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))
7. Broadband Commission - The State of Broadband: Our Digital World, 2025
   · Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))
8. Battery Backup - Meriwether Lewis Electric Cooperative
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
9. EnerSys 2026 Proxy Statement and Annual Report
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))
10. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025
    · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
11. Amara Raja Energy & Mobility - Q2/H1 FY2026 Earnings Presentation, November 6, 2025
    · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand. ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))
12. IHS Holding Limited - First-Quarter 2026 Financial Statements
    · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement. ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

13. Ofcom - Mobile RAN Power Resilience: Technical Report and CFI Update, February 2025
· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))
· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))
14. Ofcom - Your Landline Is Going Digital: What You Need to Know
· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool.
([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate.
([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
15. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone
· Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue.
([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
· Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions.
([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
16. Fingrid - How to Participate in the Reserve Markets
· Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue.
([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))

9.1. DC Output

Table 74. Global Telecom Battery Backup System Market Size, by DC Output, by Region, 2017-2032 (USD Million)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 75. Global Telecom Battery Backup System Market Size, by DC Output, by Group, 2017-2032 (USD Million)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 76. Global Telecom Battery Backup System Market Size, by DC Output, by Country, 2017-2032 (USD Million)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. ETSI EN 300 132-2 V2.8.1 (2024-10) - ICT power supply interface: Direct Current

   · Taxonomy evidence: The ICT interface standard identifies the established DC equipment-input interface. For this taxonomy, backup output follows the documented protected-load interface rather than battery chemistry. ([etsi.org](https://www.etsi.org/deliver/etsi_EN/300100_300199/xx.xx/xx.xx.01_60/en_30013202v020801p.pdf))

   · Taxonomy evidence: The October 2024 ICT interface standard separately identifies the established telecom DC equipment interface; it does not classify the equipment by battery chemistry. ([etsi.org](https://www.etsi.org/deliver/etsi_EN/300100_300199/xx.xx/xx.xx.01_60/en_30013202v020801p.pdf))

2. IEC 62040-5-3:2016 | IEC

   · Taxonomy evidence: DC-output UPS equipment is an internationally recognized category even when its normal input source is AC. ([webstore.iec.ch](https://webstore.iec.ch/en/publication/xx.xx))

3. China Tower - 2025 Annual Results, March 18, 2026
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China's spending cycle is retained as a counterforce in the regional forecast.
4. Broadband Commission - The State of Broadband: Our Digital World, 2025
   - Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))
5. Battery Backup - Meriwether Lewis Electric Cooperative
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
6. EnerSys 2026 Proxy Statement and Annual Report
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))
7. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom-specific sales weakness is a purchasing-cycle counterforce, not a measure of all Asian backup-system demand.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom application revenue provides counterevidence to extrapolating broad energy-storage growth into China's backup forecast.
8. Amara Raja Energy & Mobility - Q2/H1 FY2026 Earnings Presentation, November 6, 2025
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand. ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))
9. IHS Holding Limited - First-Quarter 2026 Financial Statements
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement. ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

10. Ofcom - Mobile RAN Power Resilience: Technical Report and CFI Update, February 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Jurisdiction-specific resilience economics qualify a uniform Europe-wide demand uplift.

11. Ofcom - Your Landline Is Going Digital: What You Need to Know

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool.
([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate.
([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

12. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue.
([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))

· Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions.
([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))

13. Fingrid - How to Participate in the Reserve Markets

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue.
([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))

14. China Tower announces 2025 annual results - March 18, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.
15. Government of India, Department of Telecommunications - Telecom Statistics India 2025, international comparison tables
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Wireless and fixed-access customer pools are distinguished in the country model.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Wireless and fixed-access customer pools are distinguished in the country model.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.

16. American Tower Corporation - Annual Report on Form 10-K for 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
17. Cellnex - Integrated Annual Report 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.

18. IHS Holding Limited - Annual Report on Form 20-F for 2024
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
19. Australian Government - Mobile Network Hardening Program
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The limited Australian program qualifies extrapolation of resilience funding across Asia-Pacific.
20. CPUC Requires Wireless Companies to Better Serve Customers in Emergencies - July 16, 2020
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
21. CRTC - Request for Information on Telecommunications Network Resiliency, May 12, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The information request seeks evidence on possible backup requirements and customer equipment costs; it is not an enacted national procurement program.
22. FCC - Internet Access Services: Status as of December 31, 2024, official state-government-hosted copy
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
23. OECD - High-capacity broadband networks gain ground across OECD, October 13, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Observed mature-market connectivity growth and differing fibre/5G adoption constrain replacement and expansion assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Latin American fibre migration supports a conditional fixed-access expansion premise, not automatic battery attachment.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: High mature-market fibre adoption is retained as a saturation counterforce to the purchasing forecast.

24. ETSI EN 300 132-2 V2.8.1 - ICT Power Supply Interface: Direct Current
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The ICT standard separately identifies the DC protected-equipment interface, supporting the DC-output boundary independently of battery chemistry. It is not a purchasing census. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013202v020801p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The ICT standard separately identifies the DC protected-equipment interface, supporting the DC-output boundary independently of battery chemistry. It is not a purchasing census. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013202v020801p.pdf))

9.2. AC Output

Table 77. Global Telecom Battery Backup System Market Size, by AC Output, by Region, 2017-2032 (USD Million)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 78. Global Telecom Battery Backup System Market Size, by AC Output, by Group, 2017-2032 (USD Million)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 79. Global Telecom Battery Backup System Market Size, by AC Output, by Country, 2017-2032 (USD Million)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. IEC 62040-3:2021 | IEC

   · Taxonomy evidence: The classified UPS equipment delivers AC output, supporting output-form classification independently of battery chemistry. ([webstore.iec.ch](https://webstore.iec.ch/en/publication/xx.xx))

   · Taxonomy evidence: The classified UPS equipment delivers AC output, establishing an output-interface distinction rather than a battery-chemistry distinction. ([webstore.iec.ch](https://webstore.iec.ch/en/publication/xx.xx))

2. ETSI EN 300 132-1 V2.2.1 (2022-11) - ICT power supply interface: Alternating Current
   · Taxonomy evidence: The ICT standards series separately identifies AC equipment-input compatibility, supporting current-form classification at the protected-load boundary. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013201v020201p.pdf))
   · Taxonomy evidence: The ICT interface classification explicitly covers AC power interfaces, including worldwide nominal-voltage compatibility and customer-premises and network-site applications. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013201v020201p.pdf))
   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: The ICT standard identifies the protected-load AC interface, supporting output-side attribution rather than classification by chemistry or normal utility input. It supplies no sales mix. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013201v020201p.pdf))
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The ICT standard identifies the protected-load AC interface, supporting output-side attribution rather than classification by chemistry or normal utility input. It supplies no sales mix. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013201v020201p.pdf))
3. China Tower - 2025 Annual Results, March 18, 2026
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))
   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China's spending cycle is retained as a counterforce in the regional forecast.
4. Broadband Commission - The State of Broadband: Our Digital World, 2025
   · Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))
5. Battery Backup - Meriwether Lewis Electric Cooperative
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
6. EnerSys 2026 Proxy Statement and Annual Report
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))

7. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom-specific sales weakness is a purchasing-cycle counterforce, not a measure of all Asian backup-system demand.

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom application revenue provides counterevidence to extrapolating broad energy-storage growth into China's backup forecast.

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· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand. ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))

9. IHS Holding Limited - First-Quarter 2026 Financial Statements

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement. ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

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· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Jurisdiction-specific resilience economics qualify a uniform Europe-wide demand uplift.

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· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

12. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone
    - Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue.
    ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
    - Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions.
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    - Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue.
    ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))
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    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.

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    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
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    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Wireless and fixed-access customer pools are distinguished in the country model.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Wireless and fixed-access customer pools are distinguished in the country model.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.

16. American Tower Corporation - Annual Report on Form 10-K for 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
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    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.
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18. IHS Holding Limited - Annual Report on Form 20-F for 2024
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
19. Australian Government - Mobile Network Hardening Program
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The limited Australian program qualifies extrapolation of resilience funding across Asia-Pacific.
20. CPUC Requires Wireless Companies to Better Serve Customers in Emergencies - July 16, 2020
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
21. CRTC - Request for Information on Telecommunications Network Resiliency, May 12, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The information request seeks evidence on possible backup requirements and customer equipment costs; it is not an enacted national procurement program.
22. FCC - Internet Access Services: Status as of December 31, 2024, official state-government-hosted copy
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
23. OECD - High-capacity broadband networks gain ground across OECD, October 13, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Observed mature-market connectivity growth and differing fibre/5G adoption constrain replacement and expansion assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Latin American fibre migration supports a conditional fixed-access expansion premise, not automatic battery attachment.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: High mature-market fibre adoption is retained as a saturation counterforce to the purchasing forecast.

9.3. Combined AC/DC Output

Table 80. Global Telecom Battery Backup System Market Size, by Combined AC/DC Output, by Region, 2017-2032 (USD Million)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 81. Global Telecom Battery Backup System Market Size, by Combined AC/DC Output, by Group, 2017-2032 (USD Million)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 82. Global Telecom Battery Backup System Market Size, by Combined AC/DC Output, by Country, 2017-2032 (USD Million)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

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   · Taxonomy evidence: The official catalog lists Hybrid (AC+DC) Uninterrupted Power Supply System as TEC xx.xx:2024, dated June xx.xx 2024. This establishes the named category, not transaction-specific backed outputs. ([tec.gov.in](https://tec.gov.in/standards-specifications))

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   · Taxonomy evidence: The classification explicitly describes backed AC and DC outputs within one telecom system, supporting a combined-output category distinct from AC-input/DC-output equipment. ([tec.gov.in](https://tec.gov.in/pdf/GRFA/Final%20TEC_%20GR_%20Hybrid%20UPS_June%202024_21062024.pdf))

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   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China's spending cycle is retained as a counterforce in the regional forecast.
4. Broadband Commission - The State of Broadband: Our Digital World, 2025
   · Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))
5. Battery Backup - Meriwether Lewis Electric Cooperative
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6. EnerSys 2026 Proxy Statement and Annual Report
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))
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   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom-specific sales weakness is a purchasing-cycle counterforce, not a measure of all Asian backup-system demand.
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom application revenue provides counterevidence to extrapolating broad energy-storage growth into China's backup forecast.
8. Amara Raja Energy & Mobility - Q2/H1 FY2026 Earnings Presentation, November 6, 2025
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand. ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))
9. IHS Holding Limited - First-Quarter 2026 Financial Statements
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement. ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

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· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Jurisdiction-specific resilience economics qualify a uniform Europe-wide demand uplift.

11. Ofcom - Your Landline Is Going Digital: What You Need to Know

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool.
([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate.
([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

12. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue.
([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))

· Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions.
([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))

13. Fingrid - How to Participate in the Reserve Markets

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue.
([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))

14. China Tower announces 2025 annual results - March 18, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.
15. Government of India, Department of Telecommunications - Telecom Statistics India 2025, international comparison tables
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Wireless and fixed-access customer pools are distinguished in the country model.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Wireless and fixed-access customer pools are distinguished in the country model.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.

16. American Tower Corporation - Annual Report on Form 10-K for 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
17. Cellnex - Integrated Annual Report 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.

18. IHS Holding Limited - Annual Report on Form 20-F for 2024
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
19. Australian Government - Mobile Network Hardening Program
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The limited Australian program qualifies extrapolation of resilience funding across Asia-Pacific.
20. CPUC Requires Wireless Companies to Better Serve Customers in Emergencies - July 16, 2020
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
21. CRTC - Request for Information on Telecommunications Network Resiliency, May 12, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The information request seeks evidence on possible backup requirements and customer equipment costs; it is not an enacted national procurement program.
22. FCC - Internet Access Services: Status as of December 31, 2024, official state-government-hosted copy
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
23. OECD - High-capacity broadband networks gain ground across OECD, October 13, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Observed mature-market connectivity growth and differing fibre/5G adoption constrain replacement and expansion assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Latin American fibre migration supports a conditional fixed-access expansion premise, not automatic battery attachment.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: High mature-market fibre adoption is retained as a saturation counterforce to the purchasing forecast.

24. Vertiv NetSure Inverter Series - Converged AC and DC Power System
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: NetSure Inverter Series identifies AC and DC loads supported through a common battery bank. This establishes a combined-output proposition, not its modeled purchasing fraction or future adoption. ([vertiv.com](https://www.vertiv.com/en-us/products-catalog/critical-power/dc-power-systems/vertiv-netsure-inverter-series/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: NetSure Inverter Series identifies AC and DC loads supported through a common battery bank. This establishes a combined-output proposition, not its modeled purchasing fraction or future adoption. ([vertiv.com](https://www.vertiv.com/en-us/products-catalog/critical-power/dc-power-systems/vertiv-netsure-inverter-series/))

10. Telecom Battery Backup System Market, by Network Application

Network Application changes the consequence and contractual boundary of a backup purchase. FirstNet distinguishes core functions, transport backhaul, and radio access, supporting classification by the protected network function rather than the building containing it. ▪▪ ▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪ ▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪ ▪▪▪▪ ▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪ ▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪ ▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪ ▪▪▪ ▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪

▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪ ▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪ ▪▪▪▪▪ Across these applications, local battery protection should not be represented as an end-to-end service guarantee unless the remaining network dependencies are included. Responsibility for a shared facility and responsibility for its protected telecom function may need separate contracts.

Customer-Premises Connectivity requires a different comparison: which customer services remain supported. ▪▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪ ▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪ ▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪ ▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪ ▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪ ▪▪▪▪▪▪▪▪▪▪▪ The relevant trigger for changing the purchase is an expanded protected-service requirement, not simply a change in the equipment's application label.

Figure 14. Global Telecom Battery Backup System Market Size, by Network Application, 2025 (%)

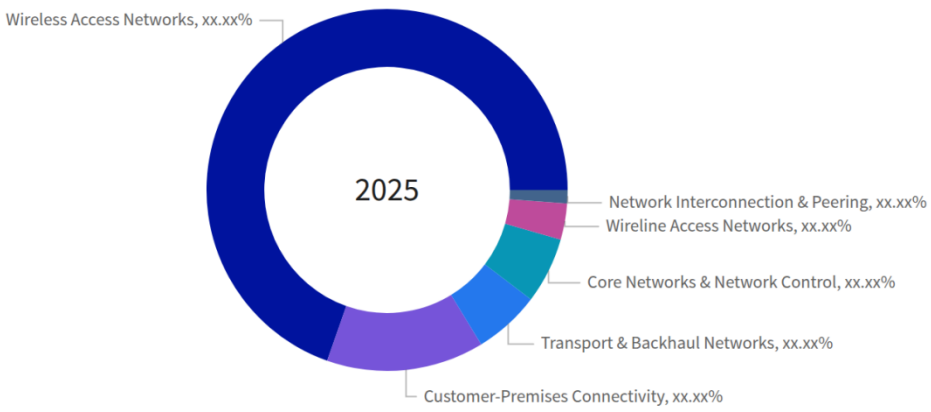

Figure 15. Global Telecom Battery Backup System Market, by Network Application, 2032 (USD Million)

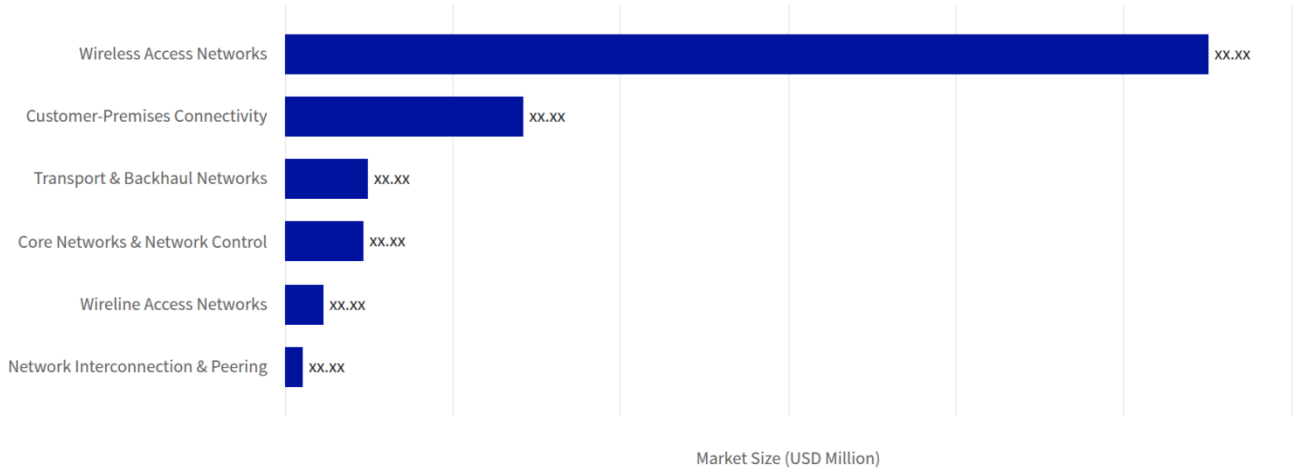

Table 83. Global Telecom Battery Backup System Market, by Network Application growth contribution, 2025-2032

Category	2025 value (USD Million)	2032 value (USD Million)	Added value (USD Million)	2025 share (%)	2032 share (%)	Change (pp)	Growth share (%)	CAGR (%)
Core Networks & Network Control	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Customer-Premises Connectivity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Network Interconnection & Peering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Transport & Backhaul Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Wireless Access Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Wireline Access Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scope total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 84. Global Telecom Battery Backup System Market Size, by Network Application, 2017-2032 (USD Million)

Network Application	2023	2024	2025	2026	2027	2032	CAGR (%)
Core Networks & Network Control	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Customer-Premises Connectivity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Network Interconnection & Peering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Transport & Backhaul Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Wireless Access Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Wireline Access Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. Network and Service Resilience Guidance for Communications Providers, June 16, 2026

- Ofcom's June xx.xx 2026 guidance differentiates access, aggregation/backhaul, core, and interconnection; expects battery and generator provision at core and larger aggregation sites; and addresses resilience across third-party peering and interconnection. These are UK-specific expectations, not global mandates. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/network-and-service-resilience-guidance-for-communications-providerspdf?v=xx.xx))
- Taxonomy evidence: The June xx.xx 2026 guidance distinguishes access, aggregation/backhaul, core, and interconnection domains; management is cross-cutting. This supports functional rather than facility-based classification. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/network-and-service-resilience-guidance-for-communications-providerspdf?v=xx.xx))
- Taxonomy evidence: The June xx.xx 2026 guidance differentiates access, aggregation/backhaul, core, and interconnection domains and recognizes management as cross-cutting. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/network-and-service-resilience-guidance-for-communications-providerspdf?v=xx.xx))
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Core is a distinct, comparatively concentrated function with explicit backup expectations; global spending remains estimated.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Core is a distinct, comparatively concentrated function with explicit backup expectations; global spending remains estimated.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The stated xx.xx-xx.xx-fold site-scale distinction motivates lower-value, more numerous transport purchase equivalents.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The stated xx.xx-xx.xx-fold site-scale distinction motivates lower-value, more numerous transport purchase equivalents.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Peering and non-Internet interconnection are distinct functions; attributable backup purchase values are not disclosed.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Peering and non-Internet interconnection are distinct functions; attributable backup purchase values are not disclosed.

2. PowerReserve | Verizon Residential Accessories
   · Verizon limits PowerReserve to voice, including emergency calls, and excludes Fios internet and television. This supports a protected-service distinction within Customer-Premises Connectivity. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
3. Battery Backup | Meriwether Lewis Electric Cooperative
   · MLConnect describes protection of its optical network terminal and separately discusses terminal-plus-gateway support for voice and internet. Only the protected-service distinction is used. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
4. Technology and Tools | First Responder Network Authority
   · FirstNet distinguishes core network functions, transport backhaul, and radio access as separate network layers. This supports functional application classification rather than classification solely by facility. ([firstnet.gov](https://firstnet.gov/network/TT))
   · Taxonomy evidence: The government network description distinguishes core, transport backhaul, and radio access as separate layers, supporting functional rather than building-based application classification. ([firstnet.gov](https://firstnet.gov/network/TT))
   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: Radio access, transport backhaul and core are separate network functions, supporting functional attribution without duplicate facility counting.
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Radio access, transport backhaul and core are separate network functions, supporting functional attribution without duplicate facility counting.
5. China Tower - 2025 Annual Results, March 18, 2026
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))
   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: The xx.xx.149m-site inventory constrains wireless activity; forecast purchasing remains modeled.
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The xx.xx.149m-site inventory constrains wireless activity; forecast purchasing remains modeled.
6. Broadband Commission - The State of Broadband: Our Digital World, 2025
   · Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))
7. EnerSys 2026 Proxy Statement and Annual Report
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))
8. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

9. Amara Raja Energy & Mobility - Q2/H1 FY2026 Earnings Presentation, November 6, 2025

   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand.
   ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))

10. IHS Holding Limited - First-Quarter 2026 Financial Statements

    · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement.
    ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

11. Ofcom - Mobile RAN Power Resilience: Technical Report and CFI Update, February 2025

    · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue.
    ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

    · Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation.
    ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

12. Ofcom - Your Landline Is Going Digital: What You Need to Know

    · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool.
    ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

    · Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate.
    ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

13. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone

    · Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue.
    ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))

    · Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions.
    ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))

14. Fingrid - How to Participate in the Reserve Markets
    - Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue.
    ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))
15. Mobile Network Hardening Program | Australian Department of Infrastructure
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Completed battery enhancements and broader resilience projects provide a delivered regional demand signal, not a global forecast rate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Completed battery enhancements and broader resilience projects provide a delivered regional demand signal, not a global forecast rate.

10.1. Wireless Access Networks

Table 85. Global Telecom Battery Backup System Market Size, by Wireless Access Networks, by Region, 2017-2032 (USD Million)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 86. Global Telecom Battery Backup System Market Size, by Wireless Access Networks, by Group, 2017-2032 (USD Million)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 87. Global Telecom Battery Backup System Market Size, by Wireless Access Networks, by Country, 2017-2032 (USD Million)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. Ofcom - Network and Service Resilience Guidance for Communications Providers, June 16, 2026

   · Taxonomy evidence: Wireless radio access is an explicit access-domain application. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/network-and-service-resilience-guidance-for-communications-providerspdf?v=xx.xx))

   · Taxonomy evidence: Access-domain examples include cellular RAN, fixed wireless access, and non-terrestrial access networks. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/network-and-service-resilience-guidance-for-communications-providerspdf?v=xx.xx))

2. ENISA - Power Supply Dependencies in the Electronic Communications Sector, December 2013

   · Taxonomy evidence: Provider examples describe batteries protecting individual access-network base stations during power interruptions. ([enisa.europa.eu](https://www.enisa.europa.eu/sites/default/files/publications/Power%20Supply%20Dependencies%20in%20the%20Ecomms%20Sector.pdf))

3. Oregon Department of Transportation - Bid S-73000-00006485, Battery Backup Power Systems for Wireless Communication Sites

   · Taxonomy evidence: The May 2023 public solicitation seeks battery-backup power systems for two-way communications sites, establishing institutional radio-network demand rather than completed delivery. ([oregonbuys.gov](https://oregonbuys.gov/bso/external/bidDetail.sdo?docId=S-xx.xx-xx.xx&external=true&parentUrl=close))

4. Ofcom - Mobile RAN Power Resilience: Technical Report and CFI Update, February 2025
   - Taxonomy evidence: The report discusses battery backup at mobile radio-access sites, establishing an application context rather than Global adoption. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))
   - Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Jurisdiction-specific resilience economics qualify a uniform Europe-wide demand uplift.
5. Technology and Tools | First Responder Network Authority
   - Taxonomy evidence: Radio access is the base-station infrastructure connecting user devices to the network. The record establishes the network function, not battery purchasing volume. ([firstnet.gov](https://firstnet.gov/network/TT))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Radio access, transport backhaul and core are separate network functions, supporting functional attribution without duplicate facility counting.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Radio access, transport backhaul and core are separate network functions, supporting functional attribution without duplicate facility counting.
6. State of Delaware - Public Safety Communications Equipment, 700 MHz Systems, Contract GSS21869-700MHz, Appendix E
   - Taxonomy evidence: The public radio-system procurement requires battery-backed UPS equipment at radio sites and communications-control locations. It establishes a public demand requirement, not completed contract delivery. ([bidcondocs.delaware.gov](https://bidcondocs.delaware.gov/GSS/GSS_21869_700mhz_appE.pdf))

7. China Tower - 2025 Annual Results, March 18, 2026
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China's spending cycle is retained as a counterforce in the regional forecast.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The xx.xx.149m-site inventory constrains wireless activity; forecast purchasing remains modeled.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The xx.xx.149m-site inventory constrains wireless activity; forecast purchasing remains modeled.
8. Broadband Commission - The State of Broadband: Our Digital World, 2025
   - Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))
9. Battery Backup - Meriwether Lewis Electric Cooperative
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
10. EnerSys 2026 Proxy Statement and Annual Report
    - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))
11. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025
    - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom-specific sales weakness is a purchasing-cycle counterforce, not a measure of all Asian backup-system demand.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom application revenue provides counterevidence to extrapolating broad energy-storage growth into China's backup forecast.
12. Amara Raja Energy & Mobility - Q2/H1 FY2026 Earnings Presentation, November 6, 2025
    - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand. ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))

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    · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement.
    ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

14. Ofcom - Your Landline Is Going Digital: What You Need to Know

    · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool.
    ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

    · Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate.
    ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

15. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone

    · Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue.
    ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))

    · Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions.
    ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))

16. Fingrid - How to Participate in the Reserve Markets

    · Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue.
    ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))

17. China Tower announces 2025 annual results - March 18, 2026

    · Evidence informing base-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.

    · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.

    · Evidence informing base-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.

    · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.

18. Government of India, Department of Telecommunications - Telecom Statistics India 2025, international comparison tables

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Wireless and fixed-access customer pools are distinguished in the country model.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Wireless and fixed-access customer pools are distinguished in the country model.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.

19. American Tower Corporation - Annual Report on Form 10-K for 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
20. Cellnex - Integrated Annual Report 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.

21. IHS Holding Limited - Annual Report on Form 20-F for 2024
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.

22. Australian Government - Mobile Network Hardening Program
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The limited Australian program qualifies extrapolation of resilience funding across Asia-Pacific.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Completed battery enhancements and broader resilience projects provide a delivered regional demand signal, not a global forecast rate.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Completed battery enhancements and broader resilience projects provide a delivered regional demand signal, not a global forecast rate.

23. CPUC Requires Wireless Companies to Better Serve Customers in Emergencies - July 16, 2020
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.

24. CRTC - Request for Information on Telecommunications Network Resiliency, May 12, 2026
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The information request seeks evidence on possible backup requirements and customer equipment costs; it is not an enacted national procurement program.

25. FCC - Internet Access Services: Status as of December 31, 2024, official state-government-hosted copy
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.

26. OECD - High-capacity broadband networks gain ground across OECD, October 13, 2026

- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Observed mature-market connectivity growth and differing fibre/5G adoption constrain replacement and expansion assumptions.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Latin American fibre migration supports a conditional fixed-access expansion premise, not automatic battery attachment.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: High mature-market fibre adoption is retained as a saturation counterforce to the purchasing forecast.

10.2. Customer-Premises Connectivity

Table 88. Global Telecom Battery Backup System Market Size, by Customer-Premises Connectivity, by Region, 2017-2032 (USD Million)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 89. Global Telecom Battery Backup System Market Size, by Customer-Premises Connectivity, by Group, 2017-2032 (USD Million)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 90. Global Telecom Battery Backup System Market Size, by Customer-Premises Connectivity, by Country, 2017-2032 (USD Million)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. Battery Backup - Meriwether Lewis Electric Cooperative
   - Taxonomy evidence: The protected equipment is subscriber-premises connectivity equipment. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Taxonomy evidence: The customer record describes purchased battery-backup equipment protecting an ONT and residential gateway, establishing a customer-premises connectivity application. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
2. ETSI EN 302 099 V2.2.1 (2021-02) - Powering of Equipment in Access Network
   - Taxonomy evidence: Customer-premises equipment is distinguished from shared access-network equipment. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
   - Taxonomy evidence: Sections xx.xx.xx.xx and xx.xx.xx.xx distinguish shared access-network equipment from equipment at customer premises, supporting a separate subscriber-premises application boundary. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))

3. China Tower - 2025 Annual Results, March 18, 2026
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))
   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China's spending cycle is retained as a counterforce in the regional forecast.
4. Broadband Commission - The State of Broadband: Our Digital World, 2025
   · Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))
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   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))
6. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom-specific sales weakness is a purchasing-cycle counterforce, not a measure of all Asian backup-system demand.
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom application revenue provides counterevidence to extrapolating broad energy-storage growth into China's backup forecast.
7. Amara Raja Energy & Mobility - Q2/H1 FY2026 Earnings Presentation, November 6, 2025
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand. ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))
8. IHS Holding Limited - First-Quarter 2026 Financial Statements
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement. ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

9. Ofcom - Mobile RAN Power Resilience: Technical Report and CFI Update, February 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Jurisdiction-specific resilience economics qualify a uniform Europe-wide demand uplift.

10. Ofcom - Your Landline Is Going Digital: What You Need to Know

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool.
([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate.
([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

11. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue.
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· Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions.
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12. Fingrid - How to Participate in the Reserve Markets

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue.
([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))

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    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.
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    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Wireless and fixed-access customer pools are distinguished in the country model.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Wireless and fixed-access customer pools are distinguished in the country model.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.

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    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
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16. Cellnex - Integrated Annual Report 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.

17. IHS Holding Limited - Annual Report on Form 20-F for 2024
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
18. Australian Government - Mobile Network Hardening Program
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The limited Australian program qualifies extrapolation of resilience funding across Asia-Pacific.
19. CPUC Requires Wireless Companies to Better Serve Customers in Emergencies - July 16, 2020
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
20. CRTC - Request for Information on Telecommunications Network Resiliency, May 12, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The information request seeks evidence on possible backup requirements and customer equipment costs; it is not an enacted national procurement program.
21. FCC - Internet Access Services: Status as of December 31, 2024, official state-government-hosted copy
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
22. OECD - High-capacity broadband networks gain ground across OECD, October 13, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Observed mature-market connectivity growth and differing fibre/5G adoption constrain replacement and expansion assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Latin American fibre migration supports a conditional fixed-access expansion premise, not automatic battery attachment.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: High mature-market fibre adoption is retained as a saturation counterforce to the purchasing forecast.

10.3. Transport & Backhaul Networks

Table 91. Global Telecom Battery Backup System Market Size, by Transport & Backhaul Networks, by Region, 2017-2032 (USD Million)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 92. Global Telecom Battery Backup System Market Size, by Transport & Backhaul Networks, by Group, 2017-2032 (USD Million)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 93. Global Telecom Battery Backup System Market Size, by Transport & Backhaul Networks, by Country, 2017-2032 (USD Million)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

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   · Taxonomy evidence: Aggregation/backhaul is distinguished from core and last-mile access and has explicit power-resilience expectations. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/network-and-service-resilience-guidance-for-communications-providerspdf?v=xx.xx))

   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: The stated xx.xx-xx.xx-fold site-scale distinction motivates lower-value, more numerous transport purchase equivalents.

   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The stated xx.xx-xx.xx-fold site-scale distinction motivates lower-value, more numerous transport purchase equivalents.

2. ENISA - Power Supply Dependencies in the Electronic Communications Sector, December 2013

   · Taxonomy evidence: The 2013 provider accounts describe battery protection at transmission and aggregation sites. This is historical application evidence, not current Global adoption. ([enisa.europa.eu](https://www.enisa.europa.eu/sites/default/files/publications/Power%20Supply%20Dependencies%20in%20the%20Ecomms%20Sector.pdf))

   · Taxonomy evidence: The report separately identifies battery protection at critical transmission and aggregation sites. ([enisa.europa.eu](https://www.enisa.europa.eu/sites/default/files/publications/Power%20Supply%20Dependencies%20in%20the%20Ecomms%20Sector.pdf))

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   · Taxonomy evidence: The solicitation also includes wireless microwave communications sites; their application allocation depends on the protected network function. ([oregonbuys.gov](https://oregonbuys.gov/bso/external/bidDetail.sdo?docId=S-xx.xx-xx.xx&external=true&parentUrl=close))

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   · Taxonomy evidence: Transport backhaul carries user traffic and signaling between radio base stations and the core network. ([firstnet.gov](https://firstnet.gov/network/TT))

5. China Tower - 2025 Annual Results, March 18, 2026

   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))

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   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))

8. EnerSys 2026 Proxy Statement and Annual Report

   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))

9. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025

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   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom-specific sales weakness is a purchasing-cycle counterforce, not a measure of all Asian backup-system demand.

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([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))

11. IHS Holding Limited - First-Quarter 2026 Financial Statements

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement.
([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

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· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

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    ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
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    ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))
16. China Tower announces 2025 annual results - March 18, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.

17. Government of India, Department of Telecommunications - Telecom Statistics India 2025, international comparison tables
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Wireless and fixed-access customer pools are distinguished in the country model.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Wireless and fixed-access customer pools are distinguished in the country model.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.

18. American Tower Corporation - Annual Report on Form 10-K for 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
19. Cellnex - Integrated Annual Report 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.

20. IHS Holding Limited - Annual Report on Form 20-F for 2024
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
21. Australian Government - Mobile Network Hardening Program
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The limited Australian program qualifies extrapolation of resilience funding across Asia-Pacific.
22. CPUC Requires Wireless Companies to Better Serve Customers in Emergencies - July 16, 2020
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
23. CRTC - Request for Information on Telecommunications Network Resiliency, May 12, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The information request seeks evidence on possible backup requirements and customer equipment costs; it is not an enacted national procurement program.
24. FCC - Internet Access Services: Status as of December 31, 2024, official state-government-hosted copy
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
25. OECD - High-capacity broadband networks gain ground across OECD, October 13, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Observed mature-market connectivity growth and differing fibre/5G adoption constrain replacement and expansion assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Latin American fibre migration supports a conditional fixed-access expansion premise, not automatic battery attachment.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: High mature-market fibre adoption is retained as a saturation counterforce to the purchasing forecast.

10.4. Core Networks & Network Control

Table 94. Global Telecom Battery Backup System Market Size, by Core Networks & Network Control, by Region, 2017-2032 (USD Million)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 95. Global Telecom Battery Backup System Market Size, by Core Networks & Network Control, by Group, 2017-2032 (USD Million)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 96. Global Telecom Battery Backup System Market Size, by Core Networks & Network Control, by Country, 2017-2032 (USD Million)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. Ofcom - Network and Service Resilience Guidance for Communications Providers, June 16, 2026

   · Taxonomy evidence: Core sites contain key control/service functions, and the guidance expressly includes battery backup in their electrical provision. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/network-and-service-resilience-guidance-for-communications-providerspdf?v=xx.xx))

   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: Core is a distinct, comparatively concentrated function with explicit backup expectations; global spending remains estimated.

   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Core is a distinct, comparatively concentrated function with explicit backup expectations; global spending remains estimated.

2. ENISA - Power Supply Dependencies in the Electronic Communications Sector, December 2013

   · Taxonomy evidence: Provider interviews in the December 2013 report describe core sites protected by UPS systems and batteries, alongside generators. This establishes historical core-backup use, not current global adoption. ([enisa.europa.eu](https://www.enisa.europa.eu/sites/default/files/publications/Power%20Supply%20Dependencies%20in%20the%20Ecomms%20Sector.pdf))

3. Technology and Tools | First Responder Network Authority

   · Taxonomy evidence: Core functions include switching, information processing, and network services; these are distinguished from transport links and radio base stations. ([firstnet.gov](https://firstnet.gov/network/TT))

4. China Tower - 2025 Annual Results, March 18, 2026
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China's spending cycle is retained as a counterforce in the regional forecast.
5. Broadband Commission - The State of Broadband: Our Digital World, 2025
   - Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))
6. Battery Backup - Meriwether Lewis Electric Cooperative
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
7. EnerSys 2026 Proxy Statement and Annual Report
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))
8. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom-specific sales weakness is a purchasing-cycle counterforce, not a measure of all Asian backup-system demand.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom application revenue provides counterevidence to extrapolating broad energy-storage growth into China's backup forecast.
9. Amara Raja Energy & Mobility - Q2/H1 FY2026 Earnings Presentation, November 6, 2025
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand. ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))
10. IHS Holding Limited - First-Quarter 2026 Financial Statements
    - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement. ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

11. Ofcom - Mobile RAN Power Resilience: Technical Report and CFI Update, February 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Jurisdiction-specific resilience economics qualify a uniform Europe-wide demand uplift.

12. Ofcom - Your Landline Is Going Digital: What You Need to Know

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool.
([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate.
([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

13. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue.
([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))

· Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions.
([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))

14. Fingrid - How to Participate in the Reserve Markets

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue.
([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))

15. China Tower announces 2025 annual results - March 18, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.
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    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
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    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
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    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
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    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Wireless and fixed-access customer pools are distinguished in the country model.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.
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    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
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    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
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    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
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18. Cellnex - Integrated Annual Report 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.

19. IHS Holding Limited - Annual Report on Form 20-F for 2024
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
20. Australian Government - Mobile Network Hardening Program
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The limited Australian program qualifies extrapolation of resilience funding across Asia-Pacific.
21. CPUC Requires Wireless Companies to Better Serve Customers in Emergencies - July 16, 2020
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
22. CRTC - Request for Information on Telecommunications Network Resiliency, May 12, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The information request seeks evidence on possible backup requirements and customer equipment costs; it is not an enacted national procurement program.
23. FCC - Internet Access Services: Status as of December 31, 2024, official state-government-hosted copy
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
24. OECD - High-capacity broadband networks gain ground across OECD, October 13, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Observed mature-market connectivity growth and differing fibre/5G adoption constrain replacement and expansion assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Latin American fibre migration supports a conditional fixed-access expansion premise, not automatic battery attachment.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: High mature-market fibre adoption is retained as a saturation counterforce to the purchasing forecast.

10.5. Wireline Access Networks

Table 97. Global Telecom Battery Backup System Market Size, by Wireline Access Networks, by Region, 2017-2032 (USD Million)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 98. Global Telecom Battery Backup System Market Size, by Wireline Access Networks, by Group, 2017-2032 (USD Million)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 99. Global Telecom Battery Backup System Market Size, by Wireline Access Networks, by Country, 2017-2032 (USD Million)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

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([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

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    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
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10.6. Network Interconnection & Peering

Table 100. Global Telecom Battery Backup System Market Size, by Network Interconnection & Peering, by Region, 2017-2032 (USD Million)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 101. Global Telecom Battery Backup System Market Size, by Network Interconnection & Peering, by Group, 2017-2032 (USD Million)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 102. Global Telecom Battery Backup System Market Size, by Network Interconnection & Peering, by Country, 2017-2032 (USD Million)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

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   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China's spending cycle is retained as a counterforce in the regional forecast.
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   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))
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   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom application revenue provides counterevidence to extrapolating broad energy-storage growth into China's backup forecast.
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   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand. ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))
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   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement. ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

10. Ofcom - Mobile RAN Power Resilience: Technical Report and CFI Update, February 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Jurisdiction-specific resilience economics qualify a uniform Europe-wide demand uplift.

11. Ofcom - Your Landline Is Going Digital: What You Need to Know

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool.
([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate.
([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

12. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue.
([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))

· Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions.
([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))

13. Fingrid - How to Participate in the Reserve Markets

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue.
([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))

14. China Tower announces 2025 annual results - March 18, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.
15. Government of India, Department of Telecommunications - Telecom Statistics India 2025, international comparison tables
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Wireless and fixed-access customer pools are distinguished in the country model.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Wireless and fixed-access customer pools are distinguished in the country model.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.

16. American Tower Corporation - Annual Report on Form 10-K for 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
17. Cellnex - Integrated Annual Report 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.

18. IHS Holding Limited - Annual Report on Form 20-F for 2024
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
19. Australian Government - Mobile Network Hardening Program
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The limited Australian program qualifies extrapolation of resilience funding across Asia-Pacific.
20. CPUC Requires Wireless Companies to Better Serve Customers in Emergencies - July 16, 2020
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
21. CRTC - Request for Information on Telecommunications Network Resiliency, May 12, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The information request seeks evidence on possible backup requirements and customer equipment costs; it is not an enacted national procurement program.
22. FCC - Internet Access Services: Status as of December 31, 2024, official state-government-hosted copy
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
23. OECD - High-capacity broadband networks gain ground across OECD, October 13, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Observed mature-market connectivity growth and differing fibre/5G adoption constrain replacement and expansion assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Latin American fibre migration supports a conditional fixed-access expansion premise, not automatic battery attachment.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: High mature-market fibre adoption is retained as a saturation counterforce to the purchasing forecast.

11. Telecom Battery Backup System Market, by Buyer Type

[redacted] IHS' first-quarter 2026 filing provides a concrete counterexample to a uniform tower-power responsibility: its South African business ceased supplying diesel or alternative power under the disclosed contractual change. Suppliers approaching Telecommunications Network Operators, Telecom Infrastructure & Tower Operators, or Telecom Energy-Service Providers should establish the actual acquisition and replacement counterparty before bidding; access to a tower customer does not automatically confer access to its backup-equipment budget.

Equipment Leasing & Rental Providers require a fleet-procurement conversation rather than an end-user ownership proposition. [redacted] OEMs should verify procurement authority and continuing fleet-service responsibility before treating customer interest in rental as a hardware purchasing commitment.

Business & Institutional Connectivity Owners can purchase for their own continuity obligations. [redacted] Suppliers should distinguish contractual funding responsibility from tender eligibility; the Oregon example establishes a particular purchasing process, not completed delivery or a universal institutional rule.

Household Connectivity Purchasers face a different payer boundary. [redacted] Suppliers should identify the funding party before choosing a provider-procurement or consumer-sales proposition.

Figure 16. Global Telecom Battery Backup System Market Size, by Buyer Type, 2025 (%)

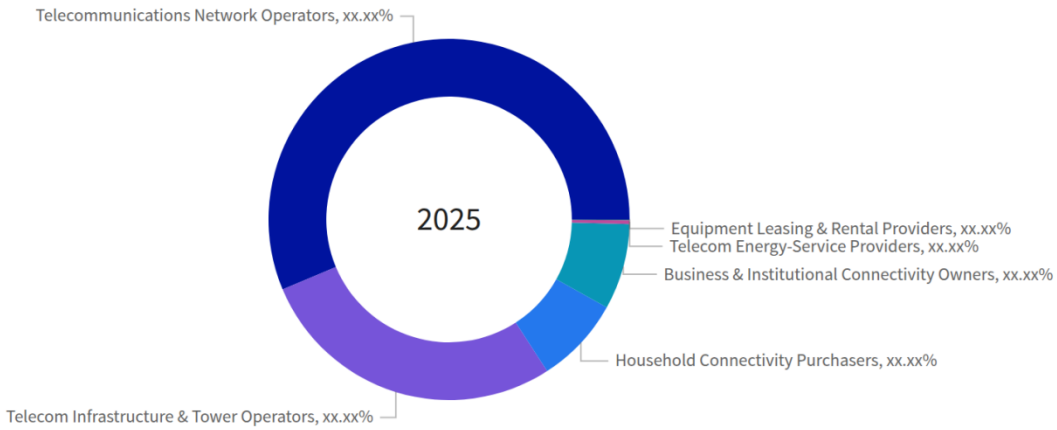

Figure 17. Global Telecom Battery Backup System Market, by Buyer Type, 2032 (USD Million)

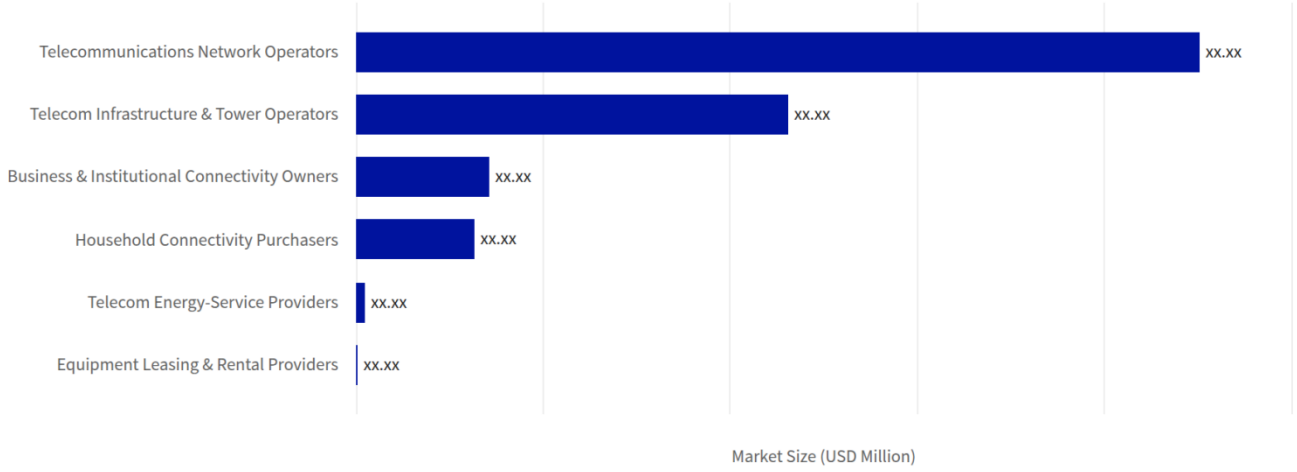

Table 103. Global Telecom Battery Backup System Market, by Buyer Type growth contribution, 2025-2032

Category	2025 value (USD Million)	2032 value (USD Million)	Added value (USD Million)	2025 share (%)	2032 share (%)	Change (pp)	Growth share (%)	CAGR (%)
Business & Institutional Connectivity Owners	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Equipment Leasing & Rental Providers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Household Connectivity Purchasers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Energy-Service Providers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Infrastructure & Tower Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecommunications Network Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scope total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 104. Global Telecom Battery Backup System Market Size, by Buyer Type, 2017-2032 (USD Million)

Buyer Type	2023	2024	2025	2026	2027	2032	CAGR (%)
Business & Institutional Connectivity Owners	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Equipment Leasing & Rental Providers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Household Connectivity Purchasers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Energy-Service Providers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Infrastructure & Tower Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecommunications Network Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. Your landline is going digital: what you need to know

   · Ofcom requires free backup solutions for landline-dependent customers without a working mobile phone or reliable mobile signal. This establishes a qualifying provider-funded route rather than universal household funding.
   ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool.
   ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

   · Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate.
   ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: Restricted provider-funded eligibility constrains operator-funded premises attribution and forecast adoption.

   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Restricted provider-funded eligibility constrains operator-funded premises attribution and forecast adoption.

   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: Eligibility is not universal household funding; purchaser proportions remain assumptions.

   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Eligibility is not universal household funding; purchaser proportions remain assumptions.

2. IHS Holding Limited First-Quarter 2026 Financial Statements

   · IHS' first-quarter 2026 filing describes the South African contractual unwind and states that the business is no longer responsible for supplying diesel or alternative power to tower sites. This supports verification of actual power and purchasing responsibilities rather than assuming a uniform tower role.
   ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement.
   ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

3. Telecommunications | Aggreko US

   · Aggreko describes telecom rental support including battery storage for telephone exchanges and temporary support during upgrades and maintenance. The description does not identify procurement authority for each underlying battery asset. ([aggreko.com](https://www.aggreko.com/en-us/sectors/telecommunications))

4. Digital Voice for Business Service Schedule, May 2026

   · BT's May 2026 Digital Voice for Business schedule places secure power supply and backup-power provision at the customer's expense.
   ([business.bt.com](https://business.bt.com/content/dam/bt-business/pdfs/terms/bt-business-agreement/digital-voice-part-a-and-b-v3-xx.xx-may-2026.pdf))

   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: Business customers bear backup-power expense, supporting a distinct institutional/business payer route rather than consumer eligibility extrapolation.

   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Business customers bear backup-power expense, supporting a distinct institutional/business payer route rather than consumer eligibility extrapolation.

5. Battery Backup | Meriwether Lewis Electric Cooperative
   · The purchased-device relationship supplies a customer-funded counterexample to provider-funded eligibility arrangements. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: Customer purchase and replacement responsibilities support household-funded procurement.
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Customer purchase and replacement responsibilities support household-funded procurement.
6. IFC Summary of Investment Information - IPT PowerTech, Project 49095
   · IFC distinguishes IPT PowerTech's long-term energy services to mobile operators or tower companies from telecom contracting and power-equipment activities. The business-role distinction does not establish the purchaser of every underlying battery asset. ([disclosures.ifc.org](https://disclosures.ifc.org/project-detail/SII/xx.xx/ipt-powertech))
   · Taxonomy evidence: The project record distinguishes telecom energy services, telecom contracting services, and equipment-power activities, demonstrating why customer, contractor, and asset-service roles are not interchangeable. ([disclosures.ifc.org](https://disclosures.ifc.org/project-detail/SII/xx.xx/ipt-powertech))
7. Oregon Department of Transportation - Bid Solicitation S-73000-00006485
   · Oregon's 2023 battery-backup solicitation names the Department of Transportation as purchaser and requires a mandatory pre-proposal conference. Its June xx.xx 2023 notice expresses intent to award pending negotiations, not completed delivery. ([oregonbuys.gov](https://oregonbuys.gov/bso/external/bidDetail.sda?docId=S-xx.xx-xx.xx&external=true&parentUrl=close))
8. IFC - Investing in Sustainable Access to Communications: The Role of Telecom Energy Services Companies, September 2021
   · Taxonomy evidence: The IFC-led framework separates energy-service asset ownership, equipment supply, maintenance, tower-company power provision, and asset leasing/financing. Only qualitative role definitions are used. ([ifc.org](https://www.ifc.org/content/dam/ifc/doc/mgrt/tesco-study-web-xx.xx-xx.xx-xx.xx-final.pdf))
   · Taxonomy evidence: The September 2021 framework distinguishes telecom energy-service firms, network operators, tower companies, equipment supply, and asset leasing/financing. Only qualitative role definitions are used; attributed market estimates and rankings are excluded. ([ifc.org](https://www.ifc.org/content/dam/ifc/doc/mgrt/tesco-study-web-xx.xx-xx.xx-xx.xx-final.pdf))
9. IFC Environmental & Social Review Summary - Western Balkan Towers, Project 48526
   · Taxonomy evidence: The investment record distinguishes tower-owning entities from telecom-operator anchor tenants, supporting separate infrastructure and connectivity-provider roles. ([disclosures.ifc.org](https://disclosures.ifc.org/project-detail/ESRS/xx.xx/western-balkan-towers))
   · Taxonomy evidence: The investment disclosure distinguishes tower-owning companies from their telecommunications-operator anchor tenants, supporting separate infrastructure and connectivity-provider buyer roles. ([disclosures.ifc.org](https://disclosures.ifc.org/project-detail/ESRS/xx.xx/western-balkan-towers))
10. China Tower - 2025 Annual Results, March 18, 2026
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))
   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: Disclosed tower operations establish a material infrastructure purchasing setting, not a global buyer share.
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Disclosed tower operations establish a material infrastructure purchasing setting, not a global buyer share.

11. Broadband Commission - The State of Broadband: Our Digital World, 2025
    - Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))
12. EnerSys 2026 Proxy Statement and Annual Report
    - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))
13. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025
    - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
14. Amara Raja Energy & Mobility - Q2/H1 FY2026 Earnings Presentation, November 6, 2025
    - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand. ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))
15. Ofcom - Mobile RAN Power Resilience: Technical Report and CFI Update, February 2025
    - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))
    - Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))
16. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone
    - Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue. ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
    - Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions. ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Energy-service activity supports the role; the modeled provider-as-buyer subcontract share is not established.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Energy-service activity supports the role; the modeled provider-as-buyer subcontract share is not established.

17. Fingrid - How to Participate in the Reserve Markets
    - Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue.
    ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))
18. Los Angeles Metro - Board Report 2024-1128, UPS Battery Replacement
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The transit authority's purchasing program supports an institutional own-use role, not its global spending proportion.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The transit authority's purchasing program supports an institutional own-use role, not its global spending proportion.
19. DC Power Plant / Rectifiers - UPS Rental
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Commercial rental availability is a role premise only; modeled lessor sub-hire procurement remains unverified.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Commercial rental availability is a role premise only; modeled lessor sub-hire procurement remains unverified.

11.1. Telecommunications Network Operators

Table 105. Global Telecom Battery Backup System Market Size, by Telecommunications Network Operators, by Region, 2017-2032 (USD Million)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 106. Global Telecom Battery Backup System Market Size, by Telecommunications Network Operators, by Group, 2017-2032 (USD Million)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 107. Global Telecom Battery Backup System Market Size, by Telecommunications Network Operators, by Country, 2017-2032 (USD Million)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. ENISA - Power Supply Dependencies in the Electronic Communications Sector, December 2013

   · Taxonomy evidence: The provider accounts discuss the cost of procuring and maintaining batteries, supporting a communications-operator purchaser role. ([enisa.europa.eu](https://www.enisa.europa.eu/sites/default/files/publications/Power%20Supply%20Dependencies%20in%20the%20Ecomms%20Sector.pdf))

   · Taxonomy evidence: The interviewed communications providers describe procuring and maintaining batteries as part of network-continuity protection, supporting the operator purchaser role. ([enisa.europa.eu](https://www.enisa.europa.eu/sites/default/files/publications/Power%20Supply%20Dependencies%20in%20the%20Ecomms%20Sector.pdf))

2. ETSI EN 302 099 V2.2.1 (2021-02) - Powering of Equipment in Access Network

   · Taxonomy evidence: The telecom operator is identified as provider of a local backup power unit. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))

   · Taxonomy evidence: Section xx.xx identifies the telecom operator as the provider of a local power unit with backup for access equipment. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))

3. China Tower - 2025 Annual Results, March 18, 2026
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China's spending cycle is retained as a counterforce in the regional forecast.
4. Broadband Commission - The State of Broadband: Our Digital World, 2025
   - Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))
5. Battery Backup - Meriwether Lewis Electric Cooperative
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
6. EnerSys 2026 Proxy Statement and Annual Report
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))
7. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom-specific sales weakness is a purchasing-cycle counterforce, not a measure of all Asian backup-system demand.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom application revenue provides counterevidence to extrapolating broad energy-storage growth into China's backup forecast.
8. Amara Raja Energy & Mobility - Q2/H1 FY2026 Earnings Presentation, November 6, 2025
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand. ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))
9. IHS Holding Limited - First-Quarter 2026 Financial Statements
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement. ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

10. Ofcom - Mobile RAN Power Resilience: Technical Report and CFI Update, February 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Jurisdiction-specific resilience economics qualify a uniform Europe-wide demand uplift.

11. Ofcom - Your Landline Is Going Digital: What You Need to Know

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool.
([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate.
([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: Restricted provider-funded eligibility constrains operator-funded premises attribution and forecast adoption.

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Restricted provider-funded eligibility constrains operator-funded premises attribution and forecast adoption.

12. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue.
([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))

· Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions.
([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))

13. Fingrid - How to Participate in the Reserve Markets

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue.
([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))

14. China Tower announces 2025 annual results - March 18, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.
15. Government of India, Department of Telecommunications - Telecom Statistics India 2025, international comparison tables
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Wireless and fixed-access customer pools are distinguished in the country model.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Wireless and fixed-access customer pools are distinguished in the country model.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.

16. American Tower Corporation - Annual Report on Form 10-K for 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
17. Cellnex - Integrated Annual Report 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.

18. IHS Holding Limited - Annual Report on Form 20-F for 2024
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
19. Australian Government - Mobile Network Hardening Program
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The limited Australian program qualifies extrapolation of resilience funding across Asia-Pacific.
20. CPUC Requires Wireless Companies to Better Serve Customers in Emergencies - July 16, 2020
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
21. CRTC - Request for Information on Telecommunications Network Resiliency, May 12, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The information request seeks evidence on possible backup requirements and customer equipment costs; it is not an enacted national procurement program.
22. FCC - Internet Access Services: Status as of December 31, 2024, official state-government-hosted copy
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
23. OECD - High-capacity broadband networks gain ground across OECD, October 13, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Observed mature-market connectivity growth and differing fibre/5G adoption constrain replacement and expansion assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Latin American fibre migration supports a conditional fixed-access expansion premise, not automatic battery attachment.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: High mature-market fibre adoption is retained as a saturation counterforce to the purchasing forecast.

11.2. Telecom Infrastructure & Tower Operators

Table 108. Global Telecom Battery Backup System Market Size, by Telecom Infrastructure & Tower Operators, by Region, 2017-2032 (USD Million)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 109. Global Telecom Battery Backup System Market Size, by Telecom Infrastructure & Tower Operators, by Group, 2017-2032 (USD Million)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 110. Global Telecom Battery Backup System Market Size, by Telecom Infrastructure & Tower Operators, by Country, 2017-2032 (USD Million)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. IFC Environmental & Social Review Summary - Western Balkan Towers, Project 48526

   · Taxonomy evidence: The tower-business record states that outage backup will predominantly use batteries. This establishes an infrastructure-owner setting, not ownership or purchase value for each individual battery. ([disclosures.ifc.org](https://disclosures.ifc.org/project-detail/ESRS/xx.xx/western-balkan-towers))

   · Taxonomy evidence: The disclosed tower-asset business includes battery backup for outages. This supports an infrastructure-owner backup setting, without proving ownership of every individual battery or purchase. ([disclosures.ifc.org](https://disclosures.ifc.org/project-detail/ESRS/xx.xx/western-balkan-towers))

2. China Tower - 2025 Annual Results, March 18, 2026
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China's spending cycle is retained as a counterforce in the regional forecast.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Disclosed tower operations establish a material infrastructure purchasing setting, not a global buyer share.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Disclosed tower operations establish a material infrastructure purchasing setting, not a global buyer share.
3. Broadband Commission - The State of Broadband: Our Digital World, 2025
   - Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))
4. Battery Backup - Meriwether Lewis Electric Cooperative
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
5. EnerSys 2026 Proxy Statement and Annual Report
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))
6. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom-specific sales weakness is a purchasing-cycle counterforce, not a measure of all Asian backup-system demand.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom application revenue provides counterevidence to extrapolating broad energy-storage growth into China's backup forecast.
7. Amara Raja Energy & Mobility - Q2/H1 FY2026 Earnings Presentation, November 6, 2025
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand. ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))

8. IHS Holding Limited - First-Quarter 2026 Financial Statements

   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement.
   ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

9. Ofcom - Mobile RAN Power Resilience: Technical Report and CFI Update, February 2025

   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue.
   ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

   · Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation.
   ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

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    · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool.
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    · Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate.
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    ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))

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    ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))
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    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
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14. Government of India, Department of Telecommunications - Telecom Statistics India 2025, international comparison tables
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
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17. IHS Holding Limited - Annual Report on Form 20-F for 2024
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
18. Australian Government - Mobile Network Hardening Program
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The limited Australian program qualifies extrapolation of resilience funding across Asia-Pacific.
19. CPUC Requires Wireless Companies to Better Serve Customers in Emergencies - July 16, 2020
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
20. CRTC - Request for Information on Telecommunications Network Resiliency, May 12, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The information request seeks evidence on possible backup requirements and customer equipment costs; it is not an enacted national procurement program.
21. FCC - Internet Access Services: Status as of December 31, 2024, official state-government-hosted copy
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
22. OECD - High-capacity broadband networks gain ground across OECD, October 13, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Observed mature-market connectivity growth and differing fibre/5G adoption constrain replacement and expansion assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Latin American fibre migration supports a conditional fixed-access expansion premise, not automatic battery attachment.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: High mature-market fibre adoption is retained as a saturation counterforce to the purchasing forecast.

11.3. Household Connectivity Purchasers

Table 111. Global Telecom Battery Backup System Market Size, by Household Connectivity Purchasers, by Region, 2017-2032 (USD Million)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 112. Global Telecom Battery Backup System Market Size, by Household Connectivity Purchasers, by Group, 2017-2032 (USD Million)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 113. Global Telecom Battery Backup System Market Size, by Household Connectivity Purchasers, by Country, 2017-2032 (USD Million)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. Battery Backup - Meriwether Lewis Electric Cooperative
   - Taxonomy evidence: The customer purchases the product and is responsible for replacement batteries. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Taxonomy evidence: The provider explicitly describes the backup device as a purchased product and assigns battery acquisition and replacement responsibility to the customer. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Customer purchase and replacement responsibilities support household-funded procurement.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Customer purchase and replacement responsibilities support household-funded procurement.
2. FCC Residential Voice Backup-Power Final Rule - Federal Register, October 16, 2015
   - Taxonomy evidence: The 2015 residential-voice rulemaking addresses battery or UPS backup for subscriber-premises equipment and distinguishes provider and subscriber responsibilities. It is used as historical category evidence, not a worldwide or current compliance instruction. ([govinfo.gov](https://www.govinfo.gov/content/pkg/FR-2015-xx.xx-xx.xx/pdf/2015-xx.xx.pdf))

3. China Tower - 2025 Annual Results, March 18, 2026
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))
   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China's spending cycle is retained as a counterforce in the regional forecast.
4. Broadband Commission - The State of Broadband: Our Digital World, 2025
   · Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))
5. EnerSys 2026 Proxy Statement and Annual Report
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))
6. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom-specific sales weakness is a purchasing-cycle counterforce, not a measure of all Asian backup-system demand.
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom application revenue provides counterevidence to extrapolating broad energy-storage growth into China's backup forecast.
7. Amara Raja Energy & Mobility - Q2/H1 FY2026 Earnings Presentation, November 6, 2025
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand. ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))
8. IHS Holding Limited - First-Quarter 2026 Financial Statements
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement. ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

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17. IHS Holding Limited - Annual Report on Form 20-F for 2024
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
18. Australian Government - Mobile Network Hardening Program
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The limited Australian program qualifies extrapolation of resilience funding across Asia-Pacific.
19. CPUC Requires Wireless Companies to Better Serve Customers in Emergencies - July 16, 2020
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
20. CRTC - Request for Information on Telecommunications Network Resiliency, May 12, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The information request seeks evidence on possible backup requirements and customer equipment costs; it is not an enacted national procurement program.
21. FCC - Internet Access Services: Status as of December 31, 2024, official state-government-hosted copy
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
22. OECD - High-capacity broadband networks gain ground across OECD, October 13, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Observed mature-market connectivity growth and differing fibre/5G adoption constrain replacement and expansion assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Latin American fibre migration supports a conditional fixed-access expansion premise, not automatic battery attachment.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: High mature-market fibre adoption is retained as a saturation counterforce to the purchasing forecast.

11.4. Business & Institutional Connectivity Owners

Table 114. Global Telecom Battery Backup System Market Size, by Business & Institutional Connectivity Owners, by Region, 2017-2032 (USD Million)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 115. Global Telecom Battery Backup System Market Size, by Business & Institutional Connectivity Owners, by Group, 2017-2032 (USD Million)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 116. Global Telecom Battery Backup System Market Size, by Business & Institutional Connectivity Owners, by Country, 2017-2032 (USD Million)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. Oregon Department of Transportation - Bid S-73000-00006485, Battery Backup Power Systems for Wireless Communication Sites

   · Taxonomy evidence: The transportation department is the procuring organization, supporting an institutional own-use purchaser role. The notice does not establish final installed hardware values. ([oregonbuys.gov](https://oregonbuys.gov/bso/external/bidDetail.sdo?docId=S-xx.xx-xx.xx&external=true&parentUrl=close))

2. ETSI EN 302 099 V2.2.1 (2021-02) - Powering of Equipment in Access Network

   · Taxonomy evidence: The customer-premises discussion recognizes business-customer AC UPS use; it supports a business connectivity setting, not a disclosed purchase value. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))

3. State of Delaware - Public Safety Communications Equipment, 700 MHz Systems, Contract GSS21869-700MHz, Appendix E

   · Taxonomy evidence: The state department solicits a communications-system upgrade including UPS equipment, establishing an institutional own-use purchasing role distinct from a telecom carrier or reseller. ([bidcondocs.delaware.gov](https://bidcondocs.delaware.gov/GSS/GSS_21869_700mhz_appE.pdf))

4. China Tower - 2025 Annual Results, March 18, 2026
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China's spending cycle is retained as a counterforce in the regional forecast.
5. Broadband Commission - The State of Broadband: Our Digital World, 2025
   - Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))
6. Battery Backup - Meriwether Lewis Electric Cooperative
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
7. EnerSys 2026 Proxy Statement and Annual Report
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))
8. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom-specific sales weakness is a purchasing-cycle counterforce, not a measure of all Asian backup-system demand.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom application revenue provides counterevidence to extrapolating broad energy-storage growth into China's backup forecast.
9. Amara Raja Energy & Mobility - Q2/H1 FY2026 Earnings Presentation, November 6, 2025
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand. ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))
10. IHS Holding Limited - First-Quarter 2026 Financial Statements
    - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement. ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

11. Ofcom - Mobile RAN Power Resilience: Technical Report and CFI Update, February 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Jurisdiction-specific resilience economics qualify a uniform Europe-wide demand uplift.

12. Ofcom - Your Landline Is Going Digital: What You Need to Know

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool.
([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate.
([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

13. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue.
([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))

· Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions.
([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))

14. Fingrid - How to Participate in the Reserve Markets

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue.
([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))

15. China Tower announces 2025 annual results - March 18, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.
16. Government of India, Department of Telecommunications - Telecom Statistics India 2025, international comparison tables
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Wireless and fixed-access customer pools are distinguished in the country model.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Wireless and fixed-access customer pools are distinguished in the country model.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.

17. American Tower Corporation - Annual Report on Form 10-K for 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
18. Cellnex - Integrated Annual Report 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.

19. IHS Holding Limited - Annual Report on Form 20-F for 2024
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
20. Australian Government - Mobile Network Hardening Program
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The limited Australian program qualifies extrapolation of resilience funding across Asia-Pacific.
21. CPUC Requires Wireless Companies to Better Serve Customers in Emergencies - July 16, 2020
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
22. CRTC - Request for Information on Telecommunications Network Resiliency, May 12, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The information request seeks evidence on possible backup requirements and customer equipment costs; it is not an enacted national procurement program.
23. FCC - Internet Access Services: Status as of December 31, 2024, official state-government-hosted copy
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
24. OECD - High-capacity broadband networks gain ground across OECD, October 13, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Observed mature-market connectivity growth and differing fibre/5G adoption constrain replacement and expansion assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Latin American fibre migration supports a conditional fixed-access expansion premise, not automatic battery attachment.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: High mature-market fibre adoption is retained as a saturation counterforce to the purchasing forecast.

25. BT - Digital Voice for Business Service Schedule, May 2026
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Business customers bear backup-power expense, supporting a distinct institutional/business payer route rather than consumer eligibility extrapolation.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Business customers bear backup-power expense, supporting a distinct institutional/business payer route rather than consumer eligibility extrapolation.

26. Los Angeles Metro - Board Report 2024-1128, UPS Battery Replacement
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The transit authority's purchasing program supports an institutional own-use role, not its global spending proportion.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The transit authority's purchasing program supports an institutional own-use role, not its global spending proportion.

11.5. Telecom Energy-Service Providers

Table 117. Global Telecom Battery Backup System Market Size, by Telecom Energy-Service Providers, by Region, 2017-2032 (USD Million)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 118. Global Telecom Battery Backup System Market Size, by Telecom Energy-Service Providers, by Group, 2017-2032 (USD Million)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 119. Global Telecom Battery Backup System Market Size, by Telecom Energy-Service Providers, by Country, 2017-2032 (USD Million)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. IFC - Investing in Sustainable Access to Communications: The Role of Telecom Energy Services Companies, September 2021

   · Taxonomy evidence: Telecom energy-service firms are defined through power-asset ownership and contracted supply to telecom sites; equipment-only and maintenance-only firms are excluded from that definition. ([ifc.org](https://www.ifc.org/content/dam/ifc/doc/mgrt/tesco-study-web-xx.xx-xx.xx-xx.xx-final.pdf))

   · Taxonomy evidence: The definitions identify telecom energy-service firms through power-asset ownership and telecom-site supply, distinguishing them from supply-only and maintenance-only businesses and tower-company power offerings. ([ifc.org](https://www.ifc.org/content/dam/ifc/doc/mgrt/tesco-study-web-xx.xx-xx.xx-xx.xx-final.pdf))

2. IFC Summary of Investment Information - IPT PowerTech, Project 49095

   · Taxonomy evidence: Contracted energy services are supplied to mobile operators or tower companies; those beneficiaries are not automatically the provider's hardware purchasers. ([disclosures.ifc.org](https://disclosures.ifc.org/project-detail/SII/xx.xx/ipt-powertech))

   · Taxonomy evidence: The disclosed energy-service business provides contracted energy to mobile network operators or independent tower companies. These beneficiaries are not automatically the purchasers of the provider's backup assets. ([disclosures.ifc.org](https://disclosures.ifc.org/project-detail/SII/xx.xx/ipt-powertech))

3. China Tower - 2025 Annual Results, March 18, 2026
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))
   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China's spending cycle is retained as a counterforce in the regional forecast.
4. Broadband Commission - The State of Broadband: Our Digital World, 2025
   · Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))
5. Battery Backup - Meriwether Lewis Electric Cooperative
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
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   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom-specific sales weakness is a purchasing-cycle counterforce, not a measure of all Asian backup-system demand.
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom application revenue provides counterevidence to extrapolating broad energy-storage growth into China's backup forecast.
8. Amara Raja Energy & Mobility - Q2/H1 FY2026 Earnings Presentation, November 6, 2025
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand. ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))
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   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement. ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

10. Ofcom - Mobile RAN Power Resilience: Technical Report and CFI Update, February 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Jurisdiction-specific resilience economics qualify a uniform Europe-wide demand uplift.

11. Ofcom - Your Landline Is Going Digital: What You Need to Know

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool.
([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate.
([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

12. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue.
([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))

· Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions.
([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: Energy-service activity supports the role; the modeled provider-as-buyer subcontract share is not established.

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Energy-service activity supports the role; the modeled provider-as-buyer subcontract share is not established.

13. Fingrid - How to Participate in the Reserve Markets

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue.
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    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
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    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
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    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
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    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.
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18. IHS Holding Limited - Annual Report on Form 20-F for 2024
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
19. Australian Government - Mobile Network Hardening Program
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The limited Australian program qualifies extrapolation of resilience funding across Asia-Pacific.
20. CPUC Requires Wireless Companies to Better Serve Customers in Emergencies - July 16, 2020
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
21. CRTC - Request for Information on Telecommunications Network Resiliency, May 12, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The information request seeks evidence on possible backup requirements and customer equipment costs; it is not an enacted national procurement program.
22. FCC - Internet Access Services: Status as of December 31, 2024, official state-government-hosted copy
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
23. OECD - High-capacity broadband networks gain ground across OECD, October 13, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Observed mature-market connectivity growth and differing fibre/5G adoption constrain replacement and expansion assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Latin American fibre migration supports a conditional fixed-access expansion premise, not automatic battery attachment.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: High mature-market fibre adoption is retained as a saturation counterforce to the purchasing forecast.

11.6. Equipment Leasing & Rental Providers

Table 120. Global Telecom Battery Backup System Market Size, by Equipment Leasing & Rental Providers, by Region, 2017-2032 (USD Million)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 121. Global Telecom Battery Backup System Market Size, by Equipment Leasing & Rental Providers, by Group, 2017-2032 (USD Million)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 122. Global Telecom Battery Backup System Market Size, by Equipment Leasing & Rental Providers, by Country, 2017-2032 (USD Million)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

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   · Taxonomy evidence: Asset leasing/financing is recognized in the value chain, but standalone lessor purchases of qualifying battery-backup hardware are not established. ([ifc.org](https://www.ifc.org/content/dam/ifc/doc/mgrt/tesco-study-web-xx.xx-xx.xx-xx.xx-final.pdf))

   · Taxonomy evidence: The value-chain framework recognizes asset leasing/financing. This supports recognition of the role, but not qualifying purchases or materiality for standalone backup-equipment lessors. ([ifc.org](https://www.ifc.org/content/dam/ifc/doc/mgrt/tesco-study-web-xx.xx-xx.xx-xx.xx-final.pdf))

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   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))
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8. Amara Raja Energy & Mobility - Q2/H1 FY2026 Earnings Presentation, November 6, 2025
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· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

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· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate.
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([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))

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· Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue.
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    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Wireless and fixed-access customer pools are distinguished in the country model.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Wireless and fixed-access customer pools are distinguished in the country model.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.

16. American Tower Corporation - Annual Report on Form 10-K for 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
17. Cellnex - Integrated Annual Report 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.

18. IHS Holding Limited - Annual Report on Form 20-F for 2024
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
19. Australian Government - Mobile Network Hardening Program
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The limited Australian program qualifies extrapolation of resilience funding across Asia-Pacific.
20. CPUC Requires Wireless Companies to Better Serve Customers in Emergencies - July 16, 2020
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
21. CRTC - Request for Information on Telecommunications Network Resiliency, May 12, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The information request seeks evidence on possible backup requirements and customer equipment costs; it is not an enacted national procurement program.
22. FCC - Internet Access Services: Status as of December 31, 2024, official state-government-hosted copy
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
23. OECD - High-capacity broadband networks gain ground across OECD, October 13, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Observed mature-market connectivity growth and differing fibre/5G adoption constrain replacement and expansion assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Latin American fibre migration supports a conditional fixed-access expansion premise, not automatic battery attachment.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: High mature-market fibre adoption is retained as a saturation counterforce to the purchasing forecast.

24. DC Power Plant / Rectifiers - UPS Rental
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Commercial rental availability is a role premise only; modeled lessor sub-hire procurement remains unverified.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Commercial rental availability is a role premise only; modeled lessor sub-hire procurement remains unverified.

12. Telecom Battery Backup System Market, by Installation Environment

[redacted] Buyers should obtain an offering-specific suitability declaration and assign responsibility for the building or enclosure services on which that declaration depends, including the treatment of an interruption to environmental control. The classification itself establishes neither a product's acceptance nor a worldwide purchasing mandate.

Non-Weather-Protected Locations include Sheltered Non-Weather-Protected Locations and Open-Air Locations; shelter alone should not be treated as equivalent to the weather-protected category. Vertiv's NetSure M Series provides a named outdoor enclosure proposition with power, battery, and climate-management options. [redacted]

Underground Locations present a distinct siting choice rather than an ordinary enclosed-room equivalent. [redacted] Historical literature supports the commercial rationale for that comparison, not an unconditional recommendation to procure the older product.

Figure 18. Global Telecom Battery Backup System Market Size, by Installation Environment, 2025 (%)

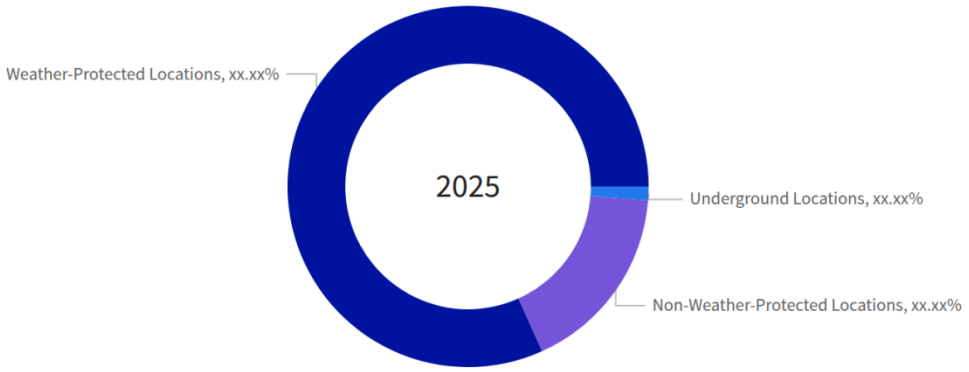

Figure 19. Global Telecom Battery Backup System Market, by Installation Environment, 2032 (USD Million)

Table 123. Global Telecom Battery Backup System Market, by Installation Environment growth contribution, 2025-2032

Category	2025 value (USD Million)	2032 value (USD Million)	Added value (USD Million)	2025 share (%)	2032 share (%)	Change (pp)	Growth share (%)	CAGR (%)
Non-Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Underground Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scope total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 124. Global Telecom Battery Backup System Market Size, by Installation Environment, 2017-2032 (USD Million)

Installation Environment	2023	2024	2025	2026	2027	2032	CAGR (%)
Non-Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Underground Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. Vertiv NetSure M Series
   - NetSure M Series lists power, battery, and climate-management options, supporting comparison of configured enclosure responsibility with separate purchasing. Site-specific acceptance is an analytical prerequisite, not an established commitment. ([vertiv.com](https://www.vertiv.com/en-emea/products-catalog/facilities-enclosures-and-racks/outdoor-enclosures/netsure-m-series/))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A marketed outdoor enclosure supports a protection option; global adoption and configuration proportions remain modeled.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A marketed outdoor enclosure supports a protection option; global adoption and configuration proportions remain modeled.
2. ETSI EN 300 019-1-3 V3.1.1 - Stationary Use at Weatherprotected Locations
   - ETSI's May 2026 weather-protected location classification distinguishes temperature-controlled enclosed, uncontrolled enclosed, and partly weather-protected locations. Only location definitions are used, without operational parameters or an inferred worldwide mandate. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300001_300099/xx.xx/xx.xx.01_60/en_3000190103v030101p.pdf))
   - Taxonomy evidence: The May 2026 stationary-location classification distinguishes enclosure and environmental control; it informs category design rather than worldwide obligations or 2025 adoption. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300001_300099/xx.xx/xx.xx.01_60/en_3000190103v030101p.pdf))
   - Taxonomy evidence: The May 2026 standard classifies stationary telecom-equipment locations by enclosure and environmental control; it supplies category terminology, not worldwide compliance obligations. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300001_300099/xx.xx/xx.xx.01_60/en_3000190103v030101p.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Weather-protected categories distinguish enclosure from environmental control; the standard does not measure market mix.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Weather-protected categories distinguish enclosure from environmental control; the standard does not measure market mix.
3. ETSI EN 300 019-1-4 V3.1.1 - Stationary Use at Non-Weatherprotected Locations
   - ETSI's May 2026 non-weather-protected classification recognizes sheltered and open-air location categories. Shelter alone does not establish equivalence with the separate weather-protected regime. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300001_300099/xx.xx/xx.xx.01_60/en_3000190104v030101p.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Non-weather-protected locations form a distinct classification regime, not a measured global spending pool.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Non-weather-protected locations form a distinct classification regime, not a measured global spending pool.

4. ETSI EN 300 019-1-8 V2.1.2 - Stationary Use at Underground Locations
   · ETSI's underground stationary-use classification identifies footway boxes, manholes, and some tunnels as location examples. It does not establish current supplier availability or local purchasing approval. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300001_300099/xx.xx/xx.xx.02_60/en_3000190108v020102p.pdf))
5. Underground Battery Vaults - UBV Series, January 2006 | Alpha Technologies
   · Alpha's January 2006 UBV battery-vault datasheet states that the offering was designed to address municipal and state line-of-sight restrictions. It establishes a historical siting proposition, not current local supply or an independently verified present legal requirement. ([enersys.com](https://www.enersys.com/4a3268/globalassets/documents/product-documentation2/alpha/enclosures/broadband/underground-battery-vault/amer/ubv_datasheet.pdf))
6. China Tower - 2025 Annual Results, March 18, 2026
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))
7. Broadband Commission - The State of Broadband: Our Digital World, 2025
   · Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))
8. Battery Backup - Meriwether Lewis Electric Cooperative
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
9. EnerSys 2026 Proxy Statement and Annual Report
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))
10. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025
    · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
11. Amara Raja Energy & Mobility - Q2/H1 FY2026 Earnings Presentation, November 6, 2025
    · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand. ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))
12. IHS Holding Limited - First-Quarter 2026 Financial Statements
    · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement. ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

13. Ofcom - Mobile RAN Power Resilience: Technical Report and CFI Update, February 2025
· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))
· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))
14. Ofcom - Your Landline Is Going Digital: What You Need to Know
· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool.
([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate.
([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
15. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone
· Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue.
([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
· Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions.
([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
16. Fingrid - How to Participate in the Reserve Markets
· Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue.
([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))
17. Los Angeles Metro - Board Report 2024-1128, UPS Battery Replacement
· Evidence informing base-year allocation inputs; displayed values and growth are calculated: Completed and additional UPS battery replacements support continuing underground demand; mixed-load project budgets are not telecom-only revenue.
· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Completed and additional UPS battery replacements support continuing underground demand; mixed-load project budgets are not telecom-only revenue.

12.1. Weather-Protected Locations

Table 125. Global Telecom Battery Backup System Market, by Weather-Protected Locations growth contribution, 2025-2032

Category	2025 value (USD Million)	2032 value (USD Million)	Added value (USD Million)	2025 share (%)	2032 share (%)	Change (pp)	Growth share (%)	CAGR (%)
Enclosed Locations Without Temperature Control	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Partly Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Temperature-Controlled Enclosed Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scope total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 126. Global Telecom Battery Backup System Market Size, by Weather-Protected Locations, by Region, 2017-2032 (USD Million)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 127. Global Telecom Battery Backup System Market Size, by Weather-Protected Locations, by Group, 2017-2032 (USD Million)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 128. Global Telecom Battery Backup System Market Size, by Weather-Protected Locations, by Country, 2017-2032 (USD Million)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. ETSI EN 300 019-1-3 V3.1.1 (2026-05) - Stationary Use at Weatherprotected Locations
   - Taxonomy evidence: The weather-protected regime includes totally enclosed and partly protected locations. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300001_300099/xx.xx/xx.xx.01_60/en_3000190103v030101p.pdf))
   - Taxonomy evidence: Weather-protected locations include enclosed and partly protected locations. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300001_300099/xx.xx/xx.xx.01_60/en_3000190103v030101p.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Weather-protected categories distinguish enclosure from environmental control; the standard does not measure market mix.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Weather-protected categories distinguish enclosure from environmental control; the standard does not measure market mix.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Maintained temperature control is a separate classification premise for the modeled conditional allocation.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Maintained temperature control is a separate classification premise for the modeled conditional allocation.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Enclosed locations without temperature control are distinguished from controlled locations.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Enclosed locations without temperature control are distinguished from controlled locations.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Partial weather protection is recognized separately; sales weights and future adoption remain assumed.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Partial weather protection is recognized separately; sales weights and future adoption remain assumed.
2. China Tower - 2025 Annual Results, March 18, 2026
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China's spending cycle is retained as a counterforce in the regional forecast.
3. Broadband Commission - The State of Broadband: Our Digital World, 2025
   - Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))
4. Battery Backup - Meriwether Lewis Electric Cooperative
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))

5. EnerSys 2026 Proxy Statement and Annual Report
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))
6. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom-specific sales weakness is a purchasing-cycle counterforce, not a measure of all Asian backup-system demand.
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom application revenue provides counterevidence to extrapolating broad energy-storage growth into China's backup forecast.
7. Amara Raja Energy & Mobility - Q2/H1 FY2026 Earnings Presentation, November 6, 2025
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand. ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))
8. IHS Holding Limited - First-Quarter 2026 Financial Statements
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement. ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))
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   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))
   · Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))
   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Jurisdiction-specific resilience economics qualify a uniform Europe-wide demand uplift.

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    - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
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    - Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue. ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))
13. China Tower announces 2025 annual results - March 18, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
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    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.

14. Government of India, Department of Telecommunications - Telecom Statistics India 2025, international comparison tables

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
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- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
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    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
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    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
16. Cellnex - Integrated Annual Report 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.

17. IHS Holding Limited - Annual Report on Form 20-F for 2024
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
18. Australian Government - Mobile Network Hardening Program
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The limited Australian program qualifies extrapolation of resilience funding across Asia-Pacific.
19. CPUC Requires Wireless Companies to Better Serve Customers in Emergencies - July 16, 2020
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
20. CRTC - Request for Information on Telecommunications Network Resiliency, May 12, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The information request seeks evidence on possible backup requirements and customer equipment costs; it is not an enacted national procurement program.
21. FCC - Internet Access Services: Status as of December 31, 2024, official state-government-hosted copy
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
22. OECD - High-capacity broadband networks gain ground across OECD, October 13, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Observed mature-market connectivity growth and differing fibre/5G adoption constrain replacement and expansion assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Latin American fibre migration supports a conditional fixed-access expansion premise, not automatic battery attachment.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: High mature-market fibre adoption is retained as a saturation counterforce to the purchasing forecast.

23. Vertiv NetSure M Series
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A marketed outdoor enclosure supports a protection option; global adoption and configuration proportions remain modeled.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A marketed outdoor enclosure supports a protection option; global adoption and configuration proportions remain modeled.

12.1.1. Enclosed Locations Without Temperature Control

Table 129. Global Telecom Battery Backup System Market Size, by Enclosed Locations Without Temperature Control, by Region, 2017-2032 (USD Million)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 130. Global Telecom Battery Backup System Market Size, by Enclosed Locations Without Temperature Control, by Group, 2017-2032 (USD Million)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 131. Global Telecom Battery Backup System Market Size, by Enclosed Locations Without Temperature Control, by Country, 2017-2032 (USD Million)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. ETSI EN 300 019-1-3 V3.1.1 (2026-05) - Stationary Use at Weatherprotected Locations

   · Taxonomy evidence: Class xx.xx identifies enclosed locations without temperature or humidity control. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300001_300099/xx.xx/xx.xx.01_60/en_3000190103v030101p.pdf))

   · Taxonomy evidence: Class xx.xx identifies enclosed locations without temperature or humidity control, including unattended equipment stations. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300001_300099/xx.xx/xx.xx.01_60/en_3000190103v030101p.pdf))

   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: Enclosed locations without temperature control are distinguished from controlled locations.

   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Enclosed locations without temperature control are distinguished from controlled locations.

2. China Tower - 2025 Annual Results, March 18, 2026
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China's spending cycle is retained as a counterforce in the regional forecast.
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   - Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))
4. Battery Backup - Meriwether Lewis Electric Cooperative
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
5. EnerSys 2026 Proxy Statement and Annual Report
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))
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9. Ofcom - Mobile RAN Power Resilience: Technical Report and CFI Update, February 2025

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([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

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([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate.
([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

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· Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue.
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    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
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    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
16. Cellnex - Integrated Annual Report 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.

17. IHS Holding Limited - Annual Report on Form 20-F for 2024
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
18. Australian Government - Mobile Network Hardening Program
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The limited Australian program qualifies extrapolation of resilience funding across Asia-Pacific.
19. CPUC Requires Wireless Companies to Better Serve Customers in Emergencies - July 16, 2020
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
20. CRTC - Request for Information on Telecommunications Network Resiliency, May 12, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The information request seeks evidence on possible backup requirements and customer equipment costs; it is not an enacted national procurement program.
21. FCC - Internet Access Services: Status as of December 31, 2024, official state-government-hosted copy
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
22. OECD - High-capacity broadband networks gain ground across OECD, October 13, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Observed mature-market connectivity growth and differing fibre/5G adoption constrain replacement and expansion assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Latin American fibre migration supports a conditional fixed-access expansion premise, not automatic battery attachment.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: High mature-market fibre adoption is retained as a saturation counterforce to the purchasing forecast.

12.1.2. Temperature-Controlled Enclosed Locations

Table 132. Global Telecom Battery Backup System Market Size, by Temperature-Controlled Enclosed Locations, by Region, 2017-2032 (USD Million)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 133. Global Telecom Battery Backup System Market Size, by Temperature-Controlled Enclosed Locations, by Group, 2017-2032 (USD Million)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 134. Global Telecom Battery Backup System Market Size, by Temperature-Controlled Enclosed Locations, by Country, 2017-2032 (USD Million)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. ETSI EN 300 019-1-3 V3.1.1 (2026-05) - Stationary Use at Weatherprotected Locations

   · Taxonomy evidence: Class xx.xx identifies temperature-controlled enclosed locations, including telecommunications centers. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300001_300099/xx.xx/xx.xx.01_60/en_3000190103v030101p.pdf))

   · Taxonomy evidence: Class xx.xx identifies enclosed locations with maintained temperature control, including telecom centers. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300001_300099/xx.xx/xx.xx.01_60/en_3000190103v030101p.pdf))

   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: Maintained temperature control is a separate classification premise for the modeled conditional allocation.

   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Maintained temperature control is a separate classification premise for the modeled conditional allocation.

2. China Tower - 2025 Annual Results, March 18, 2026
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))
   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China's spending cycle is retained as a counterforce in the regional forecast.
3. Broadband Commission - The State of Broadband: Our Digital World, 2025
   · Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))
4. Battery Backup - Meriwether Lewis Electric Cooperative
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
5. EnerSys 2026 Proxy Statement and Annual Report
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))
6. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom-specific sales weakness is a purchasing-cycle counterforce, not a measure of all Asian backup-system demand.
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom application revenue provides counterevidence to extrapolating broad energy-storage growth into China's backup forecast.
7. Amara Raja Energy & Mobility - Q2/H1 FY2026 Earnings Presentation, November 6, 2025
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand. ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))
8. IHS Holding Limited - First-Quarter 2026 Financial Statements
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement. ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

9. Ofcom - Mobile RAN Power Resilience: Technical Report and CFI Update, February 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Jurisdiction-specific resilience economics qualify a uniform Europe-wide demand uplift.

10. Ofcom - Your Landline Is Going Digital: What You Need to Know

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool.
([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate.
([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

11. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue.
([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))

· Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions.
([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))

12. Fingrid - How to Participate in the Reserve Markets

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue.
([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))

13. China Tower announces 2025 annual results - March 18, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.
14. Government of India, Department of Telecommunications - Telecom Statistics India 2025, international comparison tables
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Wireless and fixed-access customer pools are distinguished in the country model.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Wireless and fixed-access customer pools are distinguished in the country model.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.

15. American Tower Corporation - Annual Report on Form 10-K for 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
16. Cellnex - Integrated Annual Report 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.

17. IHS Holding Limited - Annual Report on Form 20-F for 2024
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
18. Australian Government - Mobile Network Hardening Program
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The limited Australian program qualifies extrapolation of resilience funding across Asia-Pacific.
19. CPUC Requires Wireless Companies to Better Serve Customers in Emergencies - July 16, 2020
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
20. CRTC - Request for Information on Telecommunications Network Resiliency, May 12, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The information request seeks evidence on possible backup requirements and customer equipment costs; it is not an enacted national procurement program.
21. FCC - Internet Access Services: Status as of December 31, 2024, official state-government-hosted copy
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
22. OECD - High-capacity broadband networks gain ground across OECD, October 13, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Observed mature-market connectivity growth and differing fibre/5G adoption constrain replacement and expansion assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Latin American fibre migration supports a conditional fixed-access expansion premise, not automatic battery attachment.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: High mature-market fibre adoption is retained as a saturation counterforce to the purchasing forecast.

12.1.3. Partly Weather-Protected Locations

Table 135. Global Telecom Battery Backup System Market Size, by Partly Weather-Protected Locations, by Region, 2017-2032 (USD Million)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 136. Global Telecom Battery Backup System Market Size, by Partly Weather-Protected Locations, by Group, 2017-2032 (USD Million)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 137. Global Telecom Battery Backup System Market Size, by Partly Weather-Protected Locations, by Country, 2017-2032 (USD Million)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. ETSI EN 300 019-1-3 V3.1.1 (2026-05) - Stationary Use at Weatherprotected Locations

   · Taxonomy evidence: Class xx.xx permits openings to outside air and partial weather protection; the category cannot be equated with every outdoor shelter. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300001_300099/xx.xx/xx.xx.01_60/en_3000190103v030101p.pdf))

   · Taxonomy evidence: Class xx.xx recognizes partially weather-protected locations with openings to outside air. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300001_300099/xx.xx/xx.xx.01_60/en_3000190103v030101p.pdf))

   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: Partial weather protection is recognized separately; sales weights and future adoption remain assumed.

   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Partial weather protection is recognized separately; sales weights and future adoption remain assumed.

2. China Tower - 2025 Annual Results, March 18, 2026
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China's spending cycle is retained as a counterforce in the regional forecast.
3. Broadband Commission - The State of Broadband: Our Digital World, 2025
   - Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))
4. Battery Backup - Meriwether Lewis Electric Cooperative
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
5. EnerSys 2026 Proxy Statement and Annual Report
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))
6. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom-specific sales weakness is a purchasing-cycle counterforce, not a measure of all Asian backup-system demand.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom application revenue provides counterevidence to extrapolating broad energy-storage growth into China's backup forecast.
7. Amara Raja Energy & Mobility - Q2/H1 FY2026 Earnings Presentation, November 6, 2025
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand. ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))
8. IHS Holding Limited - First-Quarter 2026 Financial Statements
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement. ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

9. Ofcom - Mobile RAN Power Resilience: Technical Report and CFI Update, February 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

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· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate.
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([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))

· Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions.
([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))

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· Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue.
([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))

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    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
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    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.
14. Government of India, Department of Telecommunications - Telecom Statistics India 2025, international comparison tables
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Wireless and fixed-access customer pools are distinguished in the country model.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Wireless and fixed-access customer pools are distinguished in the country model.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.

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    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
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    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
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    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
16. Cellnex - Integrated Annual Report 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.
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17. IHS Holding Limited - Annual Report on Form 20-F for 2024
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
18. Australian Government - Mobile Network Hardening Program
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The limited Australian program qualifies extrapolation of resilience funding across Asia-Pacific.
19. CPUC Requires Wireless Companies to Better Serve Customers in Emergencies - July 16, 2020
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
20. CRTC - Request for Information on Telecommunications Network Resiliency, May 12, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The information request seeks evidence on possible backup requirements and customer equipment costs; it is not an enacted national procurement program.
21. FCC - Internet Access Services: Status as of December 31, 2024, official state-government-hosted copy
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
22. OECD - High-capacity broadband networks gain ground across OECD, October 13, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Observed mature-market connectivity growth and differing fibre/5G adoption constrain replacement and expansion assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Latin American fibre migration supports a conditional fixed-access expansion premise, not automatic battery attachment.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: High mature-market fibre adoption is retained as a saturation counterforce to the purchasing forecast.

12.2. Non-Weather-Protected Locations

Table 138. Global Telecom Battery Backup System Market, by Non-Weather-Protected Locations growth contribution, 2025-2032

Category	2025 value (USD Million)	2032 value (USD Million)	Added value (USD Million)	2025 share (%)	2032 share (%)	Change (pp)	Growth share (%)	CAGR (%)
Open-Air Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Sheltered Non-Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scope total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 139. Global Telecom Battery Backup System Market Size, by Non-Weather-Protected Locations, by Region, 2017-2032 (USD Million)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 140. Global Telecom Battery Backup System Market Size, by Non-Weather-Protected Locations, by Group, 2017-2032 (USD Million)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 141. Global Telecom Battery Backup System Market Size, by Non-Weather-Protected Locations, by Country, 2017-2032 (USD Million)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. ETSI EN 300 019-1-4 V3.1.1 (2026-05) - Stationary Use at Non-Weatherprotected Locations

- Taxonomy evidence: The May 2026 classification distinguishes sheltered and open-air non-weather-protected stationary locations. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300001_300099/xx.xx/xx.xx.01_60/en_3000190104v030101p.pdf))
- Taxonomy evidence: The May 2026 classification distinguishes sheltered and open-air non-weather-protected locations for stationary telecom equipment. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300001_300099/xx.xx/xx.xx.01_60/en_3000190104v030101p.pdf))
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Non-weather-protected locations form a distinct classification regime, not a measured global spending pool.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Non-weather-protected locations form a distinct classification regime, not a measured global spending pool.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Sheltered non-weather-protected locations support the named conditional category.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Sheltered non-weather-protected locations support the named conditional category.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Open-air locations are separately recognized; their purchasing mix remains modeled.
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([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

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    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.
14. Government of India, Department of Telecommunications - Telecom Statistics India 2025, international comparison tables
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Wireless and fixed-access customer pools are distinguished in the country model.
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    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.

15. American Tower Corporation - Annual Report on Form 10-K for 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
16. Cellnex - Integrated Annual Report 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
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    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.

17. IHS Holding Limited - Annual Report on Form 20-F for 2024
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
18. Australian Government - Mobile Network Hardening Program
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The limited Australian program qualifies extrapolation of resilience funding across Asia-Pacific.
19. CPUC Requires Wireless Companies to Better Serve Customers in Emergencies - July 16, 2020
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
20. CRTC - Request for Information on Telecommunications Network Resiliency, May 12, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The information request seeks evidence on possible backup requirements and customer equipment costs; it is not an enacted national procurement program.
21. FCC - Internet Access Services: Status as of December 31, 2024, official state-government-hosted copy
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
22. OECD - High-capacity broadband networks gain ground across OECD, October 13, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Observed mature-market connectivity growth and differing fibre/5G adoption constrain replacement and expansion assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Latin American fibre migration supports a conditional fixed-access expansion premise, not automatic battery attachment.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: High mature-market fibre adoption is retained as a saturation counterforce to the purchasing forecast.

12.2.1. Sheltered Non-Weather-Protected Locations

Table 142. Global Telecom Battery Backup System Market Size, by Sheltered Non-Weather-Protected Locations, by Region, 2017-2032 (USD Million)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 143. Global Telecom Battery Backup System Market Size, by Sheltered Non-Weather-Protected Locations, by Group, 2017-2032 (USD Million)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 144. Global Telecom Battery Backup System Market Size, by Sheltered Non-Weather-Protected Locations, by Country, 2017-2032 (USD Million)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. ETSI EN 300 019-1-4 V3.1.1 (2026-05) - Stationary Use at Non-Weatherprotected Locations

   · Taxonomy evidence: Classes xx.xx and xx.xx recognize sheltered non-weather-protected locations. Shelter alone does not place equipment in the weather-protected regime. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300001_300099/xx.xx/xx.xx.01_60/en_3000190104v030101p.pdf))

   · Taxonomy evidence: Classes xx.xx and xx.xx explicitly recognize sheltered non-weather-protected locations. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300001_300099/xx.xx/xx.xx.01_60/en_3000190104v030101p.pdf))

   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: Sheltered non-weather-protected locations support the named conditional category.

   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Sheltered non-weather-protected locations support the named conditional category.

2. China Tower - 2025 Annual Results, March 18, 2026
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China's spending cycle is retained as a counterforce in the regional forecast.
3. Broadband Commission - The State of Broadband: Our Digital World, 2025
   - Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))
4. Battery Backup - Meriwether Lewis Electric Cooperative
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
5. EnerSys 2026 Proxy Statement and Annual Report
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))
6. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom-specific sales weakness is a purchasing-cycle counterforce, not a measure of all Asian backup-system demand.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom application revenue provides counterevidence to extrapolating broad energy-storage growth into China's backup forecast.
7. Amara Raja Energy & Mobility - Q2/H1 FY2026 Earnings Presentation, November 6, 2025
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand. ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))
8. IHS Holding Limited - First-Quarter 2026 Financial Statements
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement. ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

9. Ofcom - Mobile RAN Power Resilience: Technical Report and CFI Update, February 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Jurisdiction-specific resilience economics qualify a uniform Europe-wide demand uplift.

10. Ofcom - Your Landline Is Going Digital: What You Need to Know

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool.
([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate.
([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

11. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue.
([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))

· Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions.
([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))

12. Fingrid - How to Participate in the Reserve Markets

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue.
([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))

13. China Tower announces 2025 annual results - March 18, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.
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    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
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    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
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    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
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    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
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    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
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    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.

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- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.

18. Australian Government - Mobile Network Hardening Program
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
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- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The limited Australian program qualifies extrapolation of resilience funding across Asia-Pacific.

19. CPUC Requires Wireless Companies to Better Serve Customers in Emergencies - July 16, 2020
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.

20. CRTC - Request for Information on Telecommunications Network Resiliency, May 12, 2026
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The information request seeks evidence on possible backup requirements and customer equipment costs; it is not an enacted national procurement program.

21. FCC - Internet Access Services: Status as of December 31, 2024, official state-government-hosted copy
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.

22. OECD - High-capacity broadband networks gain ground across OECD, October 13, 2026
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Observed mature-market connectivity growth and differing fibre/5G adoption constrain replacement and expansion assumptions.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Latin American fibre migration supports a conditional fixed-access expansion premise, not automatic battery attachment.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: High mature-market fibre adoption is retained as a saturation counterforce to the purchasing forecast.

12.2.2. Open-Air Locations

Table 145. Global Telecom Battery Backup System Market Size, by Open-Air Locations, by Region, 2017-2032 (USD Million)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 146. Global Telecom Battery Backup System Market Size, by Open-Air Locations, by Group, 2017-2032 (USD Million)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 147. Global Telecom Battery Backup System Market Size, by Open-Air Locations, by Country, 2017-2032 (USD Million)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. ETSI EN 300 019-1-4 V3.1.1 (2026-05) - Stationary Use at Non-Weatherprotected Locations

   · Taxonomy evidence: Classes xx.xx, xx.xx, and xx.xx recognize open-air non-weather-protected locations. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300001_300099/xx.xx/xx.xx.01_60/en_3000190104v030101p.pdf))

   · Taxonomy evidence: Classes xx.xx, xx.xx, and xx.xx explicitly recognize open-air non-weather-protected locations. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300001_300099/xx.xx/xx.xx.01_60/en_3000190104v030101p.pdf))

   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: Open-air locations are separately recognized; their purchasing mix remains modeled.

   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Open-air locations are separately recognized; their purchasing mix remains modeled.

2. China Tower - 2025 Annual Results, March 18, 2026
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China's spending cycle is retained as a counterforce in the regional forecast.
3. Broadband Commission - The State of Broadband: Our Digital World, 2025
   - Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))
4. Battery Backup - Meriwether Lewis Electric Cooperative
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
5. EnerSys 2026 Proxy Statement and Annual Report
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))
6. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom-specific sales weakness is a purchasing-cycle counterforce, not a measure of all Asian backup-system demand.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom application revenue provides counterevidence to extrapolating broad energy-storage growth into China's backup forecast.
7. Amara Raja Energy & Mobility - Q2/H1 FY2026 Earnings Presentation, November 6, 2025
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand. ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))
8. IHS Holding Limited - First-Quarter 2026 Financial Statements
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement. ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

9. Ofcom - Mobile RAN Power Resilience: Technical Report and CFI Update, February 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Jurisdiction-specific resilience economics qualify a uniform Europe-wide demand uplift.

10. Ofcom - Your Landline Is Going Digital: What You Need to Know

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool.
([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate.
([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

11. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue.
([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))

· Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions.
([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))

12. Fingrid - How to Participate in the Reserve Markets

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue.
([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))

13. China Tower announces 2025 annual results - March 18, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.
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    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
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    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Wireless and fixed-access customer pools are distinguished in the country model.
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    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.

15. American Tower Corporation - Annual Report on Form 10-K for 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
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16. Cellnex - Integrated Annual Report 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.

17. IHS Holding Limited - Annual Report on Form 20-F for 2024
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
18. Australian Government - Mobile Network Hardening Program
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The limited Australian program qualifies extrapolation of resilience funding across Asia-Pacific.
19. CPUC Requires Wireless Companies to Better Serve Customers in Emergencies - July 16, 2020
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
20. CRTC - Request for Information on Telecommunications Network Resiliency, May 12, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The information request seeks evidence on possible backup requirements and customer equipment costs; it is not an enacted national procurement program.
21. FCC - Internet Access Services: Status as of December 31, 2024, official state-government-hosted copy
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
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22. OECD - High-capacity broadband networks gain ground across OECD, October 13, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Observed mature-market connectivity growth and differing fibre/5G adoption constrain replacement and expansion assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Latin American fibre migration supports a conditional fixed-access expansion premise, not automatic battery attachment.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: High mature-market fibre adoption is retained as a saturation counterforce to the purchasing forecast.

12.3. Underground Locations

Table 148. Global Telecom Battery Backup System Market Size, by Underground Locations, by Region, 2017-2032 (USD Million)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 149. Global Telecom Battery Backup System Market Size, by Underground Locations, by Group, 2017-2032 (USD Million)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 150. Global Telecom Battery Backup System Market Size, by Underground Locations, by Country, 2017-2032 (USD Million)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. ETSI EN 300 019-1-8 V2.1.2 (2002-04) - Stationary Use at Underground Locations

   · Taxonomy evidence: The stationary environmental series recognizes a distinct underground-location regime, supporting separation of subterranean field infrastructure from ordinary enclosed-building conditions. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300001_300099/xx.xx/xx.xx.02_60/en_3000190108v020102p.pdf))

   · Taxonomy evidence: The standard identifies a distinct underground stationary-use regime, including footway boxes, manholes, and some tunnels. This supports separating subterranean field exposure from ordinary enclosed building locations. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300001_300099/xx.xx/xx.xx.02_60/en_3000190108v020102p.pdf))

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   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
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   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China's spending cycle is retained as a counterforce in the regional forecast.
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   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))
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   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom-specific sales weakness is a purchasing-cycle counterforce, not a measure of all Asian backup-system demand.
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· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Jurisdiction-specific resilience economics qualify a uniform Europe-wide demand uplift.

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· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool.
([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate.
([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

11. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue.
([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))

· Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions.
([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))

12. Fingrid - How to Participate in the Reserve Markets

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue.
([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))

13. China Tower announces 2025 annual results - March 18, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.
14. Government of India, Department of Telecommunications - Telecom Statistics India 2025, international comparison tables
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Wireless and fixed-access customer pools are distinguished in the country model.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Wireless and fixed-access customer pools are distinguished in the country model.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.

15. American Tower Corporation - Annual Report on Form 10-K for 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
16. Cellnex - Integrated Annual Report 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.

17. IHS Holding Limited - Annual Report on Form 20-F for 2024
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
18. Australian Government - Mobile Network Hardening Program
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The limited Australian program qualifies extrapolation of resilience funding across Asia-Pacific.
19. CPUC Requires Wireless Companies to Better Serve Customers in Emergencies - July 16, 2020
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
20. CRTC - Request for Information on Telecommunications Network Resiliency, May 12, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The information request seeks evidence on possible backup requirements and customer equipment costs; it is not an enacted national procurement program.
21. FCC - Internet Access Services: Status as of December 31, 2024, official state-government-hosted copy
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
22. OECD - High-capacity broadband networks gain ground across OECD, October 13, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Observed mature-market connectivity growth and differing fibre/5G adoption constrain replacement and expansion assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Latin American fibre migration supports a conditional fixed-access expansion premise, not automatic battery attachment.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: High mature-market fibre adoption is retained as a saturation counterforce to the purchasing forecast.

23. Los Angeles Metro - Board Report 2024-1128, UPS Battery Replacement
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Completed and additional UPS battery replacements support continuing underground demand; mixed-load project budgets are not telecom-only revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Completed and additional UPS battery replacements support continuing underground demand; mixed-load project budgets are not telecom-only revenue.

13. Telecom Battery Backup System Market, by Powering Architecture

[redacted] Within Remote Powering, Centralized Powering originates at a telecommunications center, while Cluster Powering originates outside one. These distinctions, recognized in ETSI's 2021 access-network standard, mean that an equipment list for the receiving location alone cannot establish which counterparty supplies its backup.

Remote-source backup can provide a commercial alternative to separate batteries at receiving locations. [redacted] Consolidating backup accountability may simplify purchasing, but suitability depends on the supplier's commitment covering the receiving equipment rather than merely the source asset.

Reverse Powering introduces a different dependency because its supply originates at customer premises. [redacted] Operators considering this route should require an offering or contract that identifies the premises-origin backup obligation, purchasing authority, and continuing service responsibility before treating it as a substitute for local backup.

Figure 20. Global Telecom Battery Backup System Market Size, by Powering Architecture, 2025 (%)

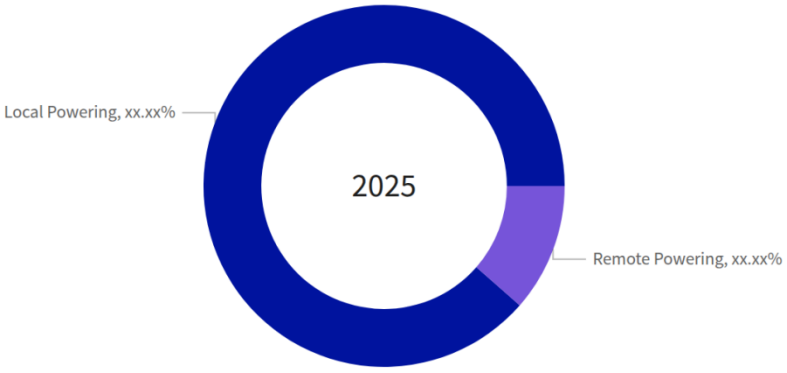

Figure 21. Global Telecom Battery Backup System Market, by Powering Architecture, 2032 (USD Million)

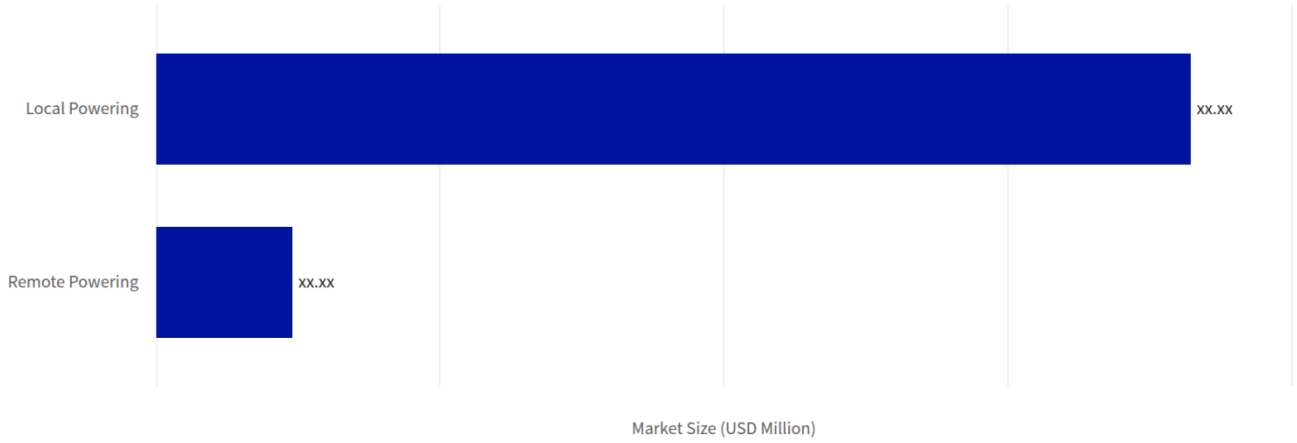

Table 151. Global Telecom Battery Backup System Market, by Powering Architecture growth contribution, 2025-2032

Category	2025 value (USD Million)	2032 value (USD Million)	Added value (USD Million)	2025 share (%)	2032 share (%)	Change (pp)	Growth share (%)	CAGR (%)
Local Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Remote Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scope total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 152. Global Telecom Battery Backup System Market Size, by Powering Architecture, 2017-2032 (USD Million)

Powering Architecture	2023	2024	2025	2026	2027	2032	CAGR (%)
Local Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Remote Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. ETSI EN 302 099 V2.2.1 - Environmental Engineering; Powering of equipment in access network
   - The 2021 standard distinguishes colocated local supply, centralized and cluster remote sources, and customer-premises-origin reverse powering; it discusses differing backup locations and responsible parties. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
   - Taxonomy evidence: The access-network classification distinguishes local, centralized, cluster, and customer-origin reverse powering; battery-backed allocation must follow the outage path. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
   - Taxonomy evidence: Recognizes local, centralized, cluster, and reverse powering; batteries may back up the remote source or receiving equipment. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Local powering uses a colocated source; allocation follows the backed source rather than receiver inventory. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Local powering uses a colocated source; allocation follows the backed source rather than receiver inventory. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Remote-source backup is distinguished from local backup, supporting the parent commercial boundary but not purchasing weights. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Remote-source backup is distinguished from local backup, supporting the parent commercial boundary but not purchasing weights. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
2. LPR48-300-IP67 - Alpha and Outback Energy
   - The LPR48-xx.xx-IP67 offering describes using existing centralized power-node backup instead of AC utility or battery backup at the remote location; this is a supplier proposition, not an installation award. ([alpha-outback-energy.com](https://alpha-outback-energy.com/products/lpr48-xx.xx-ip67/))
3. ADTRAN Delivers First 2nd-Gen Gfast Solutions as Worldwide Deployments Ramp
   - ADTRAN's October xx.xx 2018 announcement describes reverse-powering options in its own Gfast portfolio without establishing a battery-backed premises-origin supply transaction. Only the company's portfolio statement is used. ([investors.adtran.com](https://investors.adtran.com/news/news-details/2018/ADTRAN-Delivers-First-2nd-Gen-Gfast-Solutions-as-Worldwide-Deployments-Ramp/default.aspx))
4. China Tower - 2025 Annual Results, March 18, 2026
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))
5. Broadband Commission - The State of Broadband: Our Digital World, 2025
   - Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))
6. Battery Backup - Meriwether Lewis Electric Cooperative
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))

7. EnerSys 2026 Proxy Statement and Annual Report

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate.
([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))

8. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

9. Amara Raja Energy & Mobility - Q2/H1 FY2026 Earnings Presentation, November 6, 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand.
([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))

10. IHS Holding Limited - First-Quarter 2026 Financial Statements

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement.
([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

11. Ofcom - Mobile RAN Power Resilience: Technical Report and CFI Update, February 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

12. Ofcom - Your Landline Is Going Digital: What You Need to Know

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool.
([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate.
([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

13. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone
    - Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue.
    ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
    - Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions.
    ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
14. Fingrid - How to Participate in the Reserve Markets
    - Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue.
    ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))

13.1. Local Powering

Table 153. Global Telecom Battery Backup System Market Size, by Local Powering, by Region, 2017-2032 (USD Million)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 154. Global Telecom Battery Backup System Market Size, by Local Powering, by Group, 2017-2032 (USD Million)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 155. Global Telecom Battery Backup System Market Size, by Local Powering, by Country, 2017-2032 (USD Million)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. ETSI EN 302 099 V2.2.1 (2021-02) - Powering of Equipment in Access Network

   · Taxonomy evidence: Local power units may provide access-equipment backup. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))

   · Taxonomy evidence: Local powering uses a colocated supply. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))

   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: Local powering uses a colocated source; allocation follows the backed source rather than receiver inventory. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))

   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Local powering uses a colocated source; allocation follows the backed source rather than receiver inventory. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))

2. China Tower - 2025 Annual Results, March 18, 2026
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China's spending cycle is retained as a counterforce in the regional forecast.
3. Broadband Commission - The State of Broadband: Our Digital World, 2025
   - Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))
4. Battery Backup - Meriwether Lewis Electric Cooperative
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
5. EnerSys 2026 Proxy Statement and Annual Report
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))
6. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom-specific sales weakness is a purchasing-cycle counterforce, not a measure of all Asian backup-system demand.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom application revenue provides counterevidence to extrapolating broad energy-storage growth into China's backup forecast.
7. Amara Raja Energy & Mobility - Q2/H1 FY2026 Earnings Presentation, November 6, 2025
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand. ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))
8. IHS Holding Limited - First-Quarter 2026 Financial Statements
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement. ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

9. Ofcom - Mobile RAN Power Resilience: Technical Report and CFI Update, February 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

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· Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue.
([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))

· Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions.
([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))

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· Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue.
([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))

13. China Tower announces 2025 annual results - March 18, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.
14. Government of India, Department of Telecommunications - Telecom Statistics India 2025, international comparison tables
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Wireless and fixed-access customer pools are distinguished in the country model.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Wireless and fixed-access customer pools are distinguished in the country model.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.

15. American Tower Corporation - Annual Report on Form 10-K for 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
16. Cellnex - Integrated Annual Report 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.

17. IHS Holding Limited - Annual Report on Form 20-F for 2024
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
18. Australian Government - Mobile Network Hardening Program
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The limited Australian program qualifies extrapolation of resilience funding across Asia-Pacific.
19. CPUC Requires Wireless Companies to Better Serve Customers in Emergencies - July 16, 2020
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
20. CRTC - Request for Information on Telecommunications Network Resiliency, May 12, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The information request seeks evidence on possible backup requirements and customer equipment costs; it is not an enacted national procurement program.
21. FCC - Internet Access Services: Status as of December 31, 2024, official state-government-hosted copy
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
22. OECD - High-capacity broadband networks gain ground across OECD, October 13, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Observed mature-market connectivity growth and differing fibre/5G adoption constrain replacement and expansion assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Latin American fibre migration supports a conditional fixed-access expansion premise, not automatic battery attachment.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: High mature-market fibre adoption is retained as a saturation counterforce to the purchasing forecast.

13.2. Remote Powering

Table 156. Global Telecom Battery Backup System Market, by Remote Powering growth contribution, 2025-2032

Category	2025 value (USD Million)	2032 value (USD Million)	Added value (USD Million)	2025 share (%)	2032 share (%)	Change (pp)	Growth share (%)	CAGR (%)
Centralized Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Cluster Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reverse Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scope total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 157. Global Telecom Battery Backup System Market Size, by Remote Powering, by Region, 2017-2032 (USD Million)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 158. Global Telecom Battery Backup System Market Size, by Remote Powering, by Group, 2017-2032 (USD Million)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 159. Global Telecom Battery Backup System Market Size, by Remote Powering, by Country, 2017-2032 (USD Million)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. ETSI EN 302 099 V2.2.1 (2021-02) - Powering of Equipment in Access Network

   · Taxonomy evidence: Remote sources with backup can protect distant access equipment. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))

   · Taxonomy evidence: Remote-source backup can protect distant equipment. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))

   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: Remote-source backup is distinguished from local backup, supporting the parent commercial boundary but not purchasing weights. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))

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   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: Centralized powering originates at a telecommunications center. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))

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   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: Cluster powering uses a source outside the telecommunications center, supporting separation within Remote Powering. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))

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   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: Reverse powering is customer-origin supply, supporting source-level attribution of the battery-backed provider package. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))

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2. China Tower - 2025 Annual Results, March 18, 2026

   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))

   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.

   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.

   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China's spending cycle is retained as a counterforce in the regional forecast.

3. Broadband Commission - The State of Broadband: Our Digital World, 2025
   · Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))
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   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
5. EnerSys 2026 Proxy Statement and Annual Report
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6. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025
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   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom-specific sales weakness is a purchasing-cycle counterforce, not a measure of all Asian backup-system demand.
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([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

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([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

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    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.
14. Government of India, Department of Telecommunications - Telecom Statistics India 2025, international comparison tables
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
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    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
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    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.

15. American Tower Corporation - Annual Report on Form 10-K for 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
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    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
16. Cellnex - Integrated Annual Report 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
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    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
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    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.

17. IHS Holding Limited - Annual Report on Form 20-F for 2024
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
18. Australian Government - Mobile Network Hardening Program
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The limited Australian program qualifies extrapolation of resilience funding across Asia-Pacific.
19. CPUC Requires Wireless Companies to Better Serve Customers in Emergencies - July 16, 2020
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
20. CRTC - Request for Information on Telecommunications Network Resiliency, May 12, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The information request seeks evidence on possible backup requirements and customer equipment costs; it is not an enacted national procurement program.
21. FCC - Internet Access Services: Status as of December 31, 2024, official state-government-hosted copy
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
22. OECD - High-capacity broadband networks gain ground across OECD, October 13, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Observed mature-market connectivity growth and differing fibre/5G adoption constrain replacement and expansion assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Latin American fibre migration supports a conditional fixed-access expansion premise, not automatic battery attachment.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: High mature-market fibre adoption is retained as a saturation counterforce to the purchasing forecast.

23. Set Up Your Battery Backup - AT&T G.Fast Service with BGW210

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The 2021 provider document names a battery-backed package protecting G.fast customer and distribution equipment through reverse power feed. It establishes a dated source-backup proposition, not current Global quantities. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The 2021 provider document names a battery-backed package protecting G.fast customer and distribution equipment through reverse power feed. It establishes a dated source-backup proposition, not current Global quantities. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

13.2.1. Centralized Powering

Table 160. Global Telecom Battery Backup System Market Size, by Centralized Powering, by Region, 2017-2032 (USD Million)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 161. Global Telecom Battery Backup System Market Size, by Centralized Powering, by Group, 2017-2032 (USD Million)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 162. Global Telecom Battery Backup System Market Size, by Centralized Powering, by Country, 2017-2032 (USD Million)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. ETSI EN 302 099 V2.2.1 (2021-02) - Powering of Equipment in Access Network
   - Taxonomy evidence: Centralized powering originates at a telecommunications center. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
   - Taxonomy evidence: Centralized supply originates in a telecom center. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Centralized powering originates at a telecommunications center. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Centralized powering originates at a telecommunications center. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))

2. China Tower - 2025 Annual Results, March 18, 2026
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China's spending cycle is retained as a counterforce in the regional forecast.
3. Broadband Commission - The State of Broadband: Our Digital World, 2025
   - Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))
4. Battery Backup - Meriwether Lewis Electric Cooperative
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
5. EnerSys 2026 Proxy Statement and Annual Report
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))
6. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom-specific sales weakness is a purchasing-cycle counterforce, not a measure of all Asian backup-system demand.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom application revenue provides counterevidence to extrapolating broad energy-storage growth into China's backup forecast.
7. Amara Raja Energy & Mobility - Q2/H1 FY2026 Earnings Presentation, November 6, 2025
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand. ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))
8. IHS Holding Limited - First-Quarter 2026 Financial Statements
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement. ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

9. Ofcom - Mobile RAN Power Resilience: Technical Report and CFI Update, February 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Jurisdiction-specific resilience economics qualify a uniform Europe-wide demand uplift.

10. Ofcom - Your Landline Is Going Digital: What You Need to Know

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool.
([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate.
([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

11. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue.
([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))

· Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions.
([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))

12. Fingrid - How to Participate in the Reserve Markets

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue.
([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))

13. China Tower announces 2025 annual results - March 18, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.
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    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
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    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
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    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
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    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.

17. IHS Holding Limited - Annual Report on Form 20-F for 2024
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    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
18. Australian Government - Mobile Network Hardening Program
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The limited Australian program qualifies extrapolation of resilience funding across Asia-Pacific.
19. CPUC Requires Wireless Companies to Better Serve Customers in Emergencies - July 16, 2020
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
20. CRTC - Request for Information on Telecommunications Network Resiliency, May 12, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The information request seeks evidence on possible backup requirements and customer equipment costs; it is not an enacted national procurement program.
21. FCC - Internet Access Services: Status as of December 31, 2024, official state-government-hosted copy
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
22. OECD - High-capacity broadband networks gain ground across OECD, October 13, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Observed mature-market connectivity growth and differing fibre/5G adoption constrain replacement and expansion assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Latin American fibre migration supports a conditional fixed-access expansion premise, not automatic battery attachment.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: High mature-market fibre adoption is retained as a saturation counterforce to the purchasing forecast.

13.2.2. Cluster Powering

Table 163. Global Telecom Battery Backup System Market Size, by Cluster Powering, by Region, 2017-2032 (USD Million)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 164. Global Telecom Battery Backup System Market Size, by Cluster Powering, by Group, 2017-2032 (USD Million)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 165. Global Telecom Battery Backup System Market Size, by Cluster Powering, by Country, 2017-2032 (USD Million)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. ETSI EN 302 099 V2.2.1 (2021-02) - Powering of Equipment in Access Network

   · Taxonomy evidence: Cluster powering uses a supply node serving access equipment in an area. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))

   · Taxonomy evidence: Cluster supply originates outside a telecom center. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))

   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: Cluster powering uses a source outside the telecommunications center, supporting separation within Remote Powering. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))

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2. China Tower - 2025 Annual Results, March 18, 2026
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China's spending cycle is retained as a counterforce in the regional forecast.
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   - Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))
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   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))
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   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom-specific sales weakness is a purchasing-cycle counterforce, not a measure of all Asian backup-system demand.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom application revenue provides counterevidence to extrapolating broad energy-storage growth into China's backup forecast.
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9. Ofcom - Mobile RAN Power Resilience: Technical Report and CFI Update, February 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

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([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

11. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue.
([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))

· Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions.
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    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
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    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
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    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
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    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
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    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.
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17. IHS Holding Limited - Annual Report on Form 20-F for 2024
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
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18. Australian Government - Mobile Network Hardening Program
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
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    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The limited Australian program qualifies extrapolation of resilience funding across Asia-Pacific.
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    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
20. CRTC - Request for Information on Telecommunications Network Resiliency, May 12, 2026
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    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
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    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Observed mature-market connectivity growth and differing fibre/5G adoption constrain replacement and expansion assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Latin American fibre migration supports a conditional fixed-access expansion premise, not automatic battery attachment.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: High mature-market fibre adoption is retained as a saturation counterforce to the purchasing forecast.

13.2.3. Reverse Powering

Table 166. Global Telecom Battery Backup System Market Size, by Reverse Powering, by Region, 2017-2032 (USD Million)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 167. Global Telecom Battery Backup System Market Size, by Reverse Powering, by Group, 2017-2032 (USD Million)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 168. Global Telecom Battery Backup System Market Size, by Reverse Powering, by Country, 2017-2032 (USD Million)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

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   · Taxonomy evidence: Reverse powering is customer-origin supply to access equipment; a qualifying battery-backed source transaction is not established. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))

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   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom-specific sales weakness is a purchasing-cycle counterforce, not a measure of all Asian backup-system demand.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom application revenue provides counterevidence to extrapolating broad energy-storage growth into China's backup forecast.
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   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand. ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))
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9. Ofcom - Mobile RAN Power Resilience: Technical Report and CFI Update, February 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Jurisdiction-specific resilience economics qualify a uniform Europe-wide demand uplift.

10. Ofcom - Your Landline Is Going Digital: What You Need to Know

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool.
([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate.
([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

11. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue.
([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))

· Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions.
([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))

12. Fingrid - How to Participate in the Reserve Markets

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue.
([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))

13. China Tower announces 2025 annual results - March 18, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.
14. Government of India, Department of Telecommunications - Telecom Statistics India 2025, international comparison tables
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Wireless and fixed-access customer pools are distinguished in the country model.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Wireless and fixed-access customer pools are distinguished in the country model.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.

15. American Tower Corporation - Annual Report on Form 10-K for 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
16. Cellnex - Integrated Annual Report 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.

17. IHS Holding Limited - Annual Report on Form 20-F for 2024
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
18. Australian Government - Mobile Network Hardening Program
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The limited Australian program qualifies extrapolation of resilience funding across Asia-Pacific.
19. CPUC Requires Wireless Companies to Better Serve Customers in Emergencies - July 16, 2020
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
20. CRTC - Request for Information on Telecommunications Network Resiliency, May 12, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The information request seeks evidence on possible backup requirements and customer equipment costs; it is not an enacted national procurement program.
21. FCC - Internet Access Services: Status as of December 31, 2024, official state-government-hosted copy
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
22. OECD - High-capacity broadband networks gain ground across OECD, October 13, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Observed mature-market connectivity growth and differing fibre/5G adoption constrain replacement and expansion assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Latin American fibre migration supports a conditional fixed-access expansion premise, not automatic battery attachment.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: High mature-market fibre adoption is retained as a saturation counterforce to the purchasing forecast.

23. Set Up Your Battery Backup - AT&T G.Fast Service with BGW210

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The 2021 provider document names a battery-backed package protecting G.fast customer and distribution equipment through reverse power feed. It establishes a dated source-backup proposition, not current Global quantities. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The 2021 provider document names a battery-backed package protecting G.fast customer and distribution equipment through reverse power feed. It establishes a dated source-backup proposition, not current Global quantities. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

14. Telecom Battery Backup System Market, by Commercial Delivery Model

[illegible] MLConnect describes its premises backup as a purchased product, assigns battery replacement and disposal to the customer, and excludes the backup from its service plan. Ownership therefore does not automatically purchase lifecycle support or a connectivity guarantee; buyers should identify those remaining obligations separately.

Leased or Rented Equipment addresses a different commitment period. UPS Rental advertises batteries and complete DC power plants for temporary replacement and emergency needs, while Aggreko describes telecom rental support during upgrades and maintenance. [illegible] In the UK, Ofcom retains communications-provider responsibility for network portions operated by third parties. Buyers should compare retained asset control with delegated fulfillment, specifying continuity commitments, maintenance ownership, remedies, and end-of-term responsibilities before selecting a delivery model.

Figure 22. Global Telecom Battery Backup System Market Size, by Commercial Delivery Model, 2025 (%)

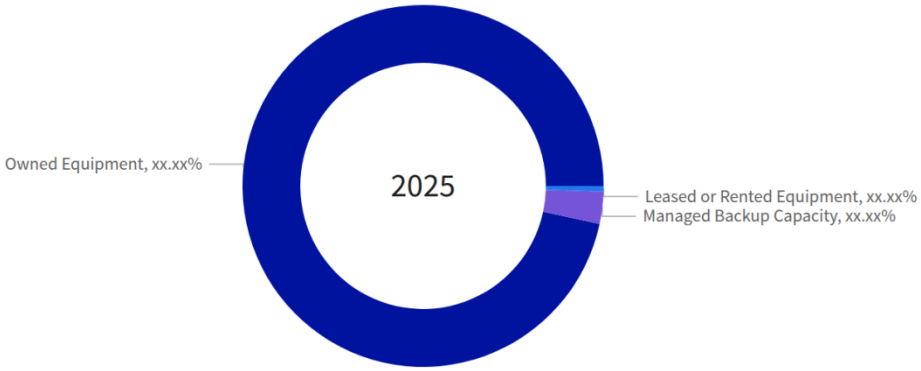

Figure 23. Global Telecom Battery Backup System Market, by Commercial Delivery Model, 2032 (USD Million)

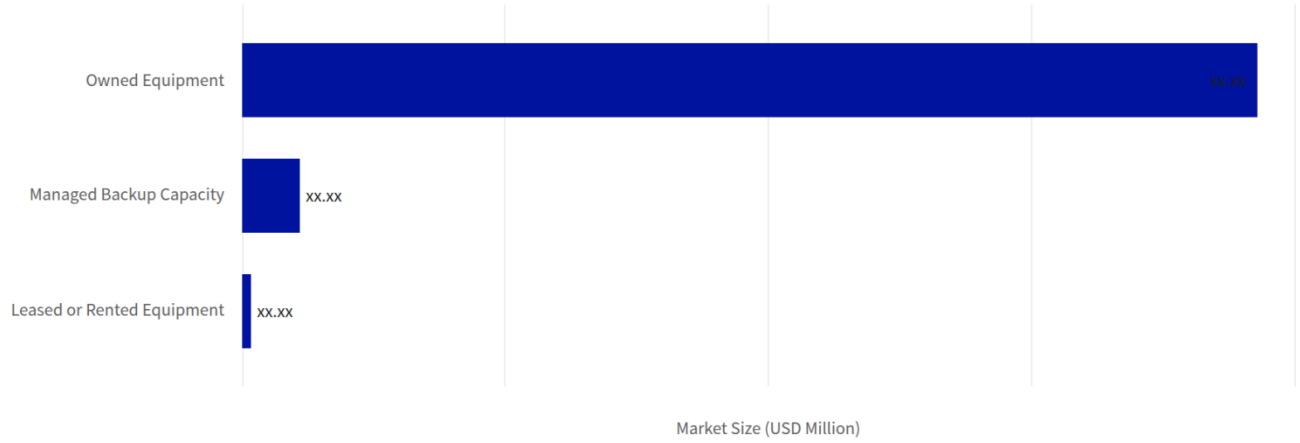

Table 169. Global Telecom Battery Backup System Market, by Commercial Delivery Model growth contribution, 2025-2032

Category	2025 value (USD Million)	2032 value (USD Million)	Added value (USD Million)	2025 share (%)	2032 share (%)	Change (pp)	Growth share (%)	CAGR (%)
Leased or Rented Equipment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Managed Backup Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Owned Equipment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scope total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 170. Global Telecom Battery Backup System Market Size, by Commercial Delivery Model, 2017-2032 (USD Million)

Commercial Delivery Model	2023	2024	2025	2026	2027	2032	CAGR (%)
Leased or Rented Equipment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Managed Backup Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Owned Equipment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. Network and Service Resilience Guidance for Communications Providers, June 16, 2026

   · Ofcom's June xx.xx 2026 guidance retains communications-provider resilience responsibility for network portions operated by third parties, including managed-service arrangements. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/network-and-service-resilience-guidance-for-communications-providerspdf?v=xx.xx))

2. Telecommunications | Aggreko US
   · Aggreko describes telecom rental support for exchanges during commissioning, upgrades, and maintenance, and identifies battery storage among its telecom offerings. ([aggreko.com](https://www.aggreko.com/en-us/sectors/telecommunications))
   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: Telecom battery-storage rental for temporary continuity supports delivery occurrence, not the estimated global fee scale.
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom battery-storage rental for temporary continuity supports delivery occurrence, not the estimated global fee scale.
3. Battery Backup | Meriwether Lewis Electric Cooperative
   · MLConnect describes purchased backup, customer battery replacement and disposal responsibilities, and exclusion of the backup from its service plan. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: Purchased equipment does not automatically include continuing service-plan coverage.
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Purchased equipment does not automatically include continuing service-plan coverage.
4. IFC Summary of Investment Information - IPT PowerTech, Project 49095
   · IFC distinguishes IPT PowerTech's long-term tower-energy contracts from turnkey telecom activities and battery-system supply; the project involves modernizing, maintaining, and operating clients' energy systems. ([disclosures.ifc.org](https://disclosures.ifc.org/project-detail/SII/xx.xx/ipt-powertech))
   · Taxonomy evidence: The project disclosure separates long-term telecom energy-service contracts from turnkey telecom and power-equipment activities. Its original disclosure date is January xx.xx 2025, with a June xx.xx 2026 update. ([disclosures.ifc.org](https://disclosures.ifc.org/project-detail/SII/xx.xx/ipt-powertech))
   · Taxonomy evidence: The investment disclosure distinguishes long-term telecom energy-service contracts from equipment supply and turnkey telecom activities. ([disclosures.ifc.org](https://disclosures.ifc.org/project-detail/SII/xx.xx/ipt-powertech))
5. DC Power Plant / Rectifiers - UPS Rental
   · UPS Rental advertises batteries and complete DC power plants for telecom-related continuity, including waiting for replacement equipment and emergency situations; the listing does not specify finance-lease title or return rights. ([upsrental.com](https://www.upsrental.com/product/rectifiers-dc-plants/))
   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: Battery and complete DC-plant rentals establish delivery-category occurrence; global fees and utilization are not disclosed.
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Battery and complete DC-plant rentals establish delivery-category occurrence; global fees and utilization are not disclosed.
6. China Tower - 2025 Annual Results, March 18, 2026
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))
7. Broadband Commission - The State of Broadband: Our Digital World, 2025
   · Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))

8. EnerSys 2026 Proxy Statement and Annual Report

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate.
([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))

9. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

10. Amara Raja Energy & Mobility - Q2/H1 FY2026 Earnings Presentation, November 6, 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand.
([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))

11. IHS Holding Limited - First-Quarter 2026 Financial Statements

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement.
([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

12. Ofcom - Mobile RAN Power Resilience: Technical Report and CFI Update, February 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

13. Ofcom - Your Landline Is Going Digital: What You Need to Know

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool.
([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate.
([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

14. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone
    - Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue. ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
    - Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions. ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: USD45m financing and xx.xx planned site modernizations support an expansion signal, not observed backup-only service revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: USD45m financing and xx.xx planned site modernizations support an expansion signal, not observed backup-only service revenue.
15. Fingrid - How to Participate in the Reserve Markets
    - Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue. ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))

14.1. Owned Equipment

Table 171. Global Telecom Battery Backup System Market Size, by Owned Equipment, by Region, 2017-2032 (USD Million)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 172. Global Telecom Battery Backup System Market Size, by Owned Equipment, by Group, 2017-2032 (USD Million)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 173. Global Telecom Battery Backup System Market Size, by Owned Equipment, by Country, 2017-2032 (USD Million)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. Battery Backup - Meriwether Lewis Electric Cooperative
   - Taxonomy evidence: The disclosed arrangement is equipment purchase, not temporary equipment access. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Taxonomy evidence: The telecom customer disclosure describes a purchased backup product with customer responsibility for replacement batteries. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Purchased equipment does not automatically include continuing service-plan coverage.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Purchased equipment does not automatically include continuing service-plan coverage.
2. China Tower - 2025 Annual Results, March 18, 2026
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China's spending cycle is retained as a counterforce in the regional forecast.
3. Broadband Commission - The State of Broadband: Our Digital World, 2025
   - Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))
4. EnerSys 2026 Proxy Statement and Annual Report
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))
5. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom-specific sales weakness is a purchasing-cycle counterforce, not a measure of all Asian backup-system demand.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom application revenue provides counterevidence to extrapolating broad energy-storage growth into China's backup forecast.

6. Amara Raja Energy & Mobility - Q2/H1 FY2026 Earnings Presentation, November 6, 2025
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand.
   ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))
7. IHS Holding Limited - First-Quarter 2026 Financial Statements
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement.
   ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))
8. Ofcom - Mobile RAN Power Resilience: Technical Report and CFI Update, February 2025
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue.
   ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))
   · Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation.
   ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))
   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Jurisdiction-specific resilience economics qualify a uniform Europe-wide demand uplift.
9. Ofcom - Your Landline Is Going Digital: What You Need to Know
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool.
   ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
   · Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate.
   ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

10. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone
    - Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue.
    ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
    - Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions.
    ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
11. Fingrid - How to Participate in the Reserve Markets
    - Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue.
    ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))
12. China Tower announces 2025 annual results - March 18, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.

13. Government of India, Department of Telecommunications - Telecom Statistics India 2025, international comparison tables

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Wireless and fixed-access customer pools are distinguished in the country model.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Wireless and fixed-access customer pools are distinguished in the country model.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.

14. American Tower Corporation - Annual Report on Form 10-K for 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
15. Cellnex - Integrated Annual Report 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.

16. IHS Holding Limited - Annual Report on Form 20-F for 2024
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
17. Australian Government - Mobile Network Hardening Program
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The limited Australian program qualifies extrapolation of resilience funding across Asia-Pacific.
18. CPUC Requires Wireless Companies to Better Serve Customers in Emergencies - July 16, 2020
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
19. CRTC - Request for Information on Telecommunications Network Resiliency, May 12, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The information request seeks evidence on possible backup requirements and customer equipment costs; it is not an enacted national procurement program.
20. FCC - Internet Access Services: Status as of December 31, 2024, official state-government-hosted copy
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
21. OECD - High-capacity broadband networks gain ground across OECD, October 13, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Observed mature-market connectivity growth and differing fibre/5G adoption constrain replacement and expansion assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Latin American fibre migration supports a conditional fixed-access expansion premise, not automatic battery attachment.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: High mature-market fibre adoption is retained as a saturation counterforce to the purchasing forecast.

14.2. Managed Backup Capacity

Table 174. Global Telecom Battery Backup System Market Size, by Managed Backup Capacity, by Region, 2017-2032 (USD Million)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 175. Global Telecom Battery Backup System Market Size, by Managed Backup Capacity, by Group, 2017-2032 (USD Million)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 176. Global Telecom Battery Backup System Market Size, by Managed Backup Capacity, by Country, 2017-2032 (USD Million)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. IFC Summary of Investment Information - IPT PowerTech, Project 49095

   · Taxonomy evidence: The financed project modernizes, maintains, and operates mobile-network clients' energy systems under long-term contracts and anticipates increased battery use. This supports a managed-performance arrangement, not attributed backup-hardware revenue. ([disclosures.ifc.org](https://disclosures.ifc.org/project-detail/SII/xx.xx/ipt-powertech))

   · Taxonomy evidence: Telecom energy systems are modernized, maintained, and operated under long-term service contracts; the project includes increased use of solar panels and batteries. ([disclosures.ifc.org](https://disclosures.ifc.org/project-detail/SII/xx.xx/ipt-powertech))

2. China Tower - 2025 Annual Results, March 18, 2026
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))
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3. Broadband Commission - The State of Broadband: Our Digital World, 2025
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   ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

   · Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation.
   ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Jurisdiction-specific resilience economics qualify a uniform Europe-wide demand uplift.

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    ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

    · Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate.
    ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

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    · Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue.
    ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))

    · Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions.
    ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))

    · Evidence informing base-year allocation inputs; displayed values and growth are calculated: USD45m financing and xx.xx planned site modernizations support an expansion signal, not observed backup-only service revenue.

    · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: USD45m financing and xx.xx planned site modernizations support an expansion signal, not observed backup-only service revenue.

12. Fingrid - How to Participate in the Reserve Markets
    - Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue.
    ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))
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    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
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    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.
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    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
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    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.

15. American Tower Corporation - Annual Report on Form 10-K for 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
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16. Cellnex - Integrated Annual Report 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
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17. IHS Holding Limited - Annual Report on Form 20-F for 2024
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
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19. CPUC Requires Wireless Companies to Better Serve Customers in Emergencies - July 16, 2020
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
20. CRTC - Request for Information on Telecommunications Network Resiliency, May 12, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The information request seeks evidence on possible backup requirements and customer equipment costs; it is not an enacted national procurement program.
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    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
22. OECD - High-capacity broadband networks gain ground across OECD, October 13, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Observed mature-market connectivity growth and differing fibre/5G adoption constrain replacement and expansion assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Latin American fibre migration supports a conditional fixed-access expansion premise, not automatic battery attachment.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: High mature-market fibre adoption is retained as a saturation counterforce to the purchasing forecast.

14.3. Leased or Rented Equipment

Table 177. Global Telecom Battery Backup System Market Size, by Leased or Rented Equipment, by Region, 2017-2032 (USD Million)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 178. Global Telecom Battery Backup System Market Size, by Leased or Rented Equipment, by Group, 2017-2032 (USD Million)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 179. Global Telecom Battery Backup System Market Size, by Leased or Rented Equipment, by Country, 2017-2032 (USD Million)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. GSA - Leasing of New Electronic Equipment

   · Taxonomy evidence: The government procurement scope recognizes leasing and lease-with-option-to-own arrangements for telecommunications hardware. It does not specifically establish qualifying battery-backup leases.
   ([gsa.gov](https://www.gsa.gov/technology/it-contract-vehicles-and-purchasing-programs/multiple-award-schedule-it/electronic-equipment-leasing))

2. DC Power Plant / Rectifiers - UPS Rental

   · Taxonomy evidence: The public offering advertises rental of batteries and complete DC power plants for telecom continuity. This supplier example supports category occurrence, not independently demonstrated leasing uptake or a market-wide partition.
   ([upsrental.com](https://www.upsrental.com/product/rectifiers-dc-plants/))

   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: Battery and complete DC-plant rentals establish delivery-category occurrence; global fees and utilization are not disclosed.

   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Battery and complete DC-plant rentals establish delivery-category occurrence; global fees and utilization are not disclosed.

3. China Tower - 2025 Annual Results, March 18, 2026
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China's spending cycle is retained as a counterforce in the regional forecast.
4. Broadband Commission - The State of Broadband: Our Digital World, 2025
   - Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))
5. Battery Backup - Meriwether Lewis Electric Cooperative
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
6. EnerSys 2026 Proxy Statement and Annual Report
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))
7. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom-specific sales weakness is a purchasing-cycle counterforce, not a measure of all Asian backup-system demand.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom application revenue provides counterevidence to extrapolating broad energy-storage growth into China's backup forecast.
8. Amara Raja Energy & Mobility - Q2/H1 FY2026 Earnings Presentation, November 6, 2025
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand. ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))
9. IHS Holding Limited - First-Quarter 2026 Financial Statements
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement. ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

10. Ofcom - Mobile RAN Power Resilience: Technical Report and CFI Update, February 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Jurisdiction-specific resilience economics qualify a uniform Europe-wide demand uplift.

11. Ofcom - Your Landline Is Going Digital: What You Need to Know

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool.
([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate.
([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

12. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue.
([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))

· Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions.
([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))

13. Fingrid - How to Participate in the Reserve Markets

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue.
([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))

14. China Tower announces 2025 annual results - March 18, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.
15. Government of India, Department of Telecommunications - Telecom Statistics India 2025, international comparison tables
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
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    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The information request seeks evidence on possible backup requirements and customer equipment costs; it is not an enacted national procurement program.
22. FCC - Internet Access Services: Status as of December 31, 2024, official state-government-hosted copy
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    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Latin American fibre migration supports a conditional fixed-access expansion premise, not automatic battery attachment.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: High mature-market fibre adoption is retained as a saturation counterforce to the purchasing forecast.

24. Telecommunications | Aggreko US
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Telecom battery-storage rental for temporary continuity supports delivery occurrence, not the estimated global fee scale.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom battery-storage rental for temporary continuity supports delivery occurrence, not the estimated global fee scale.

15. Telecom Battery Backup System Market, by Sales Channel

Direct Manufacturer Supply and Distributor and Retailer Supply can provide access to the same named offering without allocating support identically. ■■■■■■■ ■■■■■■■■ ■ ■■■■■■■■■ ■■■■■ ■■■ ■■■■■■■■■ ■■■■ ■■■■■ ■■■■■■ ■■■■■ ■■■■■■■ ■■■■■ ■■■■■■■■■ ■■■ ■■■■■ ■■■■■■■■ ■■■■■■■■ ■■■ ■■■■■■■■■ ■■■■■■ ■■ ■■ ■■■■■■■■ ■■■■■■■ ■■■■■■■■■■■■ ■■■■■■■ ■■■■■■■ ■■■■■■■■■■■ ■■■ ■■■■■■■■■ ■■■■■■■ ■■■■ ■■■ ■■■■■ ■■■■■■■■■■■ ■■■ ■■■■■■■■ ■■■■■■■■■■■■■■ ■■■ ■■■■■ ■■■■■■■■ The distributor's description is not independent manufacturer confirmation or a site-specific fulfillment commitment.

Systems Integrator and Contractor Supply is differentiated by responsibility for the existing plant rather than simply resale. Vertiv describes DC power projects across manufacturers and upgrades as alternatives to replacing an entire plant. ■■■ ■■■■■■ ■■■■■■■■■ ■■■■■■■■ ■■■■■■■■■■■■■■■ ■■ ■■■■■■■■■■■■■■■ ■■■■■■■■■■■ ■■■ ■■■■■■■■■■ ■■■ ■■■■■■■■■■ ■■■■■■■■■■■■ ■■■■■■■■ ■■■ ■■■■■■■■ ■■■■■■■ ■■■■■■■■■■■ ■■■■■■■■■■ ■■■ ■■■■■■■■■■■ ■■■■■■■■ ■■■■■■■■ ■■■■■■ ■■■■■■■■■ ■■■■■■■■■■ ■■■■■■■■■ ■■■■■■■■■ ■■■■■■■ ■■■ ■■■■■■■ ■■■■■ ■■■■■■■■■■ ■■■■ ■■■ ■■■■■■ ■ ■■■■■■■ ■■■■■■■■■■■ ■■■■■ ■■■■ ■■■ ■■■■■■ ■■■ ■■■■■■ ■■■■■■ ■■ ■■■■■■■■■■■■■■■■ ■■■■■■

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Figure 24. Global Telecom Battery Backup System Market Size, by Sales Channel, 2025 (%)

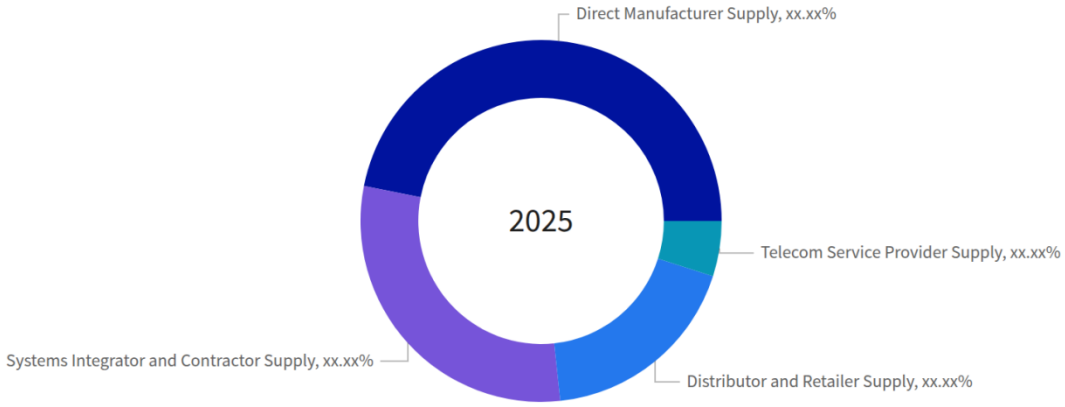

Figure 25. Global Telecom Battery Backup System Market, by Sales Channel, 2032 (USD Million)

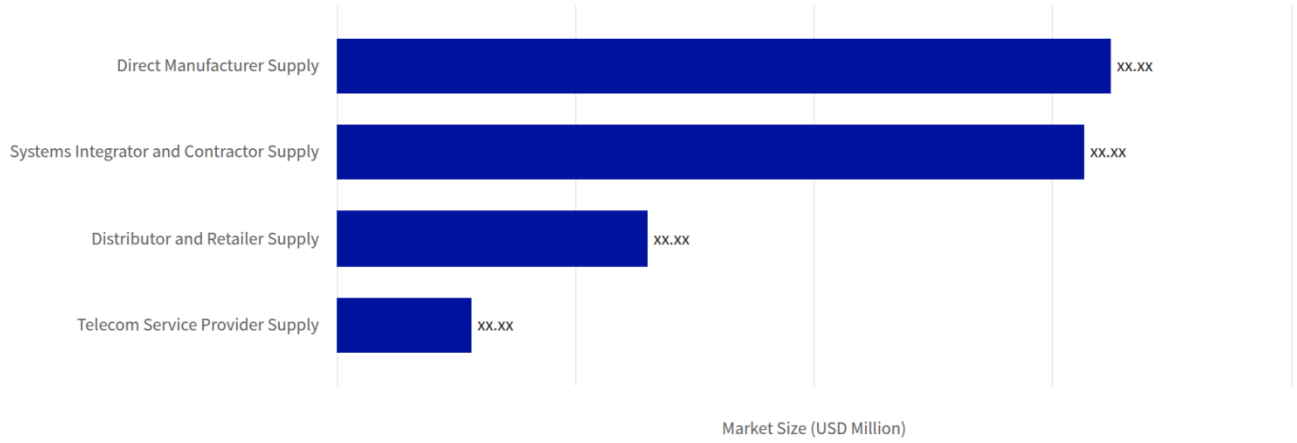

Table 180. Global Telecom Battery Backup System Market, by Sales Channel growth contribution, 2025-2032

Category	2025 value (USD Million)	2032 value (USD Million)	Added value (USD Million)	2025 share (%)	2032 share (%)	Change (pp)	Growth share (%)	CAGR (%)
Direct Manufacturer Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Distributor and Retailer Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Systems Integrator and Contractor Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Service Provider Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scope total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 181. Global Telecom Battery Backup System Market Size, by Sales Channel, 2017-2032 (USD Million)

Sales Channel	2023	2024	2025	2026	2027	2032	CAGR (%)
Direct Manufacturer Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Distributor and Retailer Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Systems Integrator and Contractor Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Service Provider Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. PowerSafe SBS Batteries | EnerSys
   - EnerSys lists PowerSafe SBS for telecom applications and supplies a manufacturer quotation route. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-sbs/))
2. DC Power Services | Vertiv
   - Vertiv describes DC power projects regardless of manufacturer and upgrades as alternatives to replacing an entire DC plant, supporting a distinct integration-prime purchasing option. ([vertiv.com](https://www.vertiv.com/en-us/products/services/dc-power-services/))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Cross-manufacturer projects and narrower upgrades support integration-prime and supported-replacement routes; numerical route proportions remain assumed.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Cross-manufacturer projects and narrower upgrades support integration-prime and supported-replacement routes; numerical route proportions remain assumed.
3. Set up a Battery Back Up | BT Help
   - BT directs customers to contact the provider to request backup and describes the offering as supporting its Smart Hub and broadband services, including Digital Voice. ([bt.com](https://www.bt.com/help/home-phone/set-up-battery-back-up))
4. EnerSys PowerSafe SBS Front Terminal Batteries | Alpine Power Systems
   - Alpine lists PowerSafe SBS Front Terminal batteries and describes itself as an approved EnerSys distributor; this is Alpine's authorization statement, not independent manufacturer confirmation. ([alpinepowersystems.com](https://alpinepowersystems.com/products/enersys-powersafe-sbs-front-terminal))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A named battery distributor supports the intermediary route; its listing is not a global channel-sales observation.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A named battery distributor supports the intermediary route; its listing is not a global channel-sales observation.
5. Terms of Service - AT&T Legal Policy Center
   - AT&T's internet-service terms permit third-party manufacturer or retailer backup purchases, assign replacement and recycling to the customer, and exclude support for equipment not provided by AT&T. ([att.com](https://www.att.com/legal/terms.iframes.wirelessCustomerAgreement.html))
6. China Tower - 2025 Annual Results, March 18, 2026
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))
7. Broadband Commission - The State of Broadband: Our Digital World, 2025
   - Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))
8. Battery Backup - Meriwether Lewis Electric Cooperative
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Local provider sales establish this route alongside manufacturer-direct purchasing.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Local provider sales establish this route alongside manufacturer-direct purchasing.

9. EnerSys 2026 Proxy Statement and Annual Report
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))
   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: Direct customer supply is disclosed within a diversified international business; telecom channel proportions are not disclosed.
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Direct customer supply is disclosed within a diversified international business; telecom channel proportions are not disclosed.
   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: Distributor supply is disclosed, supporting route occurrence rather than its modeled sales weight.
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Distributor supply is disclosed, supporting route occurrence rather than its modeled sales weight.
10. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
11. Amara Raja Energy & Mobility - Q2/H1 FY2026 Earnings Presentation, November 6, 2025
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand. ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))
12. IHS Holding Limited - First-Quarter 2026 Financial Statements
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement. ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))
13. Ofcom - Mobile RAN Power Resilience: Technical Report and CFI Update, February 2025
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))
   · Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

14. Ofcom - Your Landline Is Going Digital: What You Need to Know
· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
15. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone
· Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue. ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
· Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions. ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
16. Fingrid - How to Participate in the Reserve Markets
· Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue. ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))

15.1. Direct Manufacturer Supply

Table 182. Global Telecom Battery Backup System Market Size, by Direct Manufacturer Supply, by Region, 2017-2032 (USD Million)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 183. Global Telecom Battery Backup System Market Size, by Direct Manufacturer Supply, by Group, 2017-2032 (USD Million)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 184. Global Telecom Battery Backup System Market Size, by Direct Manufacturer Supply, by Country, 2017-2032 (USD Million)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. Battery Backup - Meriwether Lewis Electric Cooperative
   - Taxonomy evidence: Customers may obtain devices and batteries directly through the named manufacturer. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Taxonomy evidence: Customers may purchase backup units and replacement batteries directly from the named equipment supplier. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
2. China Tower - 2025 Annual Results, March 18, 2026
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China's spending cycle is retained as a counterforce in the regional forecast.
3. Broadband Commission - The State of Broadband: Our Digital World, 2025
   - Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))
4. EnerSys 2026 Proxy Statement and Annual Report
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Direct customer supply is disclosed within a diversified international business; telecom channel proportions are not disclosed.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Direct customer supply is disclosed within a diversified international business; telecom channel proportions are not disclosed.
5. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom-specific sales weakness is a purchasing-cycle counterforce, not a measure of all Asian backup-system demand.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom application revenue provides counterevidence to extrapolating broad energy-storage growth into China's backup forecast.

6. Amara Raja Energy & Mobility - Q2/H1 FY2026 Earnings Presentation, November 6, 2025
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand.
   ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))
7. IHS Holding Limited - First-Quarter 2026 Financial Statements
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement.
   ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))
8. Ofcom - Mobile RAN Power Resilience: Technical Report and CFI Update, February 2025
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue.
   ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))
   · Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation.
   ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))
   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Jurisdiction-specific resilience economics qualify a uniform Europe-wide demand uplift.
9. Ofcom - Your Landline Is Going Digital: What You Need to Know
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool.
   ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
   · Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate.
   ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

10. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone
    - Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue. ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
    - Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions. ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
11. Fingrid - How to Participate in the Reserve Markets
    - Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue. ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))
12. China Tower announces 2025 annual results - March 18, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.

13. Government of India, Department of Telecommunications - Telecom Statistics India 2025, international comparison tables

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Wireless and fixed-access customer pools are distinguished in the country model.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Wireless and fixed-access customer pools are distinguished in the country model.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.

14. American Tower Corporation - Annual Report on Form 10-K for 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
15. Cellnex - Integrated Annual Report 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.

16. IHS Holding Limited - Annual Report on Form 20-F for 2024
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
17. Australian Government - Mobile Network Hardening Program
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The limited Australian program qualifies extrapolation of resilience funding across Asia-Pacific.
18. CPUC Requires Wireless Companies to Better Serve Customers in Emergencies - July 16, 2020
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
19. CRTC - Request for Information on Telecommunications Network Resiliency, May 12, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The information request seeks evidence on possible backup requirements and customer equipment costs; it is not an enacted national procurement program.
20. FCC - Internet Access Services: Status as of December 31, 2024, official state-government-hosted copy
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
21. OECD - High-capacity broadband networks gain ground across OECD, October 13, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Observed mature-market connectivity growth and differing fibre/5G adoption constrain replacement and expansion assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Latin American fibre migration supports a conditional fixed-access expansion premise, not automatic battery attachment.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: High mature-market fibre adoption is retained as a saturation counterforce to the purchasing forecast.

15.2. Systems Integrator and Contractor Supply

Table 185. Global Telecom Battery Backup System Market Size, by Systems Integrator and Contractor Supply, by Region, 2017-2032 (USD Million)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 186. Global Telecom Battery Backup System Market Size, by Systems Integrator and Contractor Supply, by Group, 2017-2032 (USD Million)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 187. Global Telecom Battery Backup System Market Size, by Systems Integrator and Contractor Supply, by Country, 2017-2032 (USD Million)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. IFC Summary of Investment Information - IPT PowerTech, Project 49095

   · Taxonomy evidence: The independent investment record describes turnkey telecom and energy-system integration activities alongside battery-system supply. It corroborates an integration/contractor role, not an exhaustive channel partition.
   ([disclosures.ifc.org](https://disclosures.ifc.org/project-detail/SII/xx.xx/ipt-powertech))

   · Taxonomy evidence: The disclosure identifies systems integration, turnkey telecom delivery, and battery-system supply as distinct public business activities. This supports the intermediary role, not an exhaustive channel partition.
   ([disclosures.ifc.org](https://disclosures.ifc.org/project-detail/SII/xx.xx/ipt-powertech))

2. China Tower - 2025 Annual Results, March 18, 2026
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China's spending cycle is retained as a counterforce in the regional forecast.
3. Broadband Commission - The State of Broadband: Our Digital World, 2025
   - Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))
4. Battery Backup - Meriwether Lewis Electric Cooperative
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
5. EnerSys 2026 Proxy Statement and Annual Report
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))
6. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom-specific sales weakness is a purchasing-cycle counterforce, not a measure of all Asian backup-system demand.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom application revenue provides counterevidence to extrapolating broad energy-storage growth into China's backup forecast.
7. Amara Raja Energy & Mobility - Q2/H1 FY2026 Earnings Presentation, November 6, 2025
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand. ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))
8. IHS Holding Limited - First-Quarter 2026 Financial Statements
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement. ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

9. Ofcom - Mobile RAN Power Resilience: Technical Report and CFI Update, February 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Jurisdiction-specific resilience economics qualify a uniform Europe-wide demand uplift.

10. Ofcom - Your Landline Is Going Digital: What You Need to Know

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool.
([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate.
([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

11. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue.
([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))

· Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions.
([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))

12. Fingrid - How to Participate in the Reserve Markets

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue.
([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))

13. China Tower announces 2025 annual results - March 18, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.
14. Government of India, Department of Telecommunications - Telecom Statistics India 2025, international comparison tables
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
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    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.

15. American Tower Corporation - Annual Report on Form 10-K for 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
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    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
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    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
16. Cellnex - Integrated Annual Report 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
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    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.

17. IHS Holding Limited - Annual Report on Form 20-F for 2024
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
18. Australian Government - Mobile Network Hardening Program
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The limited Australian program qualifies extrapolation of resilience funding across Asia-Pacific.
19. CPUC Requires Wireless Companies to Better Serve Customers in Emergencies - July 16, 2020
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
20. CRTC - Request for Information on Telecommunications Network Resiliency, May 12, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The information request seeks evidence on possible backup requirements and customer equipment costs; it is not an enacted national procurement program.
21. FCC - Internet Access Services: Status as of December 31, 2024, official state-government-hosted copy
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
22. OECD - High-capacity broadband networks gain ground across OECD, October 13, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Observed mature-market connectivity growth and differing fibre/5G adoption constrain replacement and expansion assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Latin American fibre migration supports a conditional fixed-access expansion premise, not automatic battery attachment.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: High mature-market fibre adoption is retained as a saturation counterforce to the purchasing forecast.

23. DC Power Services | Vertiv

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Cross-manufacturer projects and narrower upgrades support integration-prime and supported-replacement routes; numerical route proportions remain assumed.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Cross-manufacturer projects and narrower upgrades support integration-prime and supported-replacement routes; numerical route proportions remain assumed.

15.3. Distributor and Retailer Supply

Table 188. Global Telecom Battery Backup System Market Size, by Distributor and Retailer Supply, by Region, 2017-2032 (USD Million)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 189. Global Telecom Battery Backup System Market Size, by Distributor and Retailer Supply, by Group, 2017-2032 (USD Million)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 190. Global Telecom Battery Backup System Market Size, by Distributor and Retailer Supply, by Country, 2017-2032 (USD Million)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

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   · Taxonomy evidence: The Economic Census form recognizes nonautomotive batteries and communications equipment within merchant-wholesale activities and distinguishes own-account distributors from agents. It supports the distribution role, not telecom-backup channel shares. ([bhs.econ.census.gov](https://bhs.econ.census.gov/ombpdfs2022/export/2022_WH-42361_su.pdf))

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15.4. Telecom Service Provider Supply

Table 191. Global Telecom Battery Backup System Market Size, by Telecom Service Provider Supply, by Region, 2017-2032 (USD Million)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 192. Global Telecom Battery Backup System Market Size, by Telecom Service Provider Supply, by Group, 2017-2032 (USD Million)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 193. Global Telecom Battery Backup System Market Size, by Telecom Service Provider Supply, by Country, 2017-2032 (USD Million)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

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([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

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([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

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· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

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· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool.
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· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate.
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· Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue.
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· Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue.
([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))

12. China Tower announces 2025 annual results - March 18, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.
13. Government of India, Department of Telecommunications - Telecom Statistics India 2025, international comparison tables
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Wireless and fixed-access customer pools are distinguished in the country model.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Wireless and fixed-access customer pools are distinguished in the country model.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.

14. American Tower Corporation - Annual Report on Form 10-K for 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
15. Cellnex - Integrated Annual Report 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.

16. IHS Holding Limited - Annual Report on Form 20-F for 2024
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
17. Australian Government - Mobile Network Hardening Program
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The limited Australian program qualifies extrapolation of resilience funding across Asia-Pacific.
18. CPUC Requires Wireless Companies to Better Serve Customers in Emergencies - July 16, 2020
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
19. CRTC - Request for Information on Telecommunications Network Resiliency, May 12, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The information request seeks evidence on possible backup requirements and customer equipment costs; it is not an enacted national procurement program.
20. FCC - Internet Access Services: Status as of December 31, 2024, official state-government-hosted copy
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
21. OECD - High-capacity broadband networks gain ground across OECD, October 13, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Observed mature-market connectivity growth and differing fibre/5G adoption constrain replacement and expansion assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Latin American fibre migration supports a conditional fixed-access expansion premise, not automatic battery attachment.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: High mature-market fibre adoption is retained as a saturation counterforce to the purchasing forecast.

16. Telecom Battery Backup System Market, by Grid Availability

[redacted] Reliable Grid does not mean that backup has no commercial purpose: Ofcom's February 2025 report describes prolonged telecom disruption during severe weather despite generally reliable UK services. Buyers in this setting should match the purchase to the documented continuity obligation and exceptional outage exposure rather than assume that ordinary grid access removes the requirement.

Unreliable Grid introduces recurring supply uncertainty alongside outage protection. MTN's April 2025 American Tower case connects energy-storage initiatives with irregular grid access and fuel-supply constraints. [redacted]

Off-Grid creates a distinct purchasing boundary because the site lacks a national-grid connection. IFC's 2021 telecom energy-services framework separates that condition from connected sites experiencing outages and describes energy services extending beyond backup alone. [redacted]

Figure 26. Global Telecom Battery Backup System Market Size, by Grid Availability, 2025 (%)

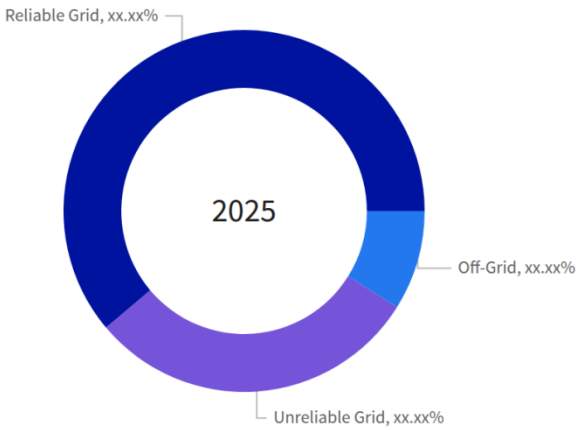

Figure 27. Global Telecom Battery Backup System Market, by Grid Availability, 2032 (USD Million)

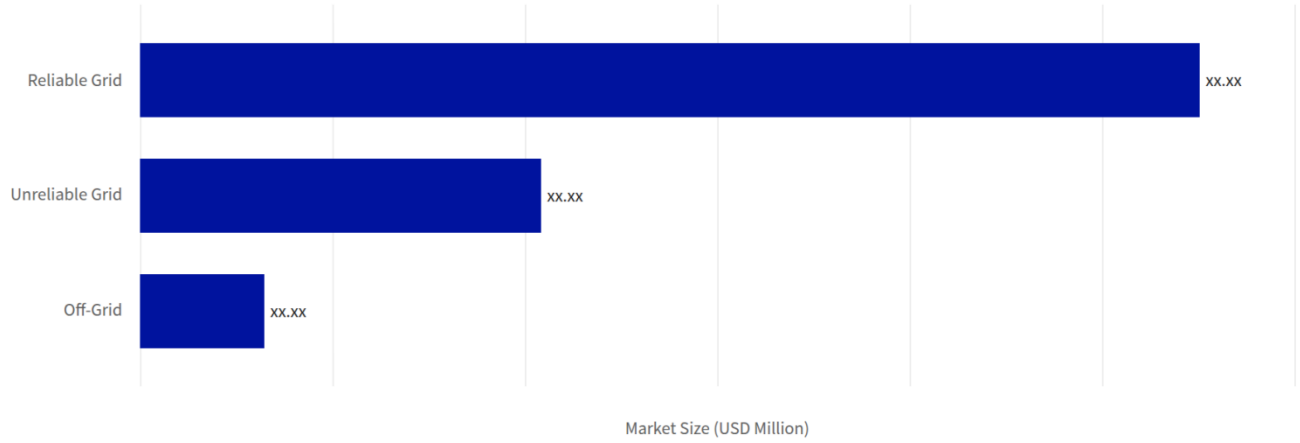

Table 194. Global Telecom Battery Backup System Market, by Grid Availability growth contribution, 2025-2032

Category	2025 value (USD Million)	2032 value (USD Million)	Added value (USD Million)	2025 share (%)	2032 share (%)	Change (pp)	Growth share (%)	CAGR (%)
Off-Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reliable Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Unreliable Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scope total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 195. Global Telecom Battery Backup System Market Size, by Grid Availability, 2017-2032 (USD Million)

Grid Availability	2023	2024	2025	2026	2027	2032	CAGR (%)
Off-Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reliable Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Unreliable Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. Strategic approach to network and supply emissions: building a sustainable network with ATC

   · MTN's April xx.xx 2025 American Tower case connects energy-storage initiatives with irregular grid access and fuel-supply constraints; it does not establish storage as complete energy fulfillment. ([mtn.com](https://www.mtn.com/case-study/strategic-approach-to-network-and-supply-emissions-building-a-sustainable-network-with-atc/))

2. Investing in Sustainable Access to Communications: The Role of Telecom Energy Services Companies

   · IFC's September 2021 framework distinguishes disconnected sites from connected sites with differing outage exposure using study-specific definitions; it describes telecom energy services as wider than backup alone. ([ifc.org](https://www.ifc.org/content/dam/ifc/doc/mgrt/tesco-study-web-xx.xx-xx.xx-xx.xx-xx.xx-final.pdf))

   · Taxonomy evidence: The framework distinguishes off-grid, bad-grid, and good-grid contexts using study-specific definitions. ([ifc.org](https://www.ifc.org/content/dam/ifc/doc/mgrt/tesco-study-web-xx.xx-xx.xx-xx.xx-xx.xx-final.pdf))

3. Mobile RAN power resilience: Technical Report and CFI Update - February 10, 2025

   · Ofcom's February xx.xx 2025 report describes generally reliable UK telecom services and prolonged power-related disruption during severe weather, supporting a distinction between ordinary reliability and exceptional exposure. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

   · Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

4. GSMA - Renewable Energy for Mobile Towers: Opportunities for Low- and Middle-Income Countries, September 2020

   · Taxonomy evidence: The association's September 2020 definitions separate sites disconnected from or receiving no grid electricity from connected sites with prolonged outages. Its six-hour daily-outage cutoff differs from the inspected IFC framework's eight-hour cutoff; neither is adopted as a Global rule. ([gsma.com](https://www.gsma.com/solutions-and-impact/connectivity-for-good/mobile-for-development/wp-content/uploads/2020/xx.xx/Clean_Tech_Report_R_WebSingles.xx.xx.pdf))

   · Taxonomy evidence: The association's 2020 report distinguishes good-grid, bad-grid, and off-grid telecom contexts. Only category distinctions are used; embedded commercial research estimates are excluded. ([gsma.com](https://www.gsma.com/solutions-and-impact/connectivity-for-good/mobile-for-development/wp-content/uploads/2020/xx.xx/Clean_Tech_Report_R_WebSingles.xx.xx.pdf))

5. China Tower - 2025 Annual Results, March 18, 2026

   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))

6. Broadband Commission - The State of Broadband: Our Digital World, 2025

   · Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))

7. Battery Backup - Meriwether Lewis Electric Cooperative

   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))

8. EnerSys 2026 Proxy Statement and Annual Report

   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))

9. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
10. Amara Raja Energy & Mobility - Q2/H1 FY2026 Earnings Presentation, November 6, 2025
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand. ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))
11. IHS Holding Limited - First-Quarter 2026 Financial Statements
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement. ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))
12. Ofcom - Your Landline Is Going Digital: What You Need to Know
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
   · Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
13. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue. ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
   · Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions. ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: More than xx.xx% weak/off-grid project exposure constrains service-cohort concentration, not the global grid mix.
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: More than xx.xx% weak/off-grid project exposure constrains service-cohort concentration, not the global grid mix.
   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: The project confirms disconnected-site commercial demand; its weak/off-grid combined statistic does not separate those categories.
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The project confirms disconnected-site commercial demand; its weak/off-grid combined statistic does not separate those categories.

14. Fingrid - How to Participate in the Reserve Markets
- Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue.
([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))

15. Helios Towers - Full Year Results 2025, March 12, 2026
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Grid-integration investment supplies a connection-improvement counterforce used conditionally in the forecast.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Grid-integration investment supplies a connection-improvement counterforce used conditionally in the forecast.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Reported xx.xx-hour average daily grid availability supports weak-grid commercial exposure, without a global classification share.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Reported xx.xx-hour average daily grid availability supports weak-grid commercial exposure, without a global classification share.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Grid integration and alternative-power investment qualify assumptions of permanently unchanged disconnected-site exposure.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Grid integration and alternative-power investment qualify assumptions of permanently unchanged disconnected-site exposure.

16.1. Reliable Grid

Table 196. Global Telecom Battery Backup System Market Size, by Reliable Grid, by Region, 2017-2032 (USD Million)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 197. Global Telecom Battery Backup System Market Size, by Reliable Grid, by Group, 2017-2032 (USD Million)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 198. Global Telecom Battery Backup System Market Size, by Reliable Grid, by Country, 2017-2032 (USD Million)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. IFC - Investing in Sustainable Access to Communications: The Role of Telecom Energy Services Companies, September 2021

   · Taxonomy evidence: Good-grid is defined using the study's daily-outage cutoff, not a universally comparable reliability benchmark.
   ([ifc.org](https://www.ifc.org/content/dam/ifc/doc/mgrt/tesco-study-web-xx.xx-xx.xx-xx.xx-final.pdf))

2. GSMA - Renewable Energy for Mobile Towers: Opportunities for Low- and Middle-Income Countries, September 2020

· Taxonomy evidence: Good-grid is an explicit context in the report's telecom energy-management classification. ([gsma.com](https://www.gsma.com/solutions-and-impact/connectivity-for-good/mobile-for-development/wp-content/uploads/2020/xx.xx/Clean_Tech_Report_R_WebSingles.xx.xx.pdf))

3. China Tower - 2025 Annual Results, March 18, 2026

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China's spending cycle is retained as a counterforce in the regional forecast.

4. Broadband Commission - The State of Broadband: Our Digital World, 2025

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))

5. Battery Backup - Meriwether Lewis Electric Cooperative

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))

6. EnerSys 2026 Proxy Statement and Annual Report

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))

7. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom-specific sales weakness is a purchasing-cycle counterforce, not a measure of all Asian backup-system demand.

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom application revenue provides counterevidence to extrapolating broad energy-storage growth into China's backup forecast.

8. Amara Raja Energy & Mobility - Q2/H1 FY2026 Earnings Presentation, November 6, 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand. ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))

9. IHS Holding Limited - First-Quarter 2026 Financial Statements

   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement.
   ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

10. Ofcom - Mobile RAN Power Resilience: Technical Report and CFI Update, February 2025

    · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue.
    ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

    · Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation.
    ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

    · Evidence informing base-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

    · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

    · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Jurisdiction-specific resilience economics qualify a uniform Europe-wide demand uplift.

11. Ofcom - Your Landline Is Going Digital: What You Need to Know

    · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool.
    ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

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    · Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue.
    ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))

    · Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions.
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([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))

14. China Tower announces 2025 annual results - March 18, 2026
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
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15. Government of India, Department of Telecommunications - Telecom Statistics India 2025, international comparison tables
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
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- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.

16. American Tower Corporation - Annual Report on Form 10-K for 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
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    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
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    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
17. Cellnex - Integrated Annual Report 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
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    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
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    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.
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18. IHS Holding Limited - Annual Report on Form 20-F for 2024
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
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    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
19. Australian Government - Mobile Network Hardening Program
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The limited Australian program qualifies extrapolation of resilience funding across Asia-Pacific.
20. CPUC Requires Wireless Companies to Better Serve Customers in Emergencies - July 16, 2020
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    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
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    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The information request seeks evidence on possible backup requirements and customer equipment costs; it is not an enacted national procurement program.
22. FCC - Internet Access Services: Status as of December 31, 2024, official state-government-hosted copy
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
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    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: High mature-market fibre adoption is retained as a saturation counterforce to the purchasing forecast.

24. Helios Towers - Full Year Results 2025, March 12, 2026

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Grid-integration investment supplies a connection-improvement counterforce used conditionally in the forecast.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Grid-integration investment supplies a connection-improvement counterforce used conditionally in the forecast.

16.2. Unreliable Grid

Table 199. Global Telecom Battery Backup System Market Size, by Unreliable Grid, by Region, 2017-2032 (USD Million)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 200. Global Telecom Battery Backup System Market Size, by Unreliable Grid, by Group, 2017-2032 (USD Million)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 201. Global Telecom Battery Backup System Market Size, by Unreliable Grid, by Country, 2017-2032 (USD Million)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

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   · Taxonomy evidence: Bad-grid denotes connected sites with prolonged daily supply outages under the study's definition.
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   · Taxonomy evidence: Bad-grid identifies connected sites with unreliable supply; the report's historical outage cutoff is not adopted as a universal rule.
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3. China Tower - 2025 Annual Results, March 18, 2026
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
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4. Broadband Commission - The State of Broadband: Our Digital World, 2025
   - Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))
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   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom application revenue provides counterevidence to extrapolating broad energy-storage growth into China's backup forecast.
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    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
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    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
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20. CPUC Requires Wireless Companies to Better Serve Customers in Emergencies - July 16, 2020
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
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    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The information request seeks evidence on possible backup requirements and customer equipment costs; it is not an enacted national procurement program.
22. FCC - Internet Access Services: Status as of December 31, 2024, official state-government-hosted copy
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    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Latin American fibre migration supports a conditional fixed-access expansion premise, not automatic battery attachment.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: High mature-market fibre adoption is retained as a saturation counterforce to the purchasing forecast.

24. Helios Towers - Full Year Results 2025, March 12, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Reported xx.xx-hour average daily grid availability supports weak-grid commercial exposure, without a global classification share.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Reported xx.xx-hour average daily grid availability supports weak-grid commercial exposure, without a global classification share.

16.3. Off-Grid

Table 202. Global Telecom Battery Backup System Market Size, by Off-Grid, by Region, 2017-2032 (USD Million)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 203. Global Telecom Battery Backup System Market Size, by Off-Grid, by Group, 2017-2032 (USD Million)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 204. Global Telecom Battery Backup System Market Size, by Off-Grid, by Country, 2017-2032 (USD Million)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

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   · Taxonomy evidence: Off-grid identifies telecom sites without a national-grid connection, separately from connected sites receiving unreliable electricity. ([gsma.com](https://www.gsma.com/solutions-and-impact/connectivity-for-good/mobile-for-development/wp-content/uploads/2020/xx.xx/Clean_Tech_Report_R_WebSingles.xx.xx.pdf))

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- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.
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    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: High mature-market fibre adoption is retained as a saturation counterforce to the purchasing forecast.

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17. Telecom Battery Backup System Market, by Backup Duty

[redacted] EnerSys positions PowerSafe SBS for telecom and describes both float and cyclic applications; this portfolio description does not establish an individual customer's exclusive reserve duty. Buyers requiring dedicated continuity should make permitted uses and associated maintenance and warranty responsibilities explicit rather than infer exclusivity from a backup label.

Backup with Energy Management has a documented commercial implementation. [redacted] The Finnish deployment establishes a specific implementation, not transferable access or guaranteed outcomes elsewhere.

Figure 28. Global Telecom Battery Backup System Market Size, by Backup Duty, 2025 (%)

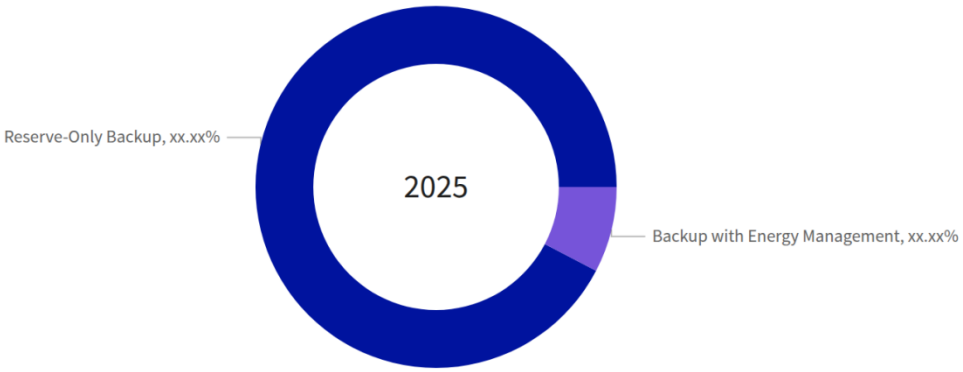

Figure 29. Global Telecom Battery Backup System Market, by Backup Duty, 2032 (USD Million)

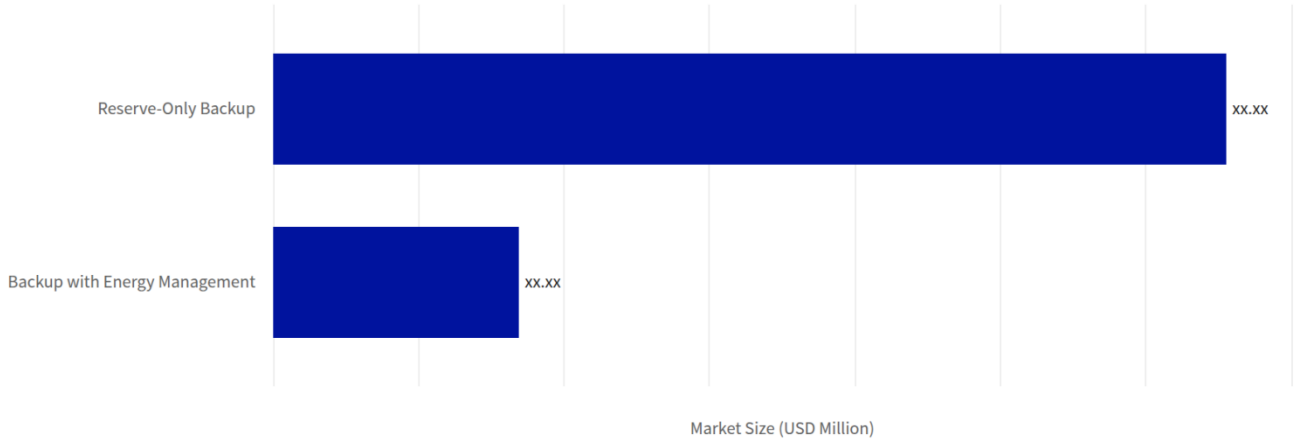

Table 205. Global Telecom Battery Backup System Market, by Backup Duty growth contribution, 2025-2032

Category	2025 value (USD Million)	2032 value (USD Million)	Added value (USD Million)	2025 share (%)	2032 share (%)	Change (pp)	Growth share (%)	CAGR (%)
Backup with Energy Management	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reserve-Only Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scope total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 206. Global Telecom Battery Backup System Market Size, by Backup Duty, 2017-2032 (USD Million)

Backup Duty	2023	2024	2025	2026	2027	2032	CAGR (%)
Backup with Energy Management	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reserve-Only Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

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1. PowerSafe SBS Batteries | EnerSys

   · EnerSys describes PowerSafe SBS for float and cyclic applications; that portfolio positioning does not establish a customer's exclusive reserve-use contract. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-sbs/))

2. How to participate in the reserve markets | Fingrid

· Fingrid requires applicable owner permission, reserve-product agreements, and specified settlement arrangements, and allows service-provider assistance without waiving participation requirements. ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue. ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Applicable owner permission and market agreements are commercial access gates. They constrain forecast mixed-duty adoption without measuring its Global percentage. ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))

3. DNA Tower becomes world's first tower company to offer battery capacity in electricity reserve markets with Elisa DES

· Elisa Industriq's June xx.xx 2025 announcement reports DNA Tower Finland's base-station batteries connected to Finnish reserve markets and retaining an outage-continuity role; no comparative priority or guaranteed-outcome claim is adopted. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/press-releases/dna-tower-becomes-worlds-first-tower-company-to-offer-battery-capacity-in-electricity-reserve-markets-with-elisa-des))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The June xx.xx 2025 announcement reports DNA Tower batteries connected to Finnish reserve markets while retaining outage continuity. This establishes a specific mixed-duty implementation, not Global attachment or guaranteed returns. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/press-releases/dna-tower-becomes-worlds-first-tower-company-to-offer-battery-capacity-in-electricity-reserve-markets-with-elisa-des))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The June xx.xx 2025 announcement reports DNA Tower batteries connected to Finnish reserve markets while retaining outage continuity. This establishes a specific mixed-duty implementation, not Global attachment or guaranteed returns. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/press-releases/dna-tower-becomes-worlds-first-tower-company-to-offer-battery-capacity-in-electricity-reserve-markets-with-elisa-des))

4. China Tower - 2025 Annual Results, March 18, 2026

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))

5. Broadband Commission - The State of Broadband: Our Digital World, 2025

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))

6. Battery Backup - Meriwether Lewis Electric Cooperative

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))

7. EnerSys 2026 Proxy Statement and Annual Report

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate.
([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))

8. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

9. Amara Raja Energy & Mobility - Q2/H1 FY2026 Earnings Presentation, November 6, 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand.
([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))

10. IHS Holding Limited - First-Quarter 2026 Financial Statements

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement.
([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

11. Ofcom - Mobile RAN Power Resilience: Technical Report and CFI Update, February 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

12. Ofcom - Your Landline Is Going Digital: What You Need to Know

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool.
([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate.
([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

13. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone
    - Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue. ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
    - Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions. ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
14. Case Elisa: Virtual Power Plant in the Telecom Industry
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The company case reports over 2,000 aggregated sites and approximately xx.xx MWh. This is an installed commercial scale check, not annual purchasing value or Global prevalence. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/customer-stories/elisacase))

17.1. Reserve-Only Backup

Table 207. Global Telecom Battery Backup System Market Size, by Reserve-Only Backup, by Region, 2017-2032 (USD Million)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 208. Global Telecom Battery Backup System Market Size, by Reserve-Only Backup, by Group, 2017-2032 (USD Million)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 209. Global Telecom Battery Backup System Market Size, by Reserve-Only Backup, by Country, 2017-2032 (USD Million)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. Battery Backup - Meriwether Lewis Electric Cooperative

   · Taxonomy evidence: Outage continuity is the stated purpose; exclusive reserve duty is not expressly established. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))

   · Taxonomy evidence: The advertised purpose is outage continuity; exclusivity of reserve duty is not expressly established. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))

   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))

2. China Tower - 2025 Annual Results, March 18, 2026
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))
   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China's spending cycle is retained as a counterforce in the regional forecast.
3. Broadband Commission - The State of Broadband: Our Digital World, 2025
   · Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))
4. EnerSys 2026 Proxy Statement and Annual Report
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))
5. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom-specific sales weakness is a purchasing-cycle counterforce, not a measure of all Asian backup-system demand.
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom application revenue provides counterevidence to extrapolating broad energy-storage growth into China's backup forecast.
6. Amara Raja Energy & Mobility - Q2/H1 FY2026 Earnings Presentation, November 6, 2025
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand. ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))
7. IHS Holding Limited - First-Quarter 2026 Financial Statements
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement. ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

8. Ofcom - Mobile RAN Power Resilience: Technical Report and CFI Update, February 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Jurisdiction-specific resilience economics qualify a uniform Europe-wide demand uplift.

9. Ofcom - Your Landline Is Going Digital: What You Need to Know

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool.
([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate.
([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

10. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue.
([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))

· Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions.
([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))

11. Fingrid - How to Participate in the Reserve Markets

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue.
([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))

12. China Tower announces 2025 annual results - March 18, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.
13. Government of India, Department of Telecommunications - Telecom Statistics India 2025, international comparison tables
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Wireless and fixed-access customer pools are distinguished in the country model.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Wireless and fixed-access customer pools are distinguished in the country model.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.

14. American Tower Corporation - Annual Report on Form 10-K for 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
15. Cellnex - Integrated Annual Report 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.

16. IHS Holding Limited - Annual Report on Form 20-F for 2024
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
17. Australian Government - Mobile Network Hardening Program
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The limited Australian program qualifies extrapolation of resilience funding across Asia-Pacific.
18. CPUC Requires Wireless Companies to Better Serve Customers in Emergencies - July 16, 2020
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
19. CRTC - Request for Information on Telecommunications Network Resiliency, May 12, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The information request seeks evidence on possible backup requirements and customer equipment costs; it is not an enacted national procurement program.
20. FCC - Internet Access Services: Status as of December 31, 2024, official state-government-hosted copy
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
21. OECD - High-capacity broadband networks gain ground across OECD, October 13, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Observed mature-market connectivity growth and differing fibre/5G adoption constrain replacement and expansion assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Latin American fibre migration supports a conditional fixed-access expansion premise, not automatic battery attachment.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: High mature-market fibre adoption is retained as a saturation counterforce to the purchasing forecast.

17.2. Backup with Energy Management

Table 210. Global Telecom Battery Backup System Market Size, by Backup with Energy Management, by Region, 2017-2032 (USD Million)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 211. Global Telecom Battery Backup System Market Size, by Backup with Energy Management, by Group, 2017-2032 (USD Million)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 212. Global Telecom Battery Backup System Market Size, by Backup with Energy Management, by Country, 2017-2032 (USD Million)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. ETSI EN 302 099 V2.2.1 (2021-02) - Powering of Equipment in Access Network

   · Taxonomy evidence: The standard describes batteries providing additional power during heavy traffic, recognizing a duty beyond outage reserve. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))

   · Taxonomy evidence: Batteries can supplement telecom power during heavy traffic, supporting an additional duty beyond outage reserve. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))

2. China Tower - 2025 Annual Results, March 18, 2026

   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))

   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.

   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.

   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China's spending cycle is retained as a counterforce in the regional forecast.

3. Broadband Commission - The State of Broadband: Our Digital World, 2025
   · Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))
4. Battery Backup - Meriwether Lewis Electric Cooperative
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
5. EnerSys 2026 Proxy Statement and Annual Report
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))
6. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom-specific sales weakness is a purchasing-cycle counterforce, not a measure of all Asian backup-system demand.
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom application revenue provides counterevidence to extrapolating broad energy-storage growth into China's backup forecast.
7. Amara Raja Energy & Mobility - Q2/H1 FY2026 Earnings Presentation, November 6, 2025
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand. ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))
8. IHS Holding Limited - First-Quarter 2026 Financial Statements
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement. ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

9. Ofcom - Mobile RAN Power Resilience: Technical Report and CFI Update, February 2025

   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue.
   ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

   · Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation.
   ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Jurisdiction-specific resilience economics qualify a uniform Europe-wide demand uplift.

10. Ofcom - Your Landline Is Going Digital: What You Need to Know

    · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool.
    ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

    · Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate.
    ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

11. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone

    · Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue.
    ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))

    · Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions.
    ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))

12. Fingrid - How to Participate in the Reserve Markets

    · Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue.
    ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))

    · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Applicable owner permission and market agreements are commercial access gates. They constrain forecast mixed-duty adoption without measuring its Global percentage.
    ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))

13. China Tower announces 2025 annual results - March 18, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.
14. Government of India, Department of Telecommunications - Telecom Statistics India 2025, international comparison tables
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Wireless and fixed-access customer pools are distinguished in the country model.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Wireless and fixed-access customer pools are distinguished in the country model.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.

15. American Tower Corporation - Annual Report on Form 10-K for 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
16. Cellnex - Integrated Annual Report 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.

17. IHS Holding Limited - Annual Report on Form 20-F for 2024
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
18. Australian Government - Mobile Network Hardening Program
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The limited Australian program qualifies extrapolation of resilience funding across Asia-Pacific.
19. CPUC Requires Wireless Companies to Better Serve Customers in Emergencies - July 16, 2020
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
20. CRTC - Request for Information on Telecommunications Network Resiliency, May 12, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The information request seeks evidence on possible backup requirements and customer equipment costs; it is not an enacted national procurement program.
21. FCC - Internet Access Services: Status as of December 31, 2024, official state-government-hosted copy
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
22. OECD - High-capacity broadband networks gain ground across OECD, October 13, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Observed mature-market connectivity growth and differing fibre/5G adoption constrain replacement and expansion assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Latin American fibre migration supports a conditional fixed-access expansion premise, not automatic battery attachment.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: High mature-market fibre adoption is retained as a saturation counterforce to the purchasing forecast.

23. DNA Tower Offers Battery Capacity in Electricity Reserve Markets with Elisa DES
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The June xx.xx 2025 announcement reports DNA Tower batteries connected to Finnish reserve markets while retaining outage continuity. This establishes a specific mixed-duty implementation, not Global attachment or guaranteed returns. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/press-releases/dna-tower-becomes-worlds-first-tower-company-to-offer-battery-capacity-in-electricity-reserve-markets-with-elisa-des))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The June xx.xx 2025 announcement reports DNA Tower batteries connected to Finnish reserve markets while retaining outage continuity. This establishes a specific mixed-duty implementation, not Global attachment or guaranteed returns. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/press-releases/dna-tower-becomes-worlds-first-tower-company-to-offer-battery-capacity-in-electricity-reserve-markets-with-elisa-des))
24. Case Elisa: Virtual Power Plant in the Telecom Industry
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The company case reports over 2,000 aggregated sites and approximately xx.xx MWh. This is an installed commercial scale check, not annual purchasing value or Global prevalence. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/customer-stories/elisacase))

18. Telecom Battery Backup System Market, by Backup Autonomy

[redacted] These are planning options rather than completed purchases or worldwide category boundaries. Separately, UK guidance requires at least one hour of backup for qualifying landline-dependent customers, illustrating how eligibility and the protected service can establish a particular purchasing requirement.

[redacted] A longer advertised duration can therefore reflect a narrower protected service rather than a different or superior offering. Buyers should establish the promised service and declared equipment coverage before comparing duration claims.

Whole-site resilience must not be mistaken for battery-only autonomy. Ofcom's June 2026 guidance identifies approximately four hours as good practice for active fixed-access cabinets at installation, while its five-day core-site expectation combines batteries and generators. [redacted]

Figure 30. Global Telecom Battery Backup System Market Size, by Backup Autonomy, 2025 (%)

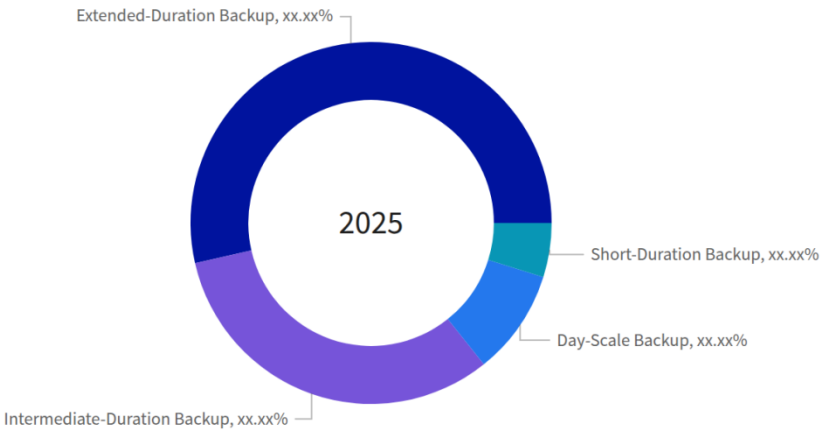

Figure 31. Global Telecom Battery Backup System Market, by Backup Autonomy, 2032 (USD Million)

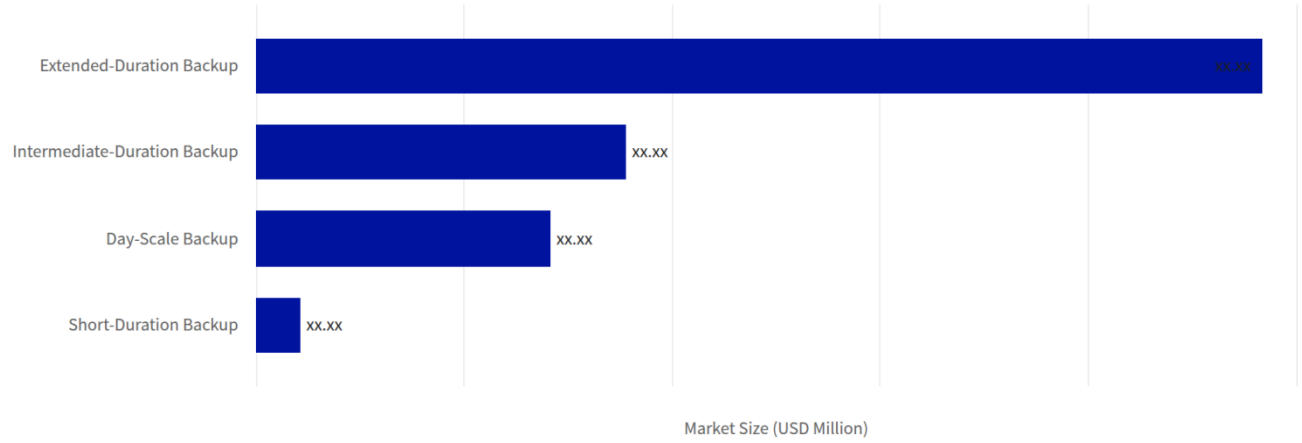

Table 213. Global Telecom Battery Backup System Market, by Backup Autonomy growth contribution, 2025-2032

Category	2025 value (USD Million)	2032 value (USD Million)	Added value (USD Million)	2025 share (%)	2032 share (%)	Change (pp)	Growth share (%)	CAGR (%)
Day-Scale Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Extended-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Intermediate-Duratio n Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Short-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scope total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 214. Global Telecom Battery Backup System Market Size, by Backup Autonomy, 2017-2032 (USD Million)

Backup Autonomy	2023	2024	2025	2026	2027	2032	CAGR (%)
Day-Scale Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Extended-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Intermediate-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Short-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. Network and Service Resilience Guidance for Communications Providers, June 16, 2026

   · The guidance identifies approximately four hours as good practice for active fixed-access cabinets at installation and a minimum five-day core-site expectation involving batteries and generators, not five-day battery-only autonomy. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/network-and-service-resilience-guidance-for-communications-providerspdf?v=xx.xx))

   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: June 2026 guidance identifies approximately four hours as good practice for active fixed-access cabinets. This supports a conditional Extended purchasing shift, not completed orders or a Global mandate. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/network-and-service-resilience-guidance-for-communications-providerspdf?v=xx.xx))

2. Your landline is going digital: what you need to know

   · Ofcom requires free backup lasting at least one hour for qualifying landline-dependent customers without a working mobile phone or reliable mobile signal; the requirement is constituency-specific. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

   · Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: Eligibility-limited provider backup and the one-hour minimum for qualifying customers constrain premises demand and anchor the Intermediate band's lower boundary. They do not establish universal adoption. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Eligibility-limited provider backup and the one-hour minimum for qualifying customers constrain premises demand and anchor the Intermediate band's lower boundary. They do not establish universal adoption. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

3. Battery Backup | Meriwether Lewis Electric Cooperative

- MLConnect advertises xx.xx hours of phone service and approximately five hours when the backup supports both voice and internet. These are offering claims, not comparative field-performance findings. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
- Taxonomy evidence: Disclosed duration changes with the protected service and connected load. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
- Taxonomy evidence: The same unit has different disclosed endurance for voice-only and combined voice-and-internet protection. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
- Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The provider advertises approximately five hours for combined voice and internet, supporting service-specific Extended classification, not an observed 2025 purchase mix. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The provider advertises approximately five hours for combined voice and internet, supporting service-specific Extended classification, not an observed 2025 purchase mix. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The same proposition advertises xx.xx-hour voice-only protection, supporting Day-Scale mapping without equating duration with a universally larger purchase basket. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The same proposition advertises xx.xx-hour voice-only protection, supporting Day-Scale mapping without equating duration with a universally larger purchase basket. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))

4. Mobile RAN power resilience: Technical Report and CFI Update - February 10, 2025

· The report evaluates xx.xx-minute, one-hour, and two-hour battery alternatives. These are planning options, not completed-purchase records or global autonomy-category thresholds. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Taxonomy evidence: The February 2025 regulator report considers battery options of xx.xx minutes, one hour, two hours, and four hours. These are planning alternatives, not a worldwide band standard or completed-purchase record. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Taxonomy evidence: The February 2025 regulator report evaluates battery-backup alternatives lasting xx.xx minutes, one hour, two hours, and four hours. These are studied options, not evidence of completed purchases or global duration bands. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The evaluated xx.xx-minute alternative supplies a subhour commercial-planning anchor, not observed shipments. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The evaluated xx.xx-minute alternative supplies a subhour commercial-planning anchor, not observed shipments. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: One-hour and two-hour alternatives anchor the analytical Intermediate band. Aggregate scenarios include multiple years of operating costs and are not annual battery revenue. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: One-hour and two-hour alternatives anchor the analytical Intermediate band. Aggregate scenarios include multiple years of operating costs and are not annual battery revenue. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The four-hour alternative anchors the Extended band's lower boundary without establishing a Global minimum or purchasing allocation. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The four-hour alternative anchors the Extended band's lower boundary without establishing a Global minimum or

5. Your landline is going digital: what you need to know - Ofcom

   · Taxonomy evidence: The consumer guidance describes at least one hour of backup for eligible landline-dependent customers and notes provider offerings lasting up to seven hours. These UK examples do not establish global bands.
   ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls?SQ_VARIATION_197646=xx.xx))

6. China Tower - 2025 Annual Results, March 18, 2026

   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue.
   ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))

7. Broadband Commission - The State of Broadband: Our Digital World, 2025

   · Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))

8. EnerSys 2026 Proxy Statement and Annual Report

   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate.
   ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))

9. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025

   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

10. Amara Raja Energy & Mobility - Q2/H1 FY2026 Earnings Presentation, November 6, 2025

    · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand.
    ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))

11. IHS Holding Limited - First-Quarter 2026 Financial Statements

    · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement.
    ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

12. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone

    · Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue.
    ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))

    · Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions.
    ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))

13. Fingrid - How to Participate in the Reserve Markets
    - Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue.
    ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))
14. PowerReserve - Verizon Residential Accessories
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Advertised voice-only protection reaches xx.xx hours; internet and television protection are excluded. This supports service-specific Day-Scale classification.
    ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Advertised voice-only protection reaches xx.xx hours; internet and television protection are excluded. This supports service-specific Day-Scale classification.
    ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
15. Set Up Your Battery Backup - AT&T G.Fast Service with BGW210
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The provider advertises a xx.xx-hour service window for the particular package, supporting Day-Scale mapping without a universal premises-duration inference.
    ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The provider advertises a xx.xx-hour service window for the particular package, supporting Day-Scale mapping without a universal premises-duration inference.
    ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

18.1. Extended-Duration Backup

Table 215. Global Telecom Battery Backup System Market Size, by Extended-Duration Backup, by Region, 2017-2032 (USD Million)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 216. Global Telecom Battery Backup System Market Size, by Extended-Duration Backup, by Group, 2017-2032 (USD Million)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 217. Global Telecom Battery Backup System Market Size, by Extended-Duration Backup, by Country, 2017-2032 (USD Million)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. Battery Backup - Meriwether Lewis Electric Cooperative

· Taxonomy evidence: Combined voice-and-Internet protection is described as approximately five hours. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))

· Taxonomy evidence: Combined ONT and gateway protection is described as approximately five hours, an illustrative duration within the modeled band. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The provider advertises approximately five hours for combined voice and internet, supporting service-specific Extended classification, not an observed 2025 purchase mix. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The provider advertises approximately five hours for combined voice and internet, supporting service-specific Extended classification, not an observed 2025 purchase mix. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))

2. Ofcom - Network and Service Resilience Guidance for Communications Providers, June 16, 2026

· Taxonomy evidence: Approximately four hours of backup is described as UK good practice for active fixed-access cabinets; this is not a Global battery-only duration rule. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/network-and-service-resilience-guidance-for-communications-providerspdf?v=xx.xx))

· Taxonomy evidence: The June 2026 guidance regards approximately four hours of backup as good practice for active fixed-access equipment in cabinets at installation. This is UK guidance, not a worldwide minimum. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/network-and-service-resilience-guidance-for-communications-providerspdf?v=xx.xx))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: June 2026 guidance identifies approximately four hours as good practice for active fixed-access cabinets. This supports a conditional Extended purchasing shift, not completed orders or a Global mandate. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/network-and-service-resilience-guidance-for-communications-providerspdf?v=xx.xx))

3. Your landline is going digital: what you need to know - Ofcom

· Taxonomy evidence: The disclosed availability of offerings lasting up to seven hours supplies another illustrative anchor within the modeled extended band. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls?SQ_VARIATION_197646=xx.xx))

4. China Tower - 2025 Annual Results, March 18, 2026

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China's spending cycle is retained as a counterforce in the regional forecast.

5. Broadband Commission - The State of Broadband: Our Digital World, 2025

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))

6. EnerSys 2026 Proxy Statement and Annual Report

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))

7. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom-specific sales weakness is a purchasing-cycle counterforce, not a measure of all Asian backup-system demand.

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom application revenue provides counterevidence to extrapolating broad energy-storage growth into China's backup forecast.

8. Amara Raja Energy & Mobility - Q2/H1 FY2026 Earnings Presentation, November 6, 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand. ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))

9. IHS Holding Limited - First-Quarter 2026 Financial Statements

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement. ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

10. Ofcom - Mobile RAN Power Resilience: Technical Report and CFI Update, February 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Jurisdiction-specific resilience economics qualify a uniform Europe-wide demand uplift.

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The four-hour alternative anchors the Extended band's lower boundary without establishing a Global minimum or purchasing allocation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The four-hour alternative anchors the Extended band's lower boundary without establishing a Global minimum or purchasing allocation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

11. Ofcom - Your Landline Is Going Digital: What You Need to Know

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool.
([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate.
([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

12. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue.
([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))

· Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions.
([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))

13. Fingrid - How to Participate in the Reserve Markets
    - Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue.
    ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))
14. China Tower announces 2025 annual results - March 18, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.
15. Government of India, Department of Telecommunications - Telecom Statistics India 2025, international comparison tables
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Wireless and fixed-access customer pools are distinguished in the country model.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Wireless and fixed-access customer pools are distinguished in the country model.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.

16. American Tower Corporation - Annual Report on Form 10-K for 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
17. Cellnex - Integrated Annual Report 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.

18. IHS Holding Limited - Annual Report on Form 20-F for 2024
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
19. Australian Government - Mobile Network Hardening Program
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The limited Australian program qualifies extrapolation of resilience funding across Asia-Pacific.
20. CPUC Requires Wireless Companies to Better Serve Customers in Emergencies - July 16, 2020
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
21. CRTC - Request for Information on Telecommunications Network Resiliency, May 12, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The information request seeks evidence on possible backup requirements and customer equipment costs; it is not an enacted national procurement program.
22. FCC - Internet Access Services: Status as of December 31, 2024, official state-government-hosted copy
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
23. OECD - High-capacity broadband networks gain ground across OECD, October 13, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Observed mature-market connectivity growth and differing fibre/5G adoption constrain replacement and expansion assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Latin American fibre migration supports a conditional fixed-access expansion premise, not automatic battery attachment.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: High mature-market fibre adoption is retained as a saturation counterforce to the purchasing forecast.

18.2. Intermediate-Duration Backup

Table 218. Global Telecom Battery Backup System Market Size, by Intermediate-Duration Backup, by Region, 2017-2032 (USD Million)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 219. Global Telecom Battery Backup System Market Size, by Intermediate-Duration Backup, by Group, 2017-2032 (USD Million)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 220. Global Telecom Battery Backup System Market Size, by Intermediate-Duration Backup, by Country, 2017-2032 (USD Million)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. Ofcom - Mobile RAN Power Resilience: Technical Report and CFI Update, February 2025

   · Taxonomy evidence: The one-hour and two-hour options supply anchors within the modeled intermediate band.
   ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

   · Taxonomy evidence: Evaluated one-hour and two-hour alternatives supply anchors within the modeled intermediate band.
   ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue.
   ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

   · Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation.
   ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Jurisdiction-specific resilience economics qualify a uniform Europe-wide demand uplift.

   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: One-hour and two-hour alternatives anchor the analytical Intermediate band. Aggregate scenarios include multiple years of operating costs and are not annual battery revenue.
   ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: One-hour and two-hour alternatives anchor the analytical Intermediate band. Aggregate scenarios include multiple years of operating costs and are not annual battery revenue.
   ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

2. Your landline is going digital: what you need to know - Ofcom

   · Taxonomy evidence: The one-hour minimum is an anchor at the modeled intermediate band's lower boundary.
   ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls?SQ_VARIATION_197646=xx.xx))

3. China Tower - 2025 Annual Results, March 18, 2026
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China's spending cycle is retained as a counterforce in the regional forecast.
4. Broadband Commission - The State of Broadband: Our Digital World, 2025
   - Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))
5. Battery Backup - Meriwether Lewis Electric Cooperative
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
6. EnerSys 2026 Proxy Statement and Annual Report
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))
7. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom-specific sales weakness is a purchasing-cycle counterforce, not a measure of all Asian backup-system demand.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom application revenue provides counterevidence to extrapolating broad energy-storage growth into China's backup forecast.
8. Amara Raja Energy & Mobility - Q2/H1 FY2026 Earnings Presentation, November 6, 2025
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand. ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))
9. IHS Holding Limited - First-Quarter 2026 Financial Statements
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement. ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

10. Ofcom - Your Landline Is Going Digital: What You Need to Know
    - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
    - Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Eligibility-limited provider backup and the one-hour minimum for qualifying customers constrain premises demand and anchor the Intermediate band's lower boundary. They do not establish universal adoption. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Eligibility-limited provider backup and the one-hour minimum for qualifying customers constrain premises demand and anchor the Intermediate band's lower boundary. They do not establish universal adoption. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
11. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone
    - Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue. ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
    - Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions. ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
12. Fingrid - How to Participate in the Reserve Markets
    - Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue. ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))
13. China Tower announces 2025 annual results - March 18, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.

14. Government of India, Department of Telecommunications - Telecom Statistics India 2025, international comparison tables

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Wireless and fixed-access customer pools are distinguished in the country model.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Wireless and fixed-access customer pools are distinguished in the country model.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.

15. American Tower Corporation - Annual Report on Form 10-K for 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
16. Cellnex - Integrated Annual Report 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.

17. IHS Holding Limited - Annual Report on Form 20-F for 2024
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
18. Australian Government - Mobile Network Hardening Program
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The limited Australian program qualifies extrapolation of resilience funding across Asia-Pacific.
19. CPUC Requires Wireless Companies to Better Serve Customers in Emergencies - July 16, 2020
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
20. CRTC - Request for Information on Telecommunications Network Resiliency, May 12, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The information request seeks evidence on possible backup requirements and customer equipment costs; it is not an enacted national procurement program.
21. FCC - Internet Access Services: Status as of December 31, 2024, official state-government-hosted copy
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
22. OECD - High-capacity broadband networks gain ground across OECD, October 13, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Observed mature-market connectivity growth and differing fibre/5G adoption constrain replacement and expansion assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Latin American fibre migration supports a conditional fixed-access expansion premise, not automatic battery attachment.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: High mature-market fibre adoption is retained as a saturation counterforce to the purchasing forecast.

18.3. Day-Scale Backup

Table 221. Global Telecom Battery Backup System Market Size, by Day-Scale Backup, by Region, 2017-2032 (USD Million)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 222. Global Telecom Battery Backup System Market Size, by Day-Scale Backup, by Group, 2017-2032 (USD Million)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 223. Global Telecom Battery Backup System Market Size, by Day-Scale Backup, by Country, 2017-2032 (USD Million)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. Battery Backup - Meriwether Lewis Electric Cooperative

- Taxonomy evidence: Voice-only ONT protection is described as xx.xx hours. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
- Taxonomy evidence: Voice-only ONT protection is described as xx.xx hours, a commercial anchor for the modeled day-scale category. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
- Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The same proposition advertises xx.xx-hour voice-only protection, supporting Day-Scale mapping without equating duration with a universally larger purchase basket. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The same proposition advertises xx.xx-hour voice-only protection, supporting Day-Scale mapping without equating duration with a universally larger purchase basket. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))

2. China Tower - 2025 Annual Results, March 18, 2026
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))
   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
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   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China's spending cycle is retained as a counterforce in the regional forecast.
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   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))
5. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom-specific sales weakness is a purchasing-cycle counterforce, not a measure of all Asian backup-system demand.
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom application revenue provides counterevidence to extrapolating broad energy-storage growth into China's backup forecast.
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   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand. ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))
7. IHS Holding Limited - First-Quarter 2026 Financial Statements
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement. ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

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· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

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· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool.
([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

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10. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue.
([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))

· Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions.
([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))

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· Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue.
([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))

12. China Tower announces 2025 annual results - March 18, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
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    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.
13. Government of India, Department of Telecommunications - Telecom Statistics India 2025, international comparison tables
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
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    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
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    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Wireless and fixed-access customer pools are distinguished in the country model.
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    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.
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    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
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    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
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    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
15. Cellnex - Integrated Annual Report 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
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    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.

16. IHS Holding Limited - Annual Report on Form 20-F for 2024
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
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    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
17. Australian Government - Mobile Network Hardening Program
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The limited Australian program qualifies extrapolation of resilience funding across Asia-Pacific.
18. CPUC Requires Wireless Companies to Better Serve Customers in Emergencies - July 16, 2020
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
19. CRTC - Request for Information on Telecommunications Network Resiliency, May 12, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The information request seeks evidence on possible backup requirements and customer equipment costs; it is not an enacted national procurement program.
20. FCC - Internet Access Services: Status as of December 31, 2024, official state-government-hosted copy
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
21. OECD - High-capacity broadband networks gain ground across OECD, October 13, 2026
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    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Latin American fibre migration supports a conditional fixed-access expansion premise, not automatic battery attachment.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: High mature-market fibre adoption is retained as a saturation counterforce to the purchasing forecast.

22. PowerReserve - Verizon Residential Accessories
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Advertised voice-only protection reaches xx.xx hours; internet and television protection are excluded. This supports service-specific Day-Scale classification. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Advertised voice-only protection reaches xx.xx hours; internet and television protection are excluded. This supports service-specific Day-Scale classification. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
23. Set Up Your Battery Backup - AT&T G.Fast Service with BGW210
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The provider advertises a xx.xx-hour service window for the particular package, supporting Day-Scale mapping without a universal premises-duration inference. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The provider advertises a xx.xx-hour service window for the particular package, supporting Day-Scale mapping without a universal premises-duration inference. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

18.4. Short-Duration Backup

Table 224. Global Telecom Battery Backup System Market Size, by Short-Duration Backup, by Region, 2017-2032 (USD Million)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 225. Global Telecom Battery Backup System Market Size, by Short-Duration Backup, by Group, 2017-2032 (USD Million)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 226. Global Telecom Battery Backup System Market Size, by Short-Duration Backup, by Country, 2017-2032 (USD Million)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

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· Taxonomy evidence: The considered xx.xx-minute battery option supplies a public planning anchor for subhour autonomy. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Taxonomy evidence: The evaluated xx.xx-minute battery option supplies a public commercial-planning anchor for subhour autonomy. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

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· Evidence informing base-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Jurisdiction-specific resilience economics qualify a uniform Europe-wide demand uplift.

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   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China's spending cycle is retained as a counterforce in the regional forecast.
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   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom application revenue provides counterevidence to extrapolating broad energy-storage growth into China's backup forecast.
7. Amara Raja Energy & Mobility - Q2/H1 FY2026 Earnings Presentation, November 6, 2025
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand. ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))
8. IHS Holding Limited - First-Quarter 2026 Financial Statements
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement. ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

9. Ofcom - Your Landline Is Going Digital: What You Need to Know
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
   - Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
10. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue. ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
   - Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions. ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
11. Fingrid - How to Participate in the Reserve Markets
   - Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue. ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))
12. China Tower announces 2025 annual results - March 18, 2026
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.

13. Government of India, Department of Telecommunications - Telecom Statistics India 2025, international comparison tables

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
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- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
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- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Wireless and fixed-access customer pools are distinguished in the country model.
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- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.

14. American Tower Corporation - Annual Report on Form 10-K for 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
15. Cellnex - Integrated Annual Report 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.

16. IHS Holding Limited - Annual Report on Form 20-F for 2024
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
17. Australian Government - Mobile Network Hardening Program
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The limited Australian program qualifies extrapolation of resilience funding across Asia-Pacific.
18. CPUC Requires Wireless Companies to Better Serve Customers in Emergencies - July 16, 2020
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
19. CRTC - Request for Information on Telecommunications Network Resiliency, May 12, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The information request seeks evidence on possible backup requirements and customer equipment costs; it is not an enacted national procurement program.
20. FCC - Internet Access Services: Status as of December 31, 2024, official state-government-hosted copy
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
21. OECD - High-capacity broadband networks gain ground across OECD, October 13, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Observed mature-market connectivity growth and differing fibre/5G adoption constrain replacement and expansion assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Latin American fibre migration supports a conditional fixed-access expansion premise, not automatic battery attachment.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: High mature-market fibre adoption is retained as a saturation counterforce to the purchasing forecast.

19. Telecom Battery Backup System Market, by Region

[redacted] Battery suppliers should pursue the awarded operator's defined procurement package, not assume that government funding creates a battery-only order. Awarded work provides a concrete purchasing context, but equipment acceptance and delivery remain separate conditions; the Australian program does not establish equivalent requirements in China, India, Indonesia, or Japan.

North America requires a distinction between enacted location-specific obligations and regulatory proposals. [redacted] A consultation question is not an awarded replacement program, and neither document establishes one purchasing specification across the United States, Canada, and Mexico.

[redacted] This differs from an integrated tower-power service relationship. The historical company example is not a regional contract rule; a subsequently revised power-service agreement would change the appropriate counterparty.

Europe separates network continuity accountability from battery-product accountability. Ofcom's June 2026 guidance retains UK communications-provider responsibility for network portions operated by third parties. [redacted]

[redacted]

Selling through the responsible service counterparty may align fulfillment, while direct supply preserves the customer's supplier choice. The announced renewal does not establish the relationship's present term or equivalent arrangements elsewhere in the region.

Africa contains contrasting power-service allocations even within one infrastructure group. IHS's first-quarter 2026 statements describe Nigerian power indexation and the unwinding of a South African power managed-services arrangement. ▪▪ ▪▪▪ ▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪ ▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪ ▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪ ▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪ ▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪ ▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪

Figure 32. Global Telecom Battery Backup System Market, by Region: Market share evolution, 2025-2032

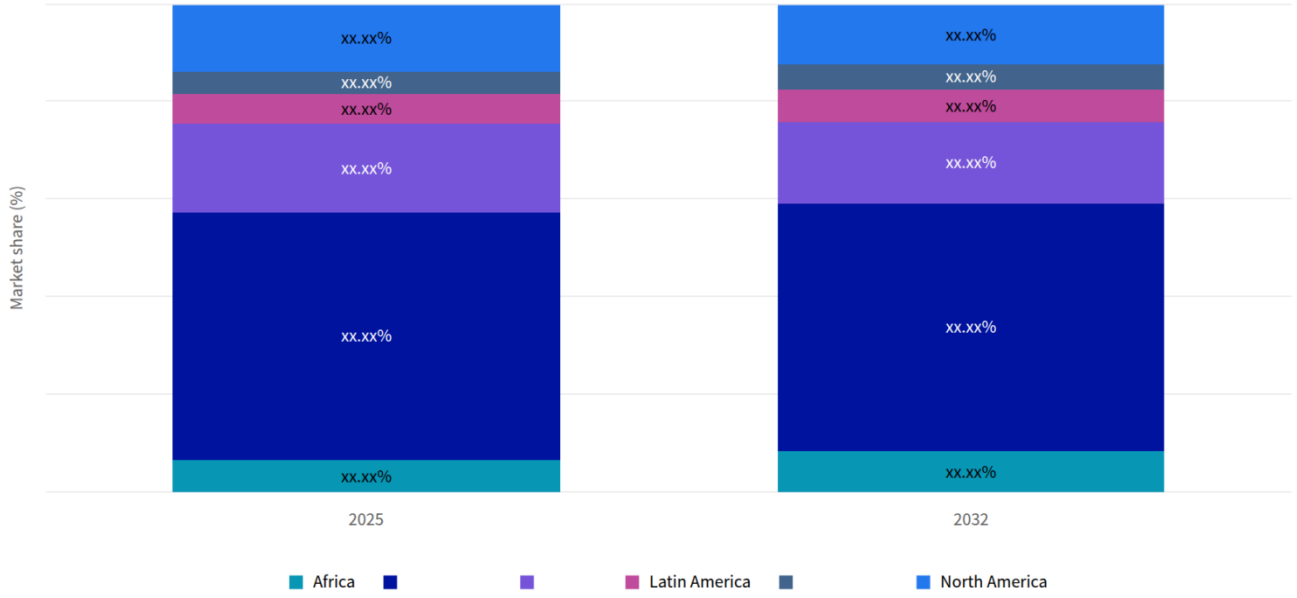

Figure 33. Global Telecom Battery Backup System Market, by Region: Market size by category, 2025

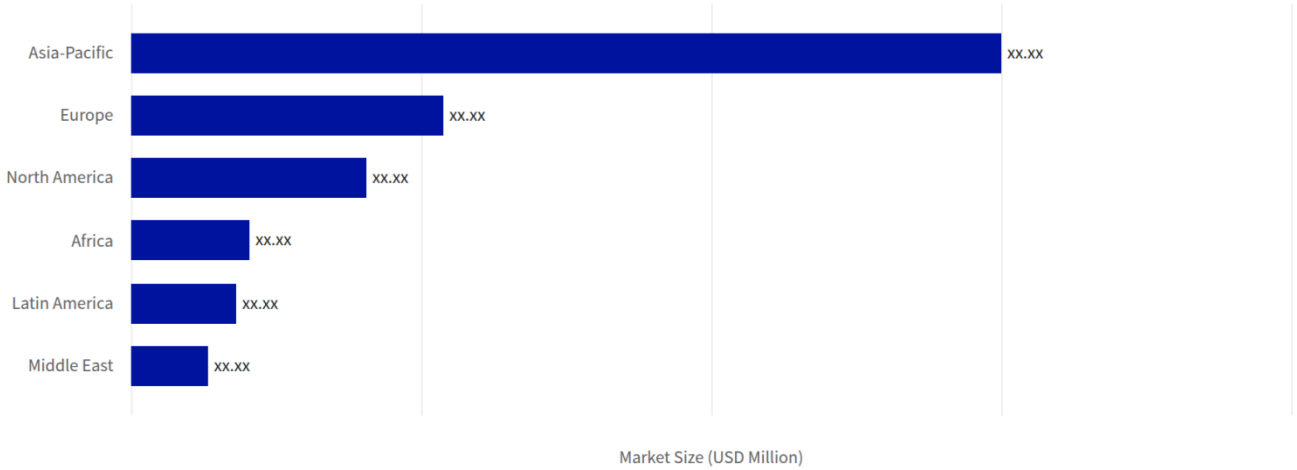

Figure 34. Global Telecom Battery Backup System Market, Regional growth by Installation Environment, 2025-2032 (CAGR %)

Table 227. Global Telecom Battery Backup System Market, by Region growth contribution, 2025-2032

Category	2025 value (USD Million)	2032 value (USD Million)	Added value (USD Million)	2025 share (%)	2032 share (%)	Change (pp)	Growth share (%)	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scope total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 228. Global Telecom Battery Backup System Market Size, by Region, 2017-2032 (USD Million)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. Network and Service Resilience Guidance for Communications Providers, June 16, 2026
   - Ofcom's June 2026 guidance retains provider responsibility for operational network portions run through third-party arrangements.
2. IHS Holding Limited First-Quarter 2026 Financial Statements
   - IHS's first-quarter 2026 statements describe Nigerian power indexation and the unwinding of the South African power managed-services arrangement.
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement. ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))
3. CPUC Requires Wireless Companies to Better Serve Customers in Emergencies
   - California's July xx.xx 2020 action required backup power for minimum service in specified high-fire-threat districts and broader resilience planning.
4. Digital Product Passport for Batteries | European Commission
   - The Commission assigns passport accountability to the operator placing the finished battery on the EU market.
5. Mobile Network Hardening Program
   - The Australian program identifies Optus and Telstra battery upgrades alongside other resilience measures; this supports operator-specific procurement analysis, not region-wide requirements.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The limited Australian program qualifies extrapolation of resilience funding across Asia-Pacific.
6. Telecom Staff Letter: Request for Information on Telecommunications Network Resiliency
   - The May xx.xx 2026 CRTC information request asks about possible mandatory backup requirements; the request itself does not establish those requirements.
7. IHS Holding Limited Annual Report on Form 20-F for 2024
   - IHS's 2024 annual report assigns power provision to customers under its Latin American operating model and discusses Brazil and Colombia.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
8. TAWAL and Ericsson Extend Partnership to Deliver Sustainable and Efficient Telecom Infrastructure in Saudi Arabia
   - The May xx.xx 2023 TAWAL-Ericsson renewal covered operations management and energy modernization in Saudi Arabia; it is a dated relationship, not proof of present contract terms.
9. China Tower - 2025 Annual Results, March 18, 2026
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China's spending cycle is retained as a counterforce in the regional forecast.

10. Broadband Commission - The State of Broadband: Our Digital World, 2025

    · Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))

11. Battery Backup - Meriwether Lewis Electric Cooperative

    · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))

12. EnerSys 2026 Proxy Statement and Annual Report

    · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))

13. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025

    · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

    · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom-specific sales weakness is a purchasing-cycle counterforce, not a measure of all Asian backup-system demand.

14. Amara Raja Energy & Mobility - Q2/H1 FY2026 Earnings Presentation, November 6, 2025

    · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand. ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))

15. Ofcom - Mobile RAN Power Resilience: Technical Report and CFI Update, February 2025

    · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

    · Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

    · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Jurisdiction-specific resilience economics qualify a uniform Europe-wide demand uplift.

16. Ofcom - Your Landline Is Going Digital: What You Need to Know
    - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
    - Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
17. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone
    - Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue. ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
    - Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions. ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
18. Fingrid - How to Participate in the Reserve Markets
    - Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue. ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))
19. China Tower announces 2025 annual results - March 18, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.

20. Government of India, Department of Telecommunications - Telecom Statistics India 2025, international comparison tables
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- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
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21. American Tower Corporation - Annual Report on Form 10-K for 2025
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.

22. Cellnex - Integrated Annual Report 2025
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.

23. OECD - High-capacity broadband networks gain ground across OECD, October 13, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Observed mature-market connectivity growth and differing fibre/5G adoption constrain replacement and expansion assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Latin American fibre migration supports a conditional fixed-access expansion premise, not automatic battery attachment.

19.1. Asia-Pacific

Table 229. Asia-Pacific Telecom Battery Backup System Market, by Country growth contribution, 2025-2032

Category	2025 value (USD Million)	2032 value (USD Million)	Added value (USD Million)	2025 share (%)	2032 share (%)	Change (pp)	Growth share (%)	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Indonesia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Malaysia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Philippines	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Singapore	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Taiwan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Thailand	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Unallocated / remaining scope	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scope total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 230. Asia-Pacific Telecom Battery Backup System Market Size, by Region, 2017-2032 (USD Million)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Indonesia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Malaysia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Philippines	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Singapore	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Taiwan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Thailand	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 231. Asia-Pacific Telecom Battery Backup System Market Size, by Offering, 2017-2032 (USD Million)

Offering	2023	2024	2025	2026	2027	2032	CAGR (%)
Battery Units and Assemblies	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Complete Backup Systems	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 232. Asia-Pacific Telecom Battery Backup System Market Size, by Battery Technology, 2017-2032 (USD Million)

Battery Technology	2023	2024	2025	2026	2027	2032	CAGR (%)
Aqueous Zinc-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Flow Batteries	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lithium-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Metal-Air	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Multi-Chemistry	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Sodium-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 233. Asia-Pacific Telecom Battery Backup System Market Size, by Lead-Acid, 2017-2032 (USD Million)

Lead-Acid	2023	2024	2025	2026	2027	2032	CAGR (%)
Flooded Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Valve-Regulated Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 234. Asia-Pacific Telecom Battery Backup System Market Size, by Valve-Regulated Lead-Acid, 2017-2032 (USD Million)

Valve-Regulated Lead-Acid	2023	2024	2025	2026	2027	2032	CAGR (%)
Absorbent Glass Mat	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Gel	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 235. Asia-Pacific Telecom Battery Backup System Market Size, by Lithium-Based, 2017-2032 (USD Million)

Lithium-Based	2023	2024	2025	2026	2027	2032	CAGR (%)
Lithium-Ion	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lithium-Metal	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 236. Asia-Pacific Telecom Battery Backup System Market Size, by Nickel-Based, 2017-2032 (USD Million)

Nickel-Based	2023	2024	2025	2026	2027	2032	CAGR (%)
Nickel-Cadmium	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Iron	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Metal Hydride	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Zinc	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 237. Asia-Pacific Telecom Battery Backup System Market Size, by Power Interface, 2017-2032 (USD Million)

Power Interface	2023	2024	2025	2026	2027	2032	CAGR (%)
AC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Combined AC/DC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
DC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 238. Asia-Pacific Telecom Battery Backup System Market Size, by Network Application, 2017-2032 (USD Million)

Network Application	2023	2024	2025	2026	2027	2032	CAGR (%)
Core Networks & Network Control	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Customer-Premises Connectivity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Network Interconnection & Peering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Transport & Backhaul Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Wireless Access Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Wireline Access Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 239. Asia-Pacific Telecom Battery Backup System Market Size, by Buyer Type, 2017-2032 (USD Million)

Buyer Type	2023	2024	2025	2026	2027	2032	CAGR (%)
Business & Institutional Connectivity Owners	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Equipment Leasing & Rental Providers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Household Connectivity Purchasers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Energy-Service Providers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Infrastructure & Tower Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecommunications Network Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 240. Asia-Pacific Telecom Battery Backup System Market Size, by Installation Environment, 2017-2032 (USD Million)

Installation Environment	2023	2024	2025	2026	2027	2032	CAGR (%)
Non-Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Underground Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 241. Asia-Pacific Telecom Battery Backup System Market Size, by Weather-Protected Locations, 2017-2032 (USD Million)

Weather-Protected Locations	2023	2024	2025	2026	2027	2032	CAGR (%)
Enclosed Locations Without Temperature Control	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Partly Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Temperature-Controlled Enclosed Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 242. Asia-Pacific Telecom Battery Backup System Market Size, by Non-Weather-Protected Locations, 2017-2032 (USD Million)

Non-Weather-Protected Locations	2023	2024	2025	2026	2027	2032	CAGR (%)
Open-Air Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Sheltered Non-Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 243. Asia-Pacific Telecom Battery Backup System Market Size, by Powering Architecture, 2017-2032 (USD Million)

Powering Architecture	2023	2024	2025	2026	2027	2032	CAGR (%)
Local Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Remote Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 244. Asia-Pacific Telecom Battery Backup System Market Size, by Remote Powering, 2017-2032 (USD Million)

Remote Powering	2023	2024	2025	2026	2027	2032	CAGR (%)
Centralized Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Cluster Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reverse Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 245. Asia-Pacific Telecom Battery Backup System Market Size, by Commercial Delivery Model, 2017-2032 (USD Million)

Commercial Delivery Model	2023	2024	2025	2026	2027	2032	CAGR (%)
Leased or Rented Equipment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Managed Backup Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Owned Equipment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 246. Asia-Pacific Telecom Battery Backup System Market Size, by Sales Channel, 2017-2032 (USD Million)

Sales Channel	2023	2024	2025	2026	2027	2032	CAGR (%)
Direct Manufacturer Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Distributor and Retailer Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Systems Integrator and Contractor Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Service Provider Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 247. Asia-Pacific Telecom Battery Backup System Market Size, by Grid Availability, 2017-2032 (USD Million)

Grid Availability	2023	2024	2025	2026	2027	2032	CAGR (%)
Off-Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reliable Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Unreliable Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 248. Asia-Pacific Telecom Battery Backup System Market Size, by Backup Duty, 2017-2032 (USD Million)

Backup Duty	2023	2024	2025	2026	2027	2032	CAGR (%)
Backup with Energy Management	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reserve-Only Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 249. Asia-Pacific Telecom Battery Backup System Market Size, by Backup Autonomy, 2017-2032 (USD Million)

Backup Autonomy	2023	2024	2025	2026	2027	2032	CAGR (%)
Day-Scale Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Extended-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Intermediate-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Short-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. China Tower - 2025 Annual Results, March 18, 2026
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China's spending cycle is retained as a counterforce in the regional forecast.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The xx.xx.149m-site inventory constrains wireless activity; forecast purchasing remains modeled.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The xx.xx.149m-site inventory constrains wireless activity; forecast purchasing remains modeled.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Replacement/improvement CAPEX fell from RMB6837m to RMB5474m, qualifying automatic replacement-led growth.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Replacement/improvement CAPEX fell from RMB6837m to RMB5474m, qualifying automatic replacement-led growth.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Disclosed tower operations establish a material infrastructure purchasing setting, not a global buyer share.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Disclosed tower operations establish a material infrastructure purchasing setting, not a global buyer share.
2. Broadband Commission - The State of Broadband: Our Digital World, 2025
   - Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))

3. Battery Backup - Meriwether Lewis Electric Cooperative
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Separately available replacement batteries support a battery-only replacement route.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Separately available replacement batteries support a battery-only replacement route.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The USD100-plus-tax device is a retail comparator, not an observed 2025 first-sale realization.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The USD100-plus-tax device is a retail comparator, not an observed 2025 first-sale realization.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Customer purchase and replacement responsibilities support household-funded procurement.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Customer purchase and replacement responsibilities support household-funded procurement.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Purchased equipment does not automatically include continuing service-plan coverage.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Purchased equipment does not automatically include continuing service-plan coverage.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Local provider sales establish this route alongside manufacturer-direct purchasing.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Local provider sales establish this route alongside manufacturer-direct purchasing.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The provider advertises approximately five hours for combined voice and internet, supporting service-specific Extended classification, not an observed 2025 purchase mix. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The provider advertises approximately five hours for combined voice and internet, supporting service-specific Extended classification, not an observed 2025 purchase mix. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The same proposition advertises xx.xx-hour voice-only protection, supporting Day-Scale mapping without equating duration with a universally larger purchase basket. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The same proposition advertises xx.xx-hour voice-only protection, supporting Day-Scale mapping without equating duration with a universally larger purchase basket. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
4. EnerSys 2026 Proxy Statement and Annual Report
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Direct customer supply is disclosed within a diversified international business; telecom channel proportions are not disclosed.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Direct customer supply is disclosed within a diversified international business; telecom channel proportions are not disclosed.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Distributor supply is disclosed, supporting route occurrence rather than its modeled sales weight.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Distributor supply is disclosed, supporting route occurrence rather than its modeled sales weight.

5. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025

   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom-specific sales weakness is a purchasing-cycle counterforce, not a measure of all Asian backup-system demand.

   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom application revenue provides counterevidence to extrapolating broad energy-storage growth into China's backup forecast.

   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: Audited 2025 telecom revenue of RMB1,xx.xx declined xx.xx%; telecom purchasing weakness is retained as counterevidence to automatic substitution-led aggregate growth. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Audited 2025 telecom revenue of RMB1,xx.xx declined xx.xx%; telecom purchasing weakness is retained as counterevidence to automatic substitution-led aggregate growth. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: Telecom-specific results are separated from adjacent data-center and power-storage growth when assessing lithium substitution; the filing does not disclose the modeled Global split. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom-specific results are separated from adjacent data-center and power-storage growth when assessing lithium substitution; the filing does not disclose the modeled Global split. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

6. Amara Raja Energy & Mobility - Q2/H1 FY2026 Earnings Presentation, November 6, 2025

   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand. ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))

7. IHS Holding Limited - First-Quarter 2026 Financial Statements

   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement. ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

8. Ofcom - Mobile RAN Power Resilience: Technical Report and CFI Update, February 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The evaluated xx.xx-minute alternative supplies a subhour commercial-planning anchor, not observed shipments.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The evaluated xx.xx-minute alternative supplies a subhour commercial-planning anchor, not observed shipments.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: One-hour and two-hour alternatives anchor the analytical Intermediate band. Aggregate scenarios include multiple years of operating costs and are not annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: One-hour and two-hour alternatives anchor the analytical Intermediate band. Aggregate scenarios include multiple years of operating costs and are not annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The four-hour alternative anchors the Extended band's lower boundary without establishing a Global minimum or purchasing allocation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The four-hour alternative anchors the Extended band's lower boundary without establishing a Global minimum or purchasing allocation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

9. Ofcom - Your Landline Is Going Digital: What You Need to Know

- Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
- Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Restricted provider-funded eligibility constrains operator-funded premises attribution and forecast adoption.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Restricted provider-funded eligibility constrains operator-funded premises attribution and forecast adoption.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Eligibility is not universal household funding; purchaser proportions remain assumptions.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Eligibility is not universal household funding; purchaser proportions remain assumptions.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Eligibility-limited provider backup and the one-hour minimum for qualifying customers constrain premises demand and anchor the Intermediate band's lower boundary. They do not establish universal adoption. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Eligibility-limited provider backup and the one-hour minimum for qualifying customers constrain premises demand and anchor the Intermediate band's lower boundary. They do not establish universal adoption. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

10. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone
    - Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue. ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
    - Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions. ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: USD45m financing and xx.xx planned site modernizations support an expansion signal, not observed backup-only service revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: USD45m financing and xx.xx planned site modernizations support an expansion signal, not observed backup-only service revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Energy-service activity supports the role; the modeled provider-as-buyer subcontract share is not established.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Energy-service activity supports the role; the modeled provider-as-buyer subcontract share is not established.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: More than xx.xx% weak/off-grid project exposure constrains service-cohort concentration, not the global grid mix.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: More than xx.xx% weak/off-grid project exposure constrains service-cohort concentration, not the global grid mix.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The project confirms disconnected-site commercial demand; its weak/off-grid combined statistic does not separate those categories.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The project confirms disconnected-site commercial demand; its weak/off-grid combined statistic does not separate those categories.
11. Fingrid - How to Participate in the Reserve Markets
    - Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue. ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Applicable owner permission and market agreements are commercial access gates. They constrain forecast mixed-duty adoption without measuring its Global percentage. ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))

12. China Tower announces 2025 annual results - March 18, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Disclosed 2025 physical tower-site stock constrains the regional network pool; destination demand is modeled, not manufacturing-based.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.
13. Government of India, Department of Telecommunications - Telecom Statistics India 2025, international comparison tables
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country tables constrain the starting connectivity pools; attachment, prices and forecasts remain assumptions.
14. Australian Government - Mobile Network Hardening Program
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The limited Australian program qualifies extrapolation of resilience funding across Asia-Pacific.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Completed battery enhancements and broader resilience projects provide a delivered regional demand signal, not a global forecast rate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Completed battery enhancements and broader resilience projects provide a delivered regional demand signal, not a global forecast rate.
15. OECD - High-capacity broadband networks gain ground across OECD, October 13, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: High mature-market fibre adoption is retained as a saturation counterforce to the purchasing forecast.
16. PowerSafe SBS Batteries | EnerSys
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Named telecom batteries support the battery-unit offering boundary; allocation weights are assumed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Named telecom batteries support the battery-unit offering boundary; allocation weights are assumed.
17. Vertiv NetSure M Series
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Configured enclosure, power and battery options support broader system classification, not universal bundle inclusion.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Configured enclosure, power and battery options support broader system classification, not universal bundle inclusion.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A marketed outdoor enclosure supports a protection option; global adoption and configuration proportions remain modeled.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A marketed outdoor enclosure supports a protection option; global adoption and configuration proportions remain modeled.

18. Ofcom - Network and Service Resilience Guidance for Communications Providers, June 16, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Core is a distinct, comparatively concentrated function with explicit backup expectations; global spending remains estimated.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Core is a distinct, comparatively concentrated function with explicit backup expectations; global spending remains estimated.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The stated xx.xx-xx.xx-fold site-scale distinction motivates lower-value, more numerous transport purchase equivalents.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The stated xx.xx-xx.xx-fold site-scale distinction motivates lower-value, more numerous transport purchase equivalents.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Peering and non-Internet interconnection are distinct functions; attributable backup purchase values are not disclosed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Peering and non-Internet interconnection are distinct functions; attributable backup purchase values are not disclosed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: June 2026 guidance identifies approximately four hours as good practice for active fixed-access cabinets. This supports a conditional Extended purchasing shift, not completed orders or a Global mandate. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/network-and-service-resilience-guidance-for-communications-providerspdf?v=xx.xx))
19. Technology and Tools | First Responder Network Authority
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Radio access, transport backhaul and core are separate network functions, supporting functional attribution without duplicate facility counting.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Radio access, transport backhaul and core are separate network functions, supporting functional attribution without duplicate facility counting.
20. BT - Digital Voice for Business Service Schedule, May 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Business customers bear backup-power expense, supporting a distinct institutional/business payer route rather than consumer eligibility extrapolation.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Business customers bear backup-power expense, supporting a distinct institutional/business payer route rather than consumer eligibility extrapolation.
21. Los Angeles Metro - Board Report 2024-1128, UPS Battery Replacement
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Completed and additional UPS battery replacements support continuing underground demand; mixed-load project budgets are not telecom-only revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Completed and additional UPS battery replacements support continuing underground demand; mixed-load project budgets are not telecom-only revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The transit authority's purchasing program supports an institutional own-use role, not its global spending proportion.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The transit authority's purchasing program supports an institutional own-use role, not its global spending proportion.

22. ETSI EN 300 019-1-3 V3.1.1 - Stationary Use at Weatherprotected Locations, May 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Weather-protected categories distinguish enclosure from environmental control; the standard does not measure market mix.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Weather-protected categories distinguish enclosure from environmental control; the standard does not measure market mix.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Maintained temperature control is a separate classification premise for the modeled conditional allocation.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Maintained temperature control is a separate classification premise for the modeled conditional allocation.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Enclosed locations without temperature control are distinguished from controlled locations.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Enclosed locations without temperature control are distinguished from controlled locations.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Partial weather protection is recognized separately; sales weights and future adoption remain assumed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Partial weather protection is recognized separately; sales weights and future adoption remain assumed.
23. ETSI EN 300 019-1-4 V3.1.1 - Stationary Use at Non-Weatherprotected Locations, May 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Non-weather-protected locations form a distinct classification regime, not a measured global spending pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Non-weather-protected locations form a distinct classification regime, not a measured global spending pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Sheltered non-weather-protected locations support the named conditional category.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Sheltered non-weather-protected locations support the named conditional category.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Open-air locations are separately recognized; their purchasing mix remains modeled.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Open-air locations are separately recognized; their purchasing mix remains modeled.
24. DC Power Plant / Rectifiers - UPS Rental
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Battery and complete DC-plant rentals establish delivery-category occurrence; global fees and utilization are not disclosed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Battery and complete DC-plant rentals establish delivery-category occurrence; global fees and utilization are not disclosed.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Commercial rental availability is a role premise only; modeled lessor sub-hire procurement remains unverified.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Commercial rental availability is a role premise only; modeled lessor sub-hire procurement remains unverified.

25. Helios Towers - Full Year Results 2025, March 12, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Grid-integration investment supplies a connection-improvement counterforce used conditionally in the forecast.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Grid-integration investment supplies a connection-improvement counterforce used conditionally in the forecast.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Reported xx.xx-hour average daily grid availability supports weak-grid commercial exposure, without a global classification share.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Reported xx.xx-hour average daily grid availability supports weak-grid commercial exposure, without a global classification share.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Grid integration and alternative-power investment qualify assumptions of permanently unchanged disconnected-site exposure.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Grid integration and alternative-power investment qualify assumptions of permanently unchanged disconnected-site exposure.
26. Telecommunications | Aggreko US
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Telecom battery-storage rental for temporary continuity supports delivery occurrence, not the estimated global fee scale.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom battery-storage rental for temporary continuity supports delivery occurrence, not the estimated global fee scale.
27. EnerSys PowerSafe SBS Front Terminal Batteries | Alpine Power Systems
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A named battery distributor supports the intermediary route; its listing is not a global channel-sales observation.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A named battery distributor supports the intermediary route; its listing is not a global channel-sales observation.
28. DC Power Services | Vertiv
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Cross-manufacturer projects and narrower upgrades support integration-prime and supported-replacement routes; numerical route proportions remain assumed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Cross-manufacturer projects and narrower upgrades support integration-prime and supported-replacement routes; numerical route proportions remain assumed.

29. Shuangdeng Group Co., Ltd. - Global Offering Prospectus, August 18, 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The company's own five-month 2025 lead-acid realization of RMB520.xx.xx/kWh constrains the relative-price bridge; syndicated industry claims are excluded. Forecast convergence remains assumed. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The company's own five-month 2025 lead-acid realization of RMB520.xx.xx/kWh constrains the relative-price bridge; syndicated industry claims are excluded. Forecast convergence remains assumed. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Own lithium-ion realization of RMB595.xx.xx/kWh is an input to the Lithium-Based value model, not a Global share or a Lithium-Metal sales observation. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Own lithium-ion realization of RMB595.xx.xx/kWh is an input to the Lithium-Based value model, not a Global share or a Lithium-Metal sales observation. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
30. Amara Raja Crosses 1 GWh Lithium Storage Deployment Powering India's Telecom Networks
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The April xx.xx 2026 disclosure reports approximately xx.xx GWh across xx.xx cumulative telecom lithium sites over four years. This is a commercial adoption scale check, not annual Global revenue or a supplier-share input. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The April xx.xx 2026 disclosure reports approximately xx.xx GWh across xx.xx cumulative telecom lithium sites over four years. This is a commercial adoption scale check, not annual Global revenue or a supplier-share input. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The disclosed deployment identifies lithium-ion commercialization at scale, supporting the subtype's established commercial position without directly measuring its conditional Global share. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The disclosed deployment identifies lithium-ion commercialization at scale, supporting the subtype's established commercial position without directly measuring its conditional Global share. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
31. Central Office Power Systems - EnerSys
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The central-office portfolio identifies Flooded Lead-Acid as a distinct telecom alternative, supporting the legacy-network category mapping but not its purchasing fraction. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The central-office portfolio identifies Flooded Lead-Acid as a distinct telecom alternative, supporting the legacy-network category mapping but not its purchasing fraction. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The portfolio separately identifies Valve-Regulated Lead-Acid, supporting the within-lead construction boundary used by the model. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The portfolio separately identifies Valve-Regulated Lead-Acid, supporting the within-lead construction boundary used by the model. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))

32. PowerSafe OPzV Batteries - EnerSys

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: EnerSys identifies OPzV as Gel and lists telecom applications. This supports commercial subtype mapping, not the assumed Gel/AGM volume or price mix.
([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-opzv/))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: EnerSys identifies OPzV as Gel and lists telecom applications. This supports commercial subtype mapping, not the assumed Gel/AGM volume or price mix.
([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-opzv/))

33. Bolloré - 2017 Registration Document

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The official filing identifies LMP professional outage-protection applications including telecom relays. This is a dated commercial boundary input, not evidence of 2025 telecom shipment value.
([bollore.com](https://www.bollore.com/wp-content/uploads/2018/xx.xx/bollore_ddr_2017_gb_bag-xx.xx-juin.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The official filing identifies LMP professional outage-protection applications including telecom relays. This is a dated commercial boundary input, not evidence of 2025 telecom shipment value.
([bollore.com](https://www.bollore.com/wp-content/uploads/2018/xx.xx/bollore_ddr_2017_gb_bag-xx.xx-juin.pdf))

34. Bolloré - Business Report 2025

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The 2025 report establishes continuing Lithium Metal Polymer commercial applications in electricity storage and buses, while omitting separately attributable telecom sales. It constrains the low-access expected-purchase model; no capacity-to-sales conversion is used.
([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The 2025 report establishes continuing Lithium Metal Polymer commercial applications in electricity storage and buses, while omitting separately attributable telecom sales. It constrains the low-access expected-purchase model; no capacity-to-sales conversion is used.
([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The report preserves the distinction between LMP and conventional lithium-ion, supporting the exhaustive subtype attribution rule rather than treating polymer packaging as Lithium-Metal.
([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The report preserves the distinction between LMP and conventional lithium-ion, supporting the exhaustive subtype attribution rule rather than treating polymer packaging as Lithium-Metal.
([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))

35. AT&T to Replace U-Verse Cabinet Batteries - Fierce Network, January 15, 2008

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The January xx.xx 2008 report corroborates AT&T's replacement of approximately xx.xx Avestor batteries after the supplier's closure. The obsolete stock is therefore not carried into the 2025 or 2032 purchasing numerator.
([fierce-network.com](https://www.fierce-network.com/telecom/at-t-to-replace-u-verse-cabinet-batteries))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The January xx.xx 2008 report corroborates AT&T's replacement of approximately xx.xx Avestor batteries after the supplier's closure. The obsolete stock is therefore not carried into the 2025 or 2032 purchasing numerator.
([fierce-network.com](https://www.fierce-network.com/telecom/at-t-to-replace-u-verse-cabinet-batteries))

36. PowerSafe NiCd Batteries - EnerSys
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: EnerSys identifies Nickel-Cadmium for central offices and outside plant, supporting the modeled legacy telecom cohort but not its installed attachment or replacement spending. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-nicd/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: EnerSys identifies Nickel-Cadmium for central offices and outside plant, supporting the modeled legacy telecom cohort but not its installed attachment or replacement spending. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-nicd/))
37. FDK Ni-MH Battery Is Chosen for the Cellect 600 Product of Alpha Technologies
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The October xx.xx 2015 announcement identifies NiMH in Alpha's Cellect xx.xx small-cell backup proposition. It supports a historical cohort rather than current fulfillment or assumed surviving stock. ([fdk.com](https://www.fdk.com/whatsnew-e/release20151019-e.html))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The October xx.xx 2015 announcement identifies NiMH in Alpha's Cellect xx.xx small-cell backup proposition. It supports a historical cohort rather than current fulfillment or assumed surviving stock. ([fdk.com](https://www.fdk.com/whatsnew-e/release20151019-e.html))
38. Products - Encell Technology
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Encell positions its Fused Iron Nickel-Iron battery for telecom. This supports the commercial category lead, while current purchases and attachment remain modeled. ([encell.com](https://encell.com/products/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Encell positions its Fused Iron Nickel-Iron battery for telecom. This supports the commercial category lead, while current purchases and attachment remain modeled. ([encell.com](https://encell.com/products/))
39. Telecom/5G - ZAF Energy Systems
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: ZAF positions Nickel-Zinc for telecom/5G. Its supplier proposition supports application mapping, not the modeled annual attachment or threefold forecast value multiplier. ([zafsys.com](https://zafsys.com/telecom-5g/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: ZAF positions Nickel-Zinc for telecom/5G. Its supplier proposition supports application mapping, not the modeled annual attachment or threefold forecast value multiplier. ([zafsys.com](https://zafsys.com/telecom-5g/))
40. HORIEN Salt Battery Solutions and Inlyte Energy Announce a Strategic Partnership
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: HORIEN's March xx.xx 2025 statement identifies sodium-metal-chloride telecom backup. Its separate partnership announcement is not counted as delivered telecom sales. ([horien.com](https://horien.com/wp-content/uploads/2025/xx.xx/Press-Release_HORIEN-Inlyte-International-Version.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: HORIEN's March xx.xx 2025 statement identifies sodium-metal-chloride telecom backup. Its separate partnership announcement is not counted as delivered telecom sales. ([horien.com](https://horien.com/wp-content/uploads/2025/xx.xx/Press-Release_HORIEN-Inlyte-International-Version.pdf))
41. Energy Backup - Phinergy
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Phinergy markets Aluminum-Air continuity offerings to telecom operators and tower companies. The source supports category and buyer mapping, not the modeled installed attachment or replacement numerator. ([phinergy.com](https://phinergy.com/solutions/energy-backup/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Phinergy markets Aluminum-Air continuity offerings to telecom operators and tower companies. The source supports category and buyer mapping, not the modeled installed attachment or replacement numerator. ([phinergy.com](https://phinergy.com/solutions/energy-backup/))

42. Australian Flow Batteries - RFB40X Series

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: RFB40X literature identifies telecom among stationary commercial applications. It supports the qualifying project boundary, not delivered projects, revenue or assumed attachment. ([afb.energy](https://www.afb.energy/wp-content/uploads/2025/xx.xx/Australian-Flow-Batteries-RFB40X-Series-2024.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: RFB40X literature identifies telecom among stationary commercial applications. It supports the qualifying project boundary, not delivered projects, revenue or assumed attachment. ([afb.energy](https://www.afb.energy/wp-content/uploads/2025/xx.xx/Australian-Flow-Batteries-RFB40X-Series-2024.pdf))

43. PowerReserve - Verizon Residential Accessories

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Verizon advertises an alkaline-cell voice-backup device at USD39.xx.xx excluding batteries. This supports a qualifying primary-zinc premises route and price comparator, not assumed Global attachment or first-sale realization. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Verizon advertises an alkaline-cell voice-backup device at USD39.xx.xx excluding batteries. This supports a qualifying primary-zinc premises route and price comparator, not assumed Global attachment or first-sale realization. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Advertised voice-only protection reaches xx.xx hours; internet and television protection are excluded. This supports service-specific Day-Scale classification. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Advertised voice-only protection reaches xx.xx hours; internet and television protection are excluded. This supports service-specific Day-Scale classification. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))

44. Alkaline Manganese Dioxide Handbook and Application Manual - Energizer

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The manufacturer's alkaline manganese-dioxide classification supports the zinc-family mapping for qualifying premises backup. It provides no telecom purchasing weight. ([data.energizer.com](https://data.energizer.com/pdfs/alkaline_appman.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The manufacturer's alkaline manganese-dioxide classification supports the zinc-family mapping for qualifying premises backup. It provides no telecom purchasing weight. ([data.energizer.com](https://data.energizer.com/pdfs/alkaline_appman.pdf))

45. ITU-T Work Programme - Aqueous Zinc-Based Battery Systems for Base Station Applications

- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The aqueous-zinc base-station work item is Under study with December 2027 timing. It constrains the forecast commercialization assumption but establishes neither approval nor customer purchases. ([itu.int](https://www.itu.int/itu-t/workprog/wp_item.aspx?isn=xx.xx))

46. ITU-T L.1397 - Battery System with Integrated Control and Monitoring Information Model

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The October 2025 recommendation names lithium-lead, lithium-sodium and sodium-lead combinations. This supports mixed-family classification, not inseparable pricing or Global prevalence. ([itu.int](https://www.itu.int/rec/dologin_pub.asp?id=T-REC-L.xx.xx-xx.xx-I%xx.xx%21PDF-E&lang=e&type=items))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The October 2025 recommendation names lithium-lead, lithium-sodium and sodium-lead combinations. This supports mixed-family classification, not inseparable pricing or Global prevalence. ([itu.int](https://www.itu.int/rec/dologin_pub.asp?id=T-REC-L.xx.xx-xx.xx-I%xx.xx%21PDF-E&lang=e&type=items))

47. ETSI EN 300 132-1 V2.2.1 - ICT Power Supply Interface: Alternating Current
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The ICT standard identifies the protected-load AC interface, supporting output-side attribution rather than classification by chemistry or normal utility input. It supplies no sales mix. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013201v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The ICT standard identifies the protected-load AC interface, supporting output-side attribution rather than classification by chemistry or normal utility input. It supplies no sales mix. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013201v020201p.pdf))
48. ETSI EN 300 132-2 V2.8.1 - ICT Power Supply Interface: Direct Current
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The ICT standard separately identifies the DC protected-equipment interface, supporting the DC-output boundary independently of battery chemistry. It is not a purchasing census. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013202v020801p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The ICT standard separately identifies the DC protected-equipment interface, supporting the DC-output boundary independently of battery chemistry. It is not a purchasing census. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013202v020801p.pdf))
49. Vertiv NetSure Inverter Series - Converged AC and DC Power System
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: NetSure Inverter Series identifies AC and DC loads supported through a common battery bank. This establishes a combined-output proposition, not its modeled purchasing fraction or future adoption. ([vertiv.com](https://www.vertiv.com/en-us/products-catalog/critical-power/dc-power-systems/vertiv-netsure-inverter-series/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: NetSure Inverter Series identifies AC and DC loads supported through a common battery bank. This establishes a combined-output proposition, not its modeled purchasing fraction or future adoption. ([vertiv.com](https://www.vertiv.com/en-us/products-catalog/critical-power/dc-power-systems/vertiv-netsure-inverter-series/))

50. ETSI EN 302 099 V2.2.1 - Powering of Equipment in Access Network
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Local powering uses a colocated source; allocation follows the backed source rather than receiver inventory. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Local powering uses a colocated source; allocation follows the backed source rather than receiver inventory. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Remote-source backup is distinguished from local backup, supporting the parent commercial boundary but not purchasing weights. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Remote-source backup is distinguished from local backup, supporting the parent commercial boundary but not purchasing weights. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Centralized powering originates at a telecommunications center. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Centralized powering originates at a telecommunications center. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Cluster powering uses a source outside the telecommunications center, supporting separation within Remote Powering. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Cluster powering uses a source outside the telecommunications center, supporting separation within Remote Powering. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Reverse powering is customer-origin supply, supporting source-level attribution of the battery-backed provider package. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Reverse powering is customer-origin supply, supporting source-level attribution of the battery-backed provider package. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))

51. Set Up Your Battery Backup - AT&T G.Fast Service with BGW210

    · Evidence informing base-year allocation inputs; displayed values and growth are calculated: The 2021 provider document names a battery-backed package protecting G.fast customer and distribution equipment through reverse power feed. It establishes a dated source-backup proposition, not current Global quantities. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

    · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The 2021 provider document names a battery-backed package protecting G.fast customer and distribution equipment through reverse power feed. It establishes a dated source-backup proposition, not current Global quantities. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

    · Evidence informing base-year allocation inputs; displayed values and growth are calculated: The provider advertises a xx.xx-hour service window for the particular package, supporting Day-Scale mapping without a universal premises-duration inference. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

    · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The provider advertises a xx.xx-hour service window for the particular package, supporting Day-Scale mapping without a universal premises-duration inference. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

52. DNA Tower Offers Battery Capacity in Electricity Reserve Markets with Elisa DES

    · Evidence informing base-year allocation inputs; displayed values and growth are calculated: The June xx.xx 2025 announcement reports DNA Tower batteries connected to Finnish reserve markets while retaining outage continuity. This establishes a specific mixed-duty implementation, not Global attachment or guaranteed returns. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/press-releases/dna-tower-becomes-worlds-first-tower-company-to-offer-battery-capacity-in-electricity-reserve-markets-with-elisa-des))

    · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The June xx.xx 2025 announcement reports DNA Tower batteries connected to Finnish reserve markets while retaining outage continuity. This establishes a specific mixed-duty implementation, not Global attachment or guaranteed returns. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/press-releases/dna-tower-becomes-worlds-first-tower-company-to-offer-battery-capacity-in-electricity-reserve-markets-with-elisa-des))

53. Case Elisa: Virtual Power Plant in the Telecom Industry

    · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The company case reports over 2,000 aggregated sites and approximately xx.xx MWh. This is an installed commercial scale check, not annual purchasing value or Global prevalence. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/customer-stories/elisacase))

19.2. Europe

Table 250. Europe Telecom Battery Backup System Market, by Country growth contribution, 2025-2032

Category	2025 value (USD Million)	2032 value (USD Million)	Added value (USD Million)	2025 share (%)	2032 share (%)	Change (pp)	Growth share (%)	CAGR (%)
Austria	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Belgium	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Denmark	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Finland	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Netherlands	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Norway	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Poland	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Portugal	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Sweden	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Switzerland	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Unallocated / remaining scope	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scope total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 251. Europe Telecom Battery Backup System Market Size, by Region, 2017-2032 (USD Million)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Austria	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Belgium	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Denmark	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Finland	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Netherlands	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Norway	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Poland	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Portugal	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Sweden	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Switzerland	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 252. Europe Telecom Battery Backup System Market Size, by Offering, 2017-2032 (USD Million)

Offering	2023	2024	2025	2026	2027	2032	CAGR (%)
Battery Units and Assemblies	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Complete Backup Systems	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 253. Europe Telecom Battery Backup System Market Size, by Battery Technology, 2017-2032 (USD Million)

Battery Technology	2023	2024	2025	2026	2027	2032	CAGR (%)
Aqueous Zinc-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Flow Batteries	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lithium-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Metal-Air	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Multi-Chemistry	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Sodium-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 254. Europe Telecom Battery Backup System Market Size, by Lead-Acid, 2017-2032 (USD Million)

Lead-Acid	2023	2024	2025	2026	2027	2032	CAGR (%)
Flooded Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Valve-Regulated Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 255. Europe Telecom Battery Backup System Market Size, by Valve-Regulated Lead-Acid, 2017-2032 (USD Million)

Valve-Regulated Lead-Acid	2023	2024	2025	2026	2027	2032	CAGR (%)
Absorbent Glass Mat	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Gel	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 256. Europe Telecom Battery Backup System Market Size, by Lithium-Based, 2017-2032 (USD Million)

Lithium-Based	2023	2024	2025	2026	2027	2032	CAGR (%)
Lithium-Ion	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lithium-Metal	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 257. Europe Telecom Battery Backup System Market Size, by Nickel-Based, 2017-2032 (USD Million)

Nickel-Based	2023	2024	2025	2026	2027	2032	CAGR (%)
Nickel-Cadmium	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Iron	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Metal Hydride	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Zinc	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 258. Europe Telecom Battery Backup System Market Size, by Power Interface, 2017-2032 (USD Million)

Power Interface	2023	2024	2025	2026	2027	2032	CAGR (%)
AC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Combined AC/DC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
DC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 259. Europe Telecom Battery Backup System Market Size, by Network Application, 2017-2032 (USD Million)

Network Application	2023	2024	2025	2026	2027	2032	CAGR (%)
Core Networks & Network Control	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Customer-Premises Connectivity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Network Interconnection & Peering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Transport & Backhaul Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Wireless Access Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Wireline Access Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 260. Europe Telecom Battery Backup System Market Size, by Buyer Type, 2017-2032 (USD Million)

Buyer Type	2023	2024	2025	2026	2027	2032	CAGR (%)
Business & Institutional Connectivity Owners	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Equipment Leasing & Rental Providers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Household Connectivity Purchasers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Energy-Service Providers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Infrastructure & Tower Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecommunications Network Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 261. Europe Telecom Battery Backup System Market Size, by Installation Environment, 2017-2032 (USD Million)

Installation Environment	2023	2024	2025	2026	2027	2032	CAGR (%)
Non-Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Underground Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 262. Europe Telecom Battery Backup System Market Size, by Weather-Protected Locations, 2017-2032 (USD Million)

Weather-Protected Locations	2023	2024	2025	2026	2027	2032	CAGR (%)
Enclosed Locations Without Temperature Control	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Partly Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Temperature-Controlled Enclosed Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 263. Europe Telecom Battery Backup System Market Size, by Non-Weather-Protected Locations, 2017-2032 (USD Million)

Non-Weather-Protected Locations	2023	2024	2025	2026	2027	2032	CAGR (%)
Open-Air Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Sheltered Non-Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 264. Europe Telecom Battery Backup System Market Size, by Powering Architecture, 2017-2032 (USD Million)

Powering Architecture	2023	2024	2025	2026	2027	2032	CAGR (%)
Local Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Remote Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 265. Europe Telecom Battery Backup System Market Size, by Remote Powering, 2017-2032 (USD Million)

Remote Powering	2023	2024	2025	2026	2027	2032	CAGR (%)
Centralized Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Cluster Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reverse Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 266. Europe Telecom Battery Backup System Market Size, by Commercial Delivery Model, 2017-2032 (USD Million)

Commercial Delivery Model	2023	2024	2025	2026	2027	2032	CAGR (%)
Leased or Rented Equipment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Managed Backup Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Owned Equipment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 267. Europe Telecom Battery Backup System Market Size, by Sales Channel, 2017-2032 (USD Million)

Sales Channel	2023	2024	2025	2026	2027	2032	CAGR (%)
Direct Manufacturer Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Distributor and Retailer Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Systems Integrator and Contractor Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Service Provider Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 268. Europe Telecom Battery Backup System Market Size, by Grid Availability, 2017-2032 (USD Million)

Grid Availability	2023	2024	2025	2026	2027	2032	CAGR (%)
Off-Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reliable Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Unreliable Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 269. Europe Telecom Battery Backup System Market Size, by Backup Duty, 2017-2032 (USD Million)

Backup Duty	2023	2024	2025	2026	2027	2032	CAGR (%)
Backup with Energy Management	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reserve-Only Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 270. Europe Telecom Battery Backup System Market Size, by Backup Autonomy, 2017-2032 (USD Million)

Backup Autonomy	2023	2024	2025	2026	2027	2032	CAGR (%)
Day-Scale Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Extended-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Intermediate-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Short-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. China Tower - 2025 Annual Results, March 18, 2026
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The xx.xx.149m-site inventory constrains wireless activity; forecast purchasing remains modeled.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The xx.xx.149m-site inventory constrains wireless activity; forecast purchasing remains modeled.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Replacement/improvement CAPEX fell from RMB6837m to RMB5474m, qualifying automatic replacement-led growth.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Replacement/improvement CAPEX fell from RMB6837m to RMB5474m, qualifying automatic replacement-led growth.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Disclosed tower operations establish a material infrastructure purchasing setting, not a global buyer share.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Disclosed tower operations establish a material infrastructure purchasing setting, not a global buyer share.
2. Broadband Commission - The State of Broadband: Our Digital World, 2025
   - Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))

3. Battery Backup - Meriwether Lewis Electric Cooperative
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Separately available replacement batteries support a battery-only replacement route.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Separately available replacement batteries support a battery-only replacement route.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The USD100-plus-tax device is a retail comparator, not an observed 2025 first-sale realization.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The USD100-plus-tax device is a retail comparator, not an observed 2025 first-sale realization.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Customer purchase and replacement responsibilities support household-funded procurement.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Customer purchase and replacement responsibilities support household-funded procurement.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Purchased equipment does not automatically include continuing service-plan coverage.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Purchased equipment does not automatically include continuing service-plan coverage.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Local provider sales establish this route alongside manufacturer-direct purchasing.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Local provider sales establish this route alongside manufacturer-direct purchasing.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The provider advertises approximately five hours for combined voice and internet, supporting service-specific Extended classification, not an observed 2025 purchase mix. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The provider advertises approximately five hours for combined voice and internet, supporting service-specific Extended classification, not an observed 2025 purchase mix. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The same proposition advertises xx.xx-hour voice-only protection, supporting Day-Scale mapping without equating duration with a universally larger purchase basket. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The same proposition advertises xx.xx-hour voice-only protection, supporting Day-Scale mapping without equating duration with a universally larger purchase basket. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
4. EnerSys 2026 Proxy Statement and Annual Report
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Direct customer supply is disclosed within a diversified international business; telecom channel proportions are not disclosed.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Direct customer supply is disclosed within a diversified international business; telecom channel proportions are not disclosed.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Distributor supply is disclosed, supporting route occurrence rather than its modeled sales weight.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Distributor supply is disclosed, supporting route occurrence rather than its modeled sales weight.

5. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Audited 2025 telecom revenue of RMB1,xx.xx declined xx.xx%; telecom purchasing weakness is retained as counterevidence to automatic substitution-led aggregate growth. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Audited 2025 telecom revenue of RMB1,xx.xx declined xx.xx%; telecom purchasing weakness is retained as counterevidence to automatic substitution-led aggregate growth. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Telecom-specific results are separated from adjacent data-center and power-storage growth when assessing lithium substitution; the filing does not disclose the modeled Global split. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom-specific results are separated from adjacent data-center and power-storage growth when assessing lithium substitution; the filing does not disclose the modeled Global split. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
6. Amara Raja Energy & Mobility - Q2/H1 FY2026 Earnings Presentation, November 6, 2025
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand. ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))
7. IHS Holding Limited - First-Quarter 2026 Financial Statements
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement. ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

8. Ofcom - Mobile RAN Power Resilience: Technical Report and CFI Update, February 2025
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))
   - Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Jurisdiction-specific resilience economics qualify a uniform Europe-wide demand uplift.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The evaluated xx.xx-minute alternative supplies a subhour commercial-planning anchor, not observed shipments. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The evaluated xx.xx-minute alternative supplies a subhour commercial-planning anchor, not observed shipments. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: One-hour and two-hour alternatives anchor the analytical Intermediate band. Aggregate scenarios include multiple years of operating costs and are not annual battery revenue. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: One-hour and two-hour alternatives anchor the analytical Intermediate band. Aggregate scenarios include multiple years of operating costs and are not annual battery revenue. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The four-hour alternative anchors the Extended band's lower boundary without establishing a Global minimum or purchasing allocation. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The four-hour alternative anchors the Extended band's lower boundary without establishing a Global minimum or purchasing allocation. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

9. Ofcom - Your Landline Is Going Digital: What You Need to Know

- Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
- Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Restricted provider-funded eligibility constrains operator-funded premises attribution and forecast adoption.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Restricted provider-funded eligibility constrains operator-funded premises attribution and forecast adoption.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Eligibility is not universal household funding; purchaser proportions remain assumptions.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Eligibility is not universal household funding; purchaser proportions remain assumptions.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Eligibility-limited provider backup and the one-hour minimum for qualifying customers constrain premises demand and anchor the Intermediate band's lower boundary. They do not establish universal adoption. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Eligibility-limited provider backup and the one-hour minimum for qualifying customers constrain premises demand and anchor the Intermediate band's lower boundary. They do not establish universal adoption. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

10. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone
    - Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue. ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
    - Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions. ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: USD45m financing and xx.xx planned site modernizations support an expansion signal, not observed backup-only service revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: USD45m financing and xx.xx planned site modernizations support an expansion signal, not observed backup-only service revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Energy-service activity supports the role; the modeled provider-as-buyer subcontract share is not established.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Energy-service activity supports the role; the modeled provider-as-buyer subcontract share is not established.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: More than xx.xx% weak/off-grid project exposure constrains service-cohort concentration, not the global grid mix.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: More than xx.xx% weak/off-grid project exposure constrains service-cohort concentration, not the global grid mix.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The project confirms disconnected-site commercial demand; its weak/off-grid combined statistic does not separate those categories.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The project confirms disconnected-site commercial demand; its weak/off-grid combined statistic does not separate those categories.
11. Fingrid - How to Participate in the Reserve Markets
    - Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue. ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Reserve-market permissions and participation agreements establish an access constraint; no telecom-battery reserve-income uplift is included.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Applicable owner permission and market agreements are commercial access gates. They constrain forecast mixed-duty adoption without measuring its Global percentage. ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))
12. Government of India, Department of Telecommunications - Telecom Statistics India 2025, international comparison tables
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country connectivity scale and reporting discontinuities constrain European proxy estimates.

13. Cellnex - Integrated Annual Report 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific telecom site portfolios constrain European network-footprint estimates; broadcasting sites are separately identified.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Polish site portfolio supports country-specific network activity.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Polish site portfolio supports country-specific network activity.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Danish site portfolio constrains the small-country footprint bridge.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Danish site portfolio constrains the small-country footprint bridge.
14. OECD - High-capacity broadband networks gain ground across OECD, October 13, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Observed mature-market connectivity growth and differing fibre/5G adoption constrain replacement and expansion assumptions.
15. PowerSafe SBS Batteries | EnerSys
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Named telecom batteries support the battery-unit offering boundary; allocation weights are assumed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Named telecom batteries support the battery-unit offering boundary; allocation weights are assumed.
16. Vertiv NetSure M Series
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Configured enclosure, power and battery options support broader system classification, not universal bundle inclusion.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Configured enclosure, power and battery options support broader system classification, not universal bundle inclusion.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A marketed outdoor enclosure supports a protection option; global adoption and configuration proportions remain modeled.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A marketed outdoor enclosure supports a protection option; global adoption and configuration proportions remain modeled.

17. Ofcom - Network and Service Resilience Guidance for Communications Providers, June 16, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Core is a distinct, comparatively concentrated function with explicit backup expectations; global spending remains estimated.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Core is a distinct, comparatively concentrated function with explicit backup expectations; global spending remains estimated.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The stated xx.xx-xx.xx-fold site-scale distinction motivates lower-value, more numerous transport purchase equivalents.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The stated xx.xx-xx.xx-fold site-scale distinction motivates lower-value, more numerous transport purchase equivalents.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Peering and non-Internet interconnection are distinct functions; attributable backup purchase values are not disclosed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Peering and non-Internet interconnection are distinct functions; attributable backup purchase values are not disclosed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: June 2026 guidance identifies approximately four hours as good practice for active fixed-access cabinets. This supports a conditional Extended purchasing shift, not completed orders or a Global mandate. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/network-and-service-resilience-guidance-for-communications-providerspdf?v=xx.xx))
18. Technology and Tools | First Responder Network Authority
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Radio access, transport backhaul and core are separate network functions, supporting functional attribution without duplicate facility counting.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Radio access, transport backhaul and core are separate network functions, supporting functional attribution without duplicate facility counting.
19. Mobile Network Hardening Program | Australian Department of Infrastructure
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Completed battery enhancements and broader resilience projects provide a delivered regional demand signal, not a global forecast rate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Completed battery enhancements and broader resilience projects provide a delivered regional demand signal, not a global forecast rate.
20. BT - Digital Voice for Business Service Schedule, May 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Business customers bear backup-power expense, supporting a distinct institutional/business payer route rather than consumer eligibility extrapolation.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Business customers bear backup-power expense, supporting a distinct institutional/business payer route rather than consumer eligibility extrapolation.
21. Los Angeles Metro - Board Report 2024-1128, UPS Battery Replacement
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Completed and additional UPS battery replacements support continuing underground demand; mixed-load project budgets are not telecom-only revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Completed and additional UPS battery replacements support continuing underground demand; mixed-load project budgets are not telecom-only revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The transit authority's purchasing program supports an institutional own-use role, not its global spending proportion.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The transit authority's purchasing program supports an institutional own-use role, not its global spending proportion.

22. ETSI EN 300 019-1-3 V3.1.1 - Stationary Use at Weatherprotected Locations, May 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Weather-protected categories distinguish enclosure from environmental control; the standard does not measure market mix.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Weather-protected categories distinguish enclosure from environmental control; the standard does not measure market mix.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Maintained temperature control is a separate classification premise for the modeled conditional allocation.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Maintained temperature control is a separate classification premise for the modeled conditional allocation.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Enclosed locations without temperature control are distinguished from controlled locations.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Enclosed locations without temperature control are distinguished from controlled locations.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Partial weather protection is recognized separately; sales weights and future adoption remain assumed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Partial weather protection is recognized separately; sales weights and future adoption remain assumed.
23. ETSI EN 300 019-1-4 V3.1.1 - Stationary Use at Non-Weatherprotected Locations, May 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Non-weather-protected locations form a distinct classification regime, not a measured global spending pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Non-weather-protected locations form a distinct classification regime, not a measured global spending pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Sheltered non-weather-protected locations support the named conditional category.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Sheltered non-weather-protected locations support the named conditional category.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Open-air locations are separately recognized; their purchasing mix remains modeled.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Open-air locations are separately recognized; their purchasing mix remains modeled.
24. DC Power Plant / Rectifiers - UPS Rental
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Battery and complete DC-plant rentals establish delivery-category occurrence; global fees and utilization are not disclosed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Battery and complete DC-plant rentals establish delivery-category occurrence; global fees and utilization are not disclosed.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Commercial rental availability is a role premise only; modeled lessor sub-hire procurement remains unverified.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Commercial rental availability is a role premise only; modeled lessor sub-hire procurement remains unverified.

25. Helios Towers - Full Year Results 2025, March 12, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Grid-integration investment supplies a connection-improvement counterforce used conditionally in the forecast.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Grid-integration investment supplies a connection-improvement counterforce used conditionally in the forecast.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Reported xx.xx-hour average daily grid availability supports weak-grid commercial exposure, without a global classification share.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Reported xx.xx-hour average daily grid availability supports weak-grid commercial exposure, without a global classification share.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Grid integration and alternative-power investment qualify assumptions of permanently unchanged disconnected-site exposure.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Grid integration and alternative-power investment qualify assumptions of permanently unchanged disconnected-site exposure.
26. Telecommunications | Aggreko US
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Telecom battery-storage rental for temporary continuity supports delivery occurrence, not the estimated global fee scale.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom battery-storage rental for temporary continuity supports delivery occurrence, not the estimated global fee scale.
27. EnerSys PowerSafe SBS Front Terminal Batteries | Alpine Power Systems
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A named battery distributor supports the intermediary route; its listing is not a global channel-sales observation.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A named battery distributor supports the intermediary route; its listing is not a global channel-sales observation.
28. DC Power Services | Vertiv
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Cross-manufacturer projects and narrower upgrades support integration-prime and supported-replacement routes; numerical route proportions remain assumed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Cross-manufacturer projects and narrower upgrades support integration-prime and supported-replacement routes; numerical route proportions remain assumed.

29. Shuangdeng Group Co., Ltd. - Global Offering Prospectus, August 18, 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The company's own five-month 2025 lead-acid realization of RMB520.xx.xx/kWh constrains the relative-price bridge; syndicated industry claims are excluded. Forecast convergence remains assumed. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The company's own five-month 2025 lead-acid realization of RMB520.xx.xx/kWh constrains the relative-price bridge; syndicated industry claims are excluded. Forecast convergence remains assumed. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Own lithium-ion realization of RMB595.xx.xx/kWh is an input to the Lithium-Based value model, not a Global share or a Lithium-Metal sales observation. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Own lithium-ion realization of RMB595.xx.xx/kWh is an input to the Lithium-Based value model, not a Global share or a Lithium-Metal sales observation. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
30. Amara Raja Crosses 1 GWh Lithium Storage Deployment Powering India's Telecom Networks
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The April xx.xx 2026 disclosure reports approximately xx.xx GWh across xx.xx cumulative telecom lithium sites over four years. This is a commercial adoption scale check, not annual Global revenue or a supplier-share input. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The April xx.xx 2026 disclosure reports approximately xx.xx GWh across xx.xx cumulative telecom lithium sites over four years. This is a commercial adoption scale check, not annual Global revenue or a supplier-share input. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The disclosed deployment identifies lithium-ion commercialization at scale, supporting the subtype's established commercial position without directly measuring its conditional Global share. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The disclosed deployment identifies lithium-ion commercialization at scale, supporting the subtype's established commercial position without directly measuring its conditional Global share. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
31. Central Office Power Systems - EnerSys
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The central-office portfolio identifies Flooded Lead-Acid as a distinct telecom alternative, supporting the legacy-network category mapping but not its purchasing fraction. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The central-office portfolio identifies Flooded Lead-Acid as a distinct telecom alternative, supporting the legacy-network category mapping but not its purchasing fraction. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The portfolio separately identifies Valve-Regulated Lead-Acid, supporting the within-lead construction boundary used by the model. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The portfolio separately identifies Valve-Regulated Lead-Acid, supporting the within-lead construction boundary used by the model. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))

32. PowerSafe OPzV Batteries - EnerSys

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: EnerSys identifies OPzV as Gel and lists telecom applications. This supports commercial subtype mapping, not the assumed Gel/AGM volume or price mix.
([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-opzv/))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: EnerSys identifies OPzV as Gel and lists telecom applications. This supports commercial subtype mapping, not the assumed Gel/AGM volume or price mix.
([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-opzv/))

33. Bolloré - 2017 Registration Document

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The official filing identifies LMP professional outage-protection applications including telecom relays. This is a dated commercial boundary input, not evidence of 2025 telecom shipment value.
([bollore.com](https://www.bollore.com/wp-content/uploads/2018/xx.xx/bollore_ddr_2017_gb_bag-xx.xx-juin.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The official filing identifies LMP professional outage-protection applications including telecom relays. This is a dated commercial boundary input, not evidence of 2025 telecom shipment value.
([bollore.com](https://www.bollore.com/wp-content/uploads/2018/xx.xx/bollore_ddr_2017_gb_bag-xx.xx-juin.pdf))

34. Bolloré - Business Report 2025

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The 2025 report establishes continuing Lithium Metal Polymer commercial applications in electricity storage and buses, while omitting separately attributable telecom sales. It constrains the low-access expected-purchase model; no capacity-to-sales conversion is used.
([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The 2025 report establishes continuing Lithium Metal Polymer commercial applications in electricity storage and buses, while omitting separately attributable telecom sales. It constrains the low-access expected-purchase model; no capacity-to-sales conversion is used.
([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The report preserves the distinction between LMP and conventional lithium-ion, supporting the exhaustive subtype attribution rule rather than treating polymer packaging as Lithium-Metal.
([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The report preserves the distinction between LMP and conventional lithium-ion, supporting the exhaustive subtype attribution rule rather than treating polymer packaging as Lithium-Metal.
([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))

35. AT&T to Replace U-Verse Cabinet Batteries - Fierce Network, January 15, 2008

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The January xx.xx 2008 report corroborates AT&T's replacement of approximately xx.xx Avestor batteries after the supplier's closure. The obsolete stock is therefore not carried into the 2025 or 2032 purchasing numerator.
([fierce-network.com](https://www.fierce-network.com/telecom/at-t-to-replace-u-verse-cabinet-batteries))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The January xx.xx 2008 report corroborates AT&T's replacement of approximately xx.xx Avestor batteries after the supplier's closure. The obsolete stock is therefore not carried into the 2025 or 2032 purchasing numerator.
([fierce-network.com](https://www.fierce-network.com/telecom/at-t-to-replace-u-verse-cabinet-batteries))

36. PowerSafe NiCd Batteries - EnerSys
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: EnerSys identifies Nickel-Cadmium for central offices and outside plant, supporting the modeled legacy telecom cohort but not its installed attachment or replacement spending. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-nicd/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: EnerSys identifies Nickel-Cadmium for central offices and outside plant, supporting the modeled legacy telecom cohort but not its installed attachment or replacement spending. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-nicd/))
37. FDK Ni-MH Battery Is Chosen for the Cellect 600 Product of Alpha Technologies
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The October xx.xx 2015 announcement identifies NiMH in Alpha's Cellect xx.xx small-cell backup proposition. It supports a historical cohort rather than current fulfillment or assumed surviving stock. ([fdk.com](https://www.fdk.com/whatsnew-e/release20151019-e.html))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The October xx.xx 2015 announcement identifies NiMH in Alpha's Cellect xx.xx small-cell backup proposition. It supports a historical cohort rather than current fulfillment or assumed surviving stock. ([fdk.com](https://www.fdk.com/whatsnew-e/release20151019-e.html))
38. Products - Encell Technology
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Encell positions its Fused Iron Nickel-Iron battery for telecom. This supports the commercial category lead, while current purchases and attachment remain modeled. ([encell.com](https://encell.com/products/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Encell positions its Fused Iron Nickel-Iron battery for telecom. This supports the commercial category lead, while current purchases and attachment remain modeled. ([encell.com](https://encell.com/products/))
39. Telecom/5G - ZAF Energy Systems
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: ZAF positions Nickel-Zinc for telecom/5G. Its supplier proposition supports application mapping, not the modeled annual attachment or threefold forecast value multiplier. ([zafsys.com](https://zafsys.com/telecom-5g/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: ZAF positions Nickel-Zinc for telecom/5G. Its supplier proposition supports application mapping, not the modeled annual attachment or threefold forecast value multiplier. ([zafsys.com](https://zafsys.com/telecom-5g/))
40. HORIEN Salt Battery Solutions and Inlyte Energy Announce a Strategic Partnership
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: HORIEN's March xx.xx 2025 statement identifies sodium-metal-chloride telecom backup. Its separate partnership announcement is not counted as delivered telecom sales. ([horien.com](https://horien.com/wp-content/uploads/2025/xx.xx/Press-Release_HORIEN-Inlyte-International-Version.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: HORIEN's March xx.xx 2025 statement identifies sodium-metal-chloride telecom backup. Its separate partnership announcement is not counted as delivered telecom sales. ([horien.com](https://horien.com/wp-content/uploads/2025/xx.xx/Press-Release_HORIEN-Inlyte-International-Version.pdf))
41. Energy Backup - Phinergy
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Phinergy markets Aluminum-Air continuity offerings to telecom operators and tower companies. The source supports category and buyer mapping, not the modeled installed attachment or replacement numerator. ([phinergy.com](https://phinergy.com/solutions/energy-backup/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Phinergy markets Aluminum-Air continuity offerings to telecom operators and tower companies. The source supports category and buyer mapping, not the modeled installed attachment or replacement numerator. ([phinergy.com](https://phinergy.com/solutions/energy-backup/))

42. Australian Flow Batteries - RFB40X Series

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: RFB40X literature identifies telecom among stationary commercial applications. It supports the qualifying project boundary, not delivered projects, revenue or assumed attachment. ([afb.energy](https://www.afb.energy/wp-content/uploads/2025/xx.xx/Australian-Flow-Batteries-RFB40X-Series-2024.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: RFB40X literature identifies telecom among stationary commercial applications. It supports the qualifying project boundary, not delivered projects, revenue or assumed attachment. ([afb.energy](https://www.afb.energy/wp-content/uploads/2025/xx.xx/Australian-Flow-Batteries-RFB40X-Series-2024.pdf))

43. PowerReserve - Verizon Residential Accessories

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Verizon advertises an alkaline-cell voice-backup device at USD39.xx.xx excluding batteries. This supports a qualifying primary-zinc premises route and price comparator, not assumed Global attachment or first-sale realization. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Verizon advertises an alkaline-cell voice-backup device at USD39.xx.xx excluding batteries. This supports a qualifying primary-zinc premises route and price comparator, not assumed Global attachment or first-sale realization. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Advertised voice-only protection reaches xx.xx hours; internet and television protection are excluded. This supports service-specific Day-Scale classification. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Advertised voice-only protection reaches xx.xx hours; internet and television protection are excluded. This supports service-specific Day-Scale classification. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))

44. Alkaline Manganese Dioxide Handbook and Application Manual - Energizer

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The manufacturer's alkaline manganese-dioxide classification supports the zinc-family mapping for qualifying premises backup. It provides no telecom purchasing weight. ([data.energizer.com](https://data.energizer.com/pdfs/alkaline_appman.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The manufacturer's alkaline manganese-dioxide classification supports the zinc-family mapping for qualifying premises backup. It provides no telecom purchasing weight. ([data.energizer.com](https://data.energizer.com/pdfs/alkaline_appman.pdf))

45. ITU-T Work Programme - Aqueous Zinc-Based Battery Systems for Base Station Applications

- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The aqueous-zinc base-station work item is Under study with December 2027 timing. It constrains the forecast commercialization assumption but establishes neither approval nor customer purchases. ([itu.int](https://www.itu.int/itu-t/workprog/wp_item.aspx?isn=xx.xx))

46. ITU-T L.1397 - Battery System with Integrated Control and Monitoring Information Model

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The October 2025 recommendation names lithium-lead, lithium-sodium and sodium-lead combinations. This supports mixed-family classification, not inseparable pricing or Global prevalence. ([itu.int](https://www.itu.int/rec/dologin_pub.asp?id=T-REC-L.xx.xx-xx.xx-I%xx.xx%21PDF-E&lang=e&type=items))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The October 2025 recommendation names lithium-lead, lithium-sodium and sodium-lead combinations. This supports mixed-family classification, not inseparable pricing or Global prevalence. ([itu.int](https://www.itu.int/rec/dologin_pub.asp?id=T-REC-L.xx.xx-xx.xx-I%xx.xx%21PDF-E&lang=e&type=items))

47. ETSI EN 300 132-1 V2.2.1 - ICT Power Supply Interface: Alternating Current
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The ICT standard identifies the protected-load AC interface, supporting output-side attribution rather than classification by chemistry or normal utility input. It supplies no sales mix. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013201v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The ICT standard identifies the protected-load AC interface, supporting output-side attribution rather than classification by chemistry or normal utility input. It supplies no sales mix. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013201v020201p.pdf))
48. ETSI EN 300 132-2 V2.8.1 - ICT Power Supply Interface: Direct Current
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The ICT standard separately identifies the DC protected-equipment interface, supporting the DC-output boundary independently of battery chemistry. It is not a purchasing census. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013202v020801p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The ICT standard separately identifies the DC protected-equipment interface, supporting the DC-output boundary independently of battery chemistry. It is not a purchasing census. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013202v020801p.pdf))
49. Vertiv NetSure Inverter Series - Converged AC and DC Power System
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: NetSure Inverter Series identifies AC and DC loads supported through a common battery bank. This establishes a combined-output proposition, not its modeled purchasing fraction or future adoption. ([vertiv.com](https://www.vertiv.com/en-us/products-catalog/critical-power/dc-power-systems/vertiv-netsure-inverter-series/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: NetSure Inverter Series identifies AC and DC loads supported through a common battery bank. This establishes a combined-output proposition, not its modeled purchasing fraction or future adoption. ([vertiv.com](https://www.vertiv.com/en-us/products-catalog/critical-power/dc-power-systems/vertiv-netsure-inverter-series/))

50. ETSI EN 302 099 V2.2.1 - Powering of Equipment in Access Network
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Local powering uses a colocated source; allocation follows the backed source rather than receiver inventory. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Local powering uses a colocated source; allocation follows the backed source rather than receiver inventory. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Remote-source backup is distinguished from local backup, supporting the parent commercial boundary but not purchasing weights. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Remote-source backup is distinguished from local backup, supporting the parent commercial boundary but not purchasing weights. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Centralized powering originates at a telecommunications center. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Centralized powering originates at a telecommunications center. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Cluster powering uses a source outside the telecommunications center, supporting separation within Remote Powering. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Cluster powering uses a source outside the telecommunications center, supporting separation within Remote Powering. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Reverse powering is customer-origin supply, supporting source-level attribution of the battery-backed provider package. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Reverse powering is customer-origin supply, supporting source-level attribution of the battery-backed provider package. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))

51. Set Up Your Battery Backup - AT&T G.Fast Service with BGW210

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The 2021 provider document names a battery-backed package protecting G.fast customer and distribution equipment through reverse power feed. It establishes a dated source-backup proposition, not current Global quantities. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The 2021 provider document names a battery-backed package protecting G.fast customer and distribution equipment through reverse power feed. It establishes a dated source-backup proposition, not current Global quantities. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The provider advertises a xx.xx-hour service window for the particular package, supporting Day-Scale mapping without a universal premises-duration inference. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The provider advertises a xx.xx-hour service window for the particular package, supporting Day-Scale mapping without a universal premises-duration inference. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

52. DNA Tower Offers Battery Capacity in Electricity Reserve Markets with Elisa DES

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The June xx.xx 2025 announcement reports DNA Tower batteries connected to Finnish reserve markets while retaining outage continuity. This establishes a specific mixed-duty implementation, not Global attachment or guaranteed returns. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/press-releases/dna-tower-becomes-worlds-first-tower-company-to-offer-battery-capacity-in-electricity-reserve-markets-with-elisa-des))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The June xx.xx 2025 announcement reports DNA Tower batteries connected to Finnish reserve markets while retaining outage continuity. This establishes a specific mixed-duty implementation, not Global attachment or guaranteed returns. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/press-releases/dna-tower-becomes-worlds-first-tower-company-to-offer-battery-capacity-in-electricity-reserve-markets-with-elisa-des))

53. Case Elisa: Virtual Power Plant in the Telecom Industry

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The company case reports over 2,000 aggregated sites and approximately xx.xx MWh. This is an installed commercial scale check, not annual purchasing value or Global prevalence. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/customer-stories/elisacase))

19.3. North America

Table 271. North America Telecom Battery Backup System Market, by Country growth contribution, 2025-2032

Category	2025 value (USD Million)	2032 value (USD Million)	Added value (USD Million)	2025 share (%)	2032 share (%)	Change (pp)	Growth share (%)	CAGR (%)
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scope total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 272. North America Telecom Battery Backup System Market Size, by Region, 2017-2032 (USD Million)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 273. North America Telecom Battery Backup System Market Size, by Offering, 2017-2032 (USD Million)

Offering	2023	2024	2025	2026	2027	2032	CAGR (%)
Battery Units and Assemblies	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Complete Backup Systems	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 274. North America Telecom Battery Backup System Market Size, by Battery Technology, 2017-2032 (USD Million)

Battery Technology	2023	2024	2025	2026	2027	2032	CAGR (%)
Aqueous Zinc-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Flow Batteries	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lithium-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Metal-Air	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Multi-Chemistry	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Sodium-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 275. North America Telecom Battery Backup System Market Size, by Lead-Acid, 2017-2032 (USD Million)

Lead-Acid	2023	2024	2025	2026	2027	2032	CAGR (%)
Flooded Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Valve-Regulated Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 276. North America Telecom Battery Backup System Market Size, by Valve-Regulated Lead-Acid, 2017-2032 (USD Million)

Valve-Regulated Lead-Acid	2023	2024	2025	2026	2027	2032	CAGR (%)
Absorbent Glass Mat	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Gel	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 277. North America Telecom Battery Backup System Market Size, by Lithium-Based, 2017-2032 (USD Million)

Lithium-Based	2023	2024	2025	2026	2027	2032	CAGR (%)
Lithium-Ion	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lithium-Metal	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 278. North America Telecom Battery Backup System Market Size, by Nickel-Based, 2017-2032 (USD Million)

Nickel-Based	2023	2024	2025	2026	2027	2032	CAGR (%)
Nickel-Cadmium	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Iron	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Metal Hydride	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Zinc	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 279. North America Telecom Battery Backup System Market Size, by Power Interface, 2017-2032 (USD Million)

Power Interface	2023	2024	2025	2026	2027	2032	CAGR (%)
AC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Combined AC/DC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
DC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 280. North America Telecom Battery Backup System Market Size, by Network Application, 2017-2032 (USD Million)

Network Application	2023	2024	2025	2026	2027	2032	CAGR (%)
Core Networks & Network Control	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Customer-Premises Connectivity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Network Interconnection & Peering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Transport & Backhaul Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Wireless Access Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Wireline Access Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 281. North America Telecom Battery Backup System Market Size, by Buyer Type, 2017-2032 (USD Million)

Buyer Type	2023	2024	2025	2026	2027	2032	CAGR (%)
Business & Institutional Connectivity Owners	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Equipment Leasing & Rental Providers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Household Connectivity Purchasers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Energy-Service Providers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Infrastructure & Tower Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecommunications Network Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 282. North America Telecom Battery Backup System Market Size, by Installation Environment, 2017-2032 (USD Million)

Installation Environment	2023	2024	2025	2026	2027	2032	CAGR (%)
Non-Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Underground Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 283. North America Telecom Battery Backup System Market Size, by Weather-Protected Locations, 2017-2032 (USD Million)

Weather-Protected Locations	2023	2024	2025	2026	2027	2032	CAGR (%)
Enclosed Locations Without Temperature Control	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Partly Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Temperature-Controlled Enclosed Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 284. North America Telecom Battery Backup System Market Size, by Non-Weather-Protected Locations, 2017-2032 (USD Million)

Non-Weather-Protected Locations	2023	2024	2025	2026	2027	2032	CAGR (%)
Open-Air Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Sheltered Non-Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 285. North America Telecom Battery Backup System Market Size, by Powering Architecture, 2017-2032 (USD Million)

Powering Architecture	2023	2024	2025	2026	2027	2032	CAGR (%)
Local Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Remote Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 286. North America Telecom Battery Backup System Market Size, by Remote Powering, 2017-2032 (USD Million)

Remote Powering	2023	2024	2025	2026	2027	2032	CAGR (%)
Centralized Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Cluster Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reverse Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 287. North America Telecom Battery Backup System Market Size, by Commercial Delivery Model, 2017-2032 (USD Million)

Commercial Delivery Model	2023	2024	2025	2026	2027	2032	CAGR (%)
Leased or Rented Equipment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Managed Backup Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Owned Equipment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 288. North America Telecom Battery Backup System Market Size, by Sales Channel, 2017-2032 (USD Million)

Sales Channel	2023	2024	2025	2026	2027	2032	CAGR (%)
Direct Manufacturer Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Distributor and Retailer Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Systems Integrator and Contractor Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Service Provider Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 289. North America Telecom Battery Backup System Market Size, by Grid Availability, 2017-2032 (USD Million)

Grid Availability	2023	2024	2025	2026	2027	2032	CAGR (%)
Off-Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reliable Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Unreliable Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 290. North America Telecom Battery Backup System Market Size, by Backup Duty, 2017-2032 (USD Million)

Backup Duty	2023	2024	2025	2026	2027	2032	CAGR (%)
Backup with Energy Management	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reserve-Only Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 291. North America Telecom Battery Backup System Market Size, by Backup Autonomy, 2017-2032 (USD Million)

Backup Autonomy	2023	2024	2025	2026	2027	2032	CAGR (%)
Day-Scale Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Extended-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Intermediate-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Short-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. China Tower - 2025 Annual Results, March 18, 2026
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The xx.xx.149m-site inventory constrains wireless activity; forecast purchasing remains modeled.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The xx.xx.149m-site inventory constrains wireless activity; forecast purchasing remains modeled.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Replacement/improvement CAPEX fell from RMB6837m to RMB5474m, qualifying automatic replacement-led growth.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Replacement/improvement CAPEX fell from RMB6837m to RMB5474m, qualifying automatic replacement-led growth.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Disclosed tower operations establish a material infrastructure purchasing setting, not a global buyer share.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Disclosed tower operations establish a material infrastructure purchasing setting, not a global buyer share.
2. Broadband Commission - The State of Broadband: Our Digital World, 2025
   - Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))

3. Battery Backup - Meriwether Lewis Electric Cooperative
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Separately available replacement batteries support a battery-only replacement route.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Separately available replacement batteries support a battery-only replacement route.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The USD100-plus-tax device is a retail comparator, not an observed 2025 first-sale realization.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The USD100-plus-tax device is a retail comparator, not an observed 2025 first-sale realization.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Customer purchase and replacement responsibilities support household-funded procurement.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Customer purchase and replacement responsibilities support household-funded procurement.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Purchased equipment does not automatically include continuing service-plan coverage.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Purchased equipment does not automatically include continuing service-plan coverage.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Local provider sales establish this route alongside manufacturer-direct purchasing.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Local provider sales establish this route alongside manufacturer-direct purchasing.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The provider advertises approximately five hours for combined voice and internet, supporting service-specific Extended classification, not an observed 2025 purchase mix. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The provider advertises approximately five hours for combined voice and internet, supporting service-specific Extended classification, not an observed 2025 purchase mix. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The same proposition advertises xx.xx-hour voice-only protection, supporting Day-Scale mapping without equating duration with a universally larger purchase basket. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The same proposition advertises xx.xx-hour voice-only protection, supporting Day-Scale mapping without equating duration with a universally larger purchase basket. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
4. EnerSys 2026 Proxy Statement and Annual Report
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Direct customer supply is disclosed within a diversified international business; telecom channel proportions are not disclosed.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Direct customer supply is disclosed within a diversified international business; telecom channel proportions are not disclosed.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Distributor supply is disclosed, supporting route occurrence rather than its modeled sales weight.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Distributor supply is disclosed, supporting route occurrence rather than its modeled sales weight.

5. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: Audited 2025 telecom revenue of RMB1,xx.xx declined xx.xx%; telecom purchasing weakness is retained as counterevidence to automatic substitution-led aggregate growth. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Audited 2025 telecom revenue of RMB1,xx.xx declined xx.xx%; telecom purchasing weakness is retained as counterevidence to automatic substitution-led aggregate growth. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: Telecom-specific results are separated from adjacent data-center and power-storage growth when assessing lithium substitution; the filing does not disclose the modeled Global split. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom-specific results are separated from adjacent data-center and power-storage growth when assessing lithium substitution; the filing does not disclose the modeled Global split. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

6. Amara Raja Energy & Mobility - Q2/H1 FY2026 Earnings Presentation, November 6, 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand. ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))

7. IHS Holding Limited - First-Quarter 2026 Financial Statements

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement. ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

8. Ofcom - Mobile RAN Power Resilience: Technical Report and CFI Update, February 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The evaluated xx.xx-minute alternative supplies a subhour commercial-planning anchor, not observed shipments.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The evaluated xx.xx-minute alternative supplies a subhour commercial-planning anchor, not observed shipments.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: One-hour and two-hour alternatives anchor the analytical Intermediate band. Aggregate scenarios include multiple years of operating costs and are not annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: One-hour and two-hour alternatives anchor the analytical Intermediate band. Aggregate scenarios include multiple years of operating costs and are not annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The four-hour alternative anchors the Extended band's lower boundary without establishing a Global minimum or purchasing allocation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The four-hour alternative anchors the Extended band's lower boundary without establishing a Global minimum or purchasing allocation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

9. Ofcom - Your Landline Is Going Digital: What You Need to Know

- Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
- Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Restricted provider-funded eligibility constrains operator-funded premises attribution and forecast adoption.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Restricted provider-funded eligibility constrains operator-funded premises attribution and forecast adoption.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Eligibility is not universal household funding; purchaser proportions remain assumptions.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Eligibility is not universal household funding; purchaser proportions remain assumptions.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Eligibility-limited provider backup and the one-hour minimum for qualifying customers constrain premises demand and anchor the Intermediate band's lower boundary. They do not establish universal adoption. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Eligibility-limited provider backup and the one-hour minimum for qualifying customers constrain premises demand and anchor the Intermediate band's lower boundary. They do not establish universal adoption. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

10. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone
- Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue. ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
- Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions. ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: USD45m financing and xx.xx planned site modernizations support an expansion signal, not observed backup-only service revenue.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: USD45m financing and xx.xx planned site modernizations support an expansion signal, not observed backup-only service revenue.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Energy-service activity supports the role; the modeled provider-as-buyer subcontract share is not established.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Energy-service activity supports the role; the modeled provider-as-buyer subcontract share is not established.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: More than xx.xx% weak/off-grid project exposure constrains service-cohort concentration, not the global grid mix.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: More than xx.xx% weak/off-grid project exposure constrains service-cohort concentration, not the global grid mix.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The project confirms disconnected-site commercial demand; its weak/off-grid combined statistic does not separate those categories.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The project confirms disconnected-site commercial demand; its weak/off-grid combined statistic does not separate those categories.

11. Fingrid - How to Participate in the Reserve Markets
- Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue. ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Applicable owner permission and market agreements are commercial access gates. They constrain forecast mixed-duty adoption without measuring its Global percentage. ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))

12. Government of India, Department of Telecommunications - Telecom Statistics India 2025, international comparison tables
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country telecom-connectivity tables constrain customer and installed-network allocation proxies.

13. American Tower Corporation - Annual Report on Form 10-K for 2025
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mandatory national site inventories provide footprint checks; tower rent and data centers are not included as battery revenue.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.

14. CPUC Requires Wireless Companies to Better Serve Customers in Emergencies - July 16, 2020
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.

15. CRTC - Request for Information on Telecommunications Network Resiliency, May 12, 2026
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The information request seeks evidence on possible backup requirements and customer equipment costs; it is not an enacted national procurement program.

16. FCC - Internet Access Services: Status as of December 31, 2024, official state-government-hosted copy
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.

17. PowerSafe SBS Batteries | EnerSys
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Named telecom batteries support the battery-unit offering boundary; allocation weights are assumed.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Named telecom batteries support the battery-unit offering boundary; allocation weights are assumed.

18. Vertiv NetSure M Series
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Configured enclosure, power and battery options support broader system classification, not universal bundle inclusion.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Configured enclosure, power and battery options support broader system classification, not universal bundle inclusion.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: A marketed outdoor enclosure supports a protection option; global adoption and configuration proportions remain modeled.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A marketed outdoor enclosure supports a protection option; global adoption and configuration proportions remain modeled.

19. Ofcom - Network and Service Resilience Guidance for Communications Providers, June 16, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Core is a distinct, comparatively concentrated function with explicit backup expectations; global spending remains estimated.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Core is a distinct, comparatively concentrated function with explicit backup expectations; global spending remains estimated.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The stated xx.xx-xx.xx-fold site-scale distinction motivates lower-value, more numerous transport purchase equivalents.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The stated xx.xx-xx.xx-fold site-scale distinction motivates lower-value, more numerous transport purchase equivalents.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Peering and non-Internet interconnection are distinct functions; attributable backup purchase values are not disclosed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Peering and non-Internet interconnection are distinct functions; attributable backup purchase values are not disclosed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: June 2026 guidance identifies approximately four hours as good practice for active fixed-access cabinets. This supports a conditional Extended purchasing shift, not completed orders or a Global mandate. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/network-and-service-resilience-guidance-for-communications-providerspdf?v=xx.xx))
20. Technology and Tools | First Responder Network Authority
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Radio access, transport backhaul and core are separate network functions, supporting functional attribution without duplicate facility counting.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Radio access, transport backhaul and core are separate network functions, supporting functional attribution without duplicate facility counting.
21. Mobile Network Hardening Program | Australian Department of Infrastructure
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Completed battery enhancements and broader resilience projects provide a delivered regional demand signal, not a global forecast rate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Completed battery enhancements and broader resilience projects provide a delivered regional demand signal, not a global forecast rate.
22. BT - Digital Voice for Business Service Schedule, May 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Business customers bear backup-power expense, supporting a distinct institutional/business payer route rather than consumer eligibility extrapolation.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Business customers bear backup-power expense, supporting a distinct institutional/business payer route rather than consumer eligibility extrapolation.
23. Los Angeles Metro - Board Report 2024-1128, UPS Battery Replacement
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Completed and additional UPS battery replacements support continuing underground demand; mixed-load project budgets are not telecom-only revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Completed and additional UPS battery replacements support continuing underground demand; mixed-load project budgets are not telecom-only revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The transit authority's purchasing program supports an institutional own-use role, not its global spending proportion.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The transit authority's purchasing program supports an institutional own-use role, not its global spending proportion.

24. ETSI EN 300 019-1-3 V3.1.1 - Stationary Use at Weatherprotected Locations, May 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Weather-protected categories distinguish enclosure from environmental control; the standard does not measure market mix.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Weather-protected categories distinguish enclosure from environmental control; the standard does not measure market mix.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Maintained temperature control is a separate classification premise for the modeled conditional allocation.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Maintained temperature control is a separate classification premise for the modeled conditional allocation.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Enclosed locations without temperature control are distinguished from controlled locations.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Enclosed locations without temperature control are distinguished from controlled locations.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Partial weather protection is recognized separately; sales weights and future adoption remain assumed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Partial weather protection is recognized separately; sales weights and future adoption remain assumed.
25. ETSI EN 300 019-1-4 V3.1.1 - Stationary Use at Non-Weatherprotected Locations, May 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Non-weather-protected locations form a distinct classification regime, not a measured global spending pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Non-weather-protected locations form a distinct classification regime, not a measured global spending pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Sheltered non-weather-protected locations support the named conditional category.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Sheltered non-weather-protected locations support the named conditional category.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Open-air locations are separately recognized; their purchasing mix remains modeled.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Open-air locations are separately recognized; their purchasing mix remains modeled.
26. DC Power Plant / Rectifiers - UPS Rental
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Battery and complete DC-plant rentals establish delivery-category occurrence; global fees and utilization are not disclosed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Battery and complete DC-plant rentals establish delivery-category occurrence; global fees and utilization are not disclosed.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Commercial rental availability is a role premise only; modeled lessor sub-hire procurement remains unverified.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Commercial rental availability is a role premise only; modeled lessor sub-hire procurement remains unverified.

27. Helios Towers - Full Year Results 2025, March 12, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Grid-integration investment supplies a connection-improvement counterforce used conditionally in the forecast.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Grid-integration investment supplies a connection-improvement counterforce used conditionally in the forecast.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Reported xx.xx-hour average daily grid availability supports weak-grid commercial exposure, without a global classification share.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Reported xx.xx-hour average daily grid availability supports weak-grid commercial exposure, without a global classification share.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Grid integration and alternative-power investment qualify assumptions of permanently unchanged disconnected-site exposure.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Grid integration and alternative-power investment qualify assumptions of permanently unchanged disconnected-site exposure.
28. Telecommunications | Aggreko US
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Telecom battery-storage rental for temporary continuity supports delivery occurrence, not the estimated global fee scale.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom battery-storage rental for temporary continuity supports delivery occurrence, not the estimated global fee scale.
29. EnerSys PowerSafe SBS Front Terminal Batteries | Alpine Power Systems
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A named battery distributor supports the intermediary route; its listing is not a global channel-sales observation.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A named battery distributor supports the intermediary route; its listing is not a global channel-sales observation.
30. DC Power Services | Vertiv
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Cross-manufacturer projects and narrower upgrades support integration-prime and supported-replacement routes; numerical route proportions remain assumed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Cross-manufacturer projects and narrower upgrades support integration-prime and supported-replacement routes; numerical route proportions remain assumed.

31. Shuangdeng Group Co., Ltd. - Global Offering Prospectus, August 18, 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The company's own five-month 2025 lead-acid realization of RMB520.xx.xx/kWh constrains the relative-price bridge; syndicated industry claims are excluded. Forecast convergence remains assumed. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The company's own five-month 2025 lead-acid realization of RMB520.xx.xx/kWh constrains the relative-price bridge; syndicated industry claims are excluded. Forecast convergence remains assumed. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Own lithium-ion realization of RMB595.xx.xx/kWh is an input to the Lithium-Based value model, not a Global share or a Lithium-Metal sales observation. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Own lithium-ion realization of RMB595.xx.xx/kWh is an input to the Lithium-Based value model, not a Global share or a Lithium-Metal sales observation. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
32. Amara Raja Crosses 1 GWh Lithium Storage Deployment Powering India's Telecom Networks
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The April xx.xx 2026 disclosure reports approximately xx.xx GWh across xx.xx cumulative telecom lithium sites over four years. This is a commercial adoption scale check, not annual Global revenue or a supplier-share input. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The April xx.xx 2026 disclosure reports approximately xx.xx GWh across xx.xx cumulative telecom lithium sites over four years. This is a commercial adoption scale check, not annual Global revenue or a supplier-share input. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The disclosed deployment identifies lithium-ion commercialization at scale, supporting the subtype's established commercial position without directly measuring its conditional Global share. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The disclosed deployment identifies lithium-ion commercialization at scale, supporting the subtype's established commercial position without directly measuring its conditional Global share. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
33. Central Office Power Systems - EnerSys
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The central-office portfolio identifies Flooded Lead-Acid as a distinct telecom alternative, supporting the legacy-network category mapping but not its purchasing fraction. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The central-office portfolio identifies Flooded Lead-Acid as a distinct telecom alternative, supporting the legacy-network category mapping but not its purchasing fraction. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The portfolio separately identifies Valve-Regulated Lead-Acid, supporting the within-lead construction boundary used by the model. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The portfolio separately identifies Valve-Regulated Lead-Acid, supporting the within-lead construction boundary used by the model. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))

34. PowerSafe OPzV Batteries - EnerSys

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: EnerSys identifies OPzV as Gel and lists telecom applications. This supports commercial subtype mapping, not the assumed Gel/AGM volume or price mix. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-opzv/))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: EnerSys identifies OPzV as Gel and lists telecom applications. This supports commercial subtype mapping, not the assumed Gel/AGM volume or price mix. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-opzv/))

35. Bolloré - 2017 Registration Document

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The official filing identifies LMP professional outage-protection applications including telecom relays. This is a dated commercial boundary input, not evidence of 2025 telecom shipment value. ([bollore.com](https://www.bollore.com/wp-content/uploads/2018/xx.xx/bollore_ddr_2017_gb_bag-xx.xx-juin.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The official filing identifies LMP professional outage-protection applications including telecom relays. This is a dated commercial boundary input, not evidence of 2025 telecom shipment value. ([bollore.com](https://www.bollore.com/wp-content/uploads/2018/xx.xx/bollore_ddr_2017_gb_bag-xx.xx-juin.pdf))

36. Bolloré - Business Report 2025

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The 2025 report establishes continuing Lithium Metal Polymer commercial applications in electricity storage and buses, while omitting separately attributable telecom sales. It constrains the low-access expected-purchase model; no capacity-to-sales conversion is used. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The 2025 report establishes continuing Lithium Metal Polymer commercial applications in electricity storage and buses, while omitting separately attributable telecom sales. It constrains the low-access expected-purchase model; no capacity-to-sales conversion is used. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The report preserves the distinction between LMP and conventional lithium-ion, supporting the exhaustive subtype attribution rule rather than treating polymer packaging as Lithium-Metal. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The report preserves the distinction between LMP and conventional lithium-ion, supporting the exhaustive subtype attribution rule rather than treating polymer packaging as Lithium-Metal. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))

37. AT&T to Replace U-Verse Cabinet Batteries - Fierce Network, January 15, 2008

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The January xx.xx 2008 report corroborates AT&T's replacement of approximately xx.xx Avestor batteries after the supplier's closure. The obsolete stock is therefore not carried into the 2025 or 2032 purchasing numerator. ([fierce-network.com](https://www.fierce-network.com/telecom/at-t-to-replace-u-verse-cabinet-batteries))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The January xx.xx 2008 report corroborates AT&T's replacement of approximately xx.xx Avestor batteries after the supplier's closure. The obsolete stock is therefore not carried into the 2025 or 2032 purchasing numerator. ([fierce-network.com](https://www.fierce-network.com/telecom/at-t-to-replace-u-verse-cabinet-batteries))

38. PowerSafe NiCd Batteries - EnerSys
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: EnerSys identifies Nickel-Cadmium for central offices and outside plant, supporting the modeled legacy telecom cohort but not its installed attachment or replacement spending. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-nicd/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: EnerSys identifies Nickel-Cadmium for central offices and outside plant, supporting the modeled legacy telecom cohort but not its installed attachment or replacement spending. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-nicd/))
39. FDK Ni-MH Battery Is Chosen for the Cellect 600 Product of Alpha Technologies
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The October xx.xx 2015 announcement identifies NiMH in Alpha's Cellect xx.xx small-cell backup proposition. It supports a historical cohort rather than current fulfillment or assumed surviving stock. ([fdk.com](https://www.fdk.com/whatsnew-e/release20151019-e.html))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The October xx.xx 2015 announcement identifies NiMH in Alpha's Cellect xx.xx small-cell backup proposition. It supports a historical cohort rather than current fulfillment or assumed surviving stock. ([fdk.com](https://www.fdk.com/whatsnew-e/release20151019-e.html))
40. Products - Encell Technology
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Encell positions its Fused Iron Nickel-Iron battery for telecom. This supports the commercial category lead, while current purchases and attachment remain modeled. ([encell.com](https://encell.com/products/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Encell positions its Fused Iron Nickel-Iron battery for telecom. This supports the commercial category lead, while current purchases and attachment remain modeled. ([encell.com](https://encell.com/products/))
41. Telecom/5G - ZAF Energy Systems
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: ZAF positions Nickel-Zinc for telecom/5G. Its supplier proposition supports application mapping, not the modeled annual attachment or threefold forecast value multiplier. ([zafsys.com](https://zafsys.com/telecom-5g/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: ZAF positions Nickel-Zinc for telecom/5G. Its supplier proposition supports application mapping, not the modeled annual attachment or threefold forecast value multiplier. ([zafsys.com](https://zafsys.com/telecom-5g/))
42. HORIEN Salt Battery Solutions and Inlyte Energy Announce a Strategic Partnership
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: HORIEN's March xx.xx 2025 statement identifies sodium-metal-chloride telecom backup. Its separate partnership announcement is not counted as delivered telecom sales. ([horien.com](https://horien.com/wp-content/uploads/2025/xx.xx/Press-Release_HORIEN-Inlyte-International-Version.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: HORIEN's March xx.xx 2025 statement identifies sodium-metal-chloride telecom backup. Its separate partnership announcement is not counted as delivered telecom sales. ([horien.com](https://horien.com/wp-content/uploads/2025/xx.xx/Press-Release_HORIEN-Inlyte-International-Version.pdf))
43. Energy Backup - Phinergy
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Phinergy markets Aluminum-Air continuity offerings to telecom operators and tower companies. The source supports category and buyer mapping, not the modeled installed attachment or replacement numerator. ([phinergy.com](https://phinergy.com/solutions/energy-backup/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Phinergy markets Aluminum-Air continuity offerings to telecom operators and tower companies. The source supports category and buyer mapping, not the modeled installed attachment or replacement numerator. ([phinergy.com](https://phinergy.com/solutions/energy-backup/))

44. Australian Flow Batteries - RFB40X Series

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: RFB40X literature identifies telecom among stationary commercial applications. It supports the qualifying project boundary, not delivered projects, revenue or assumed attachment. ([afb.energy](https://www.afb.energy/wp-content/uploads/2025/xx.xx/Australian-Flow-Batteries-RFB40X-Series-2024.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: RFB40X literature identifies telecom among stationary commercial applications. It supports the qualifying project boundary, not delivered projects, revenue or assumed attachment. ([afb.energy](https://www.afb.energy/wp-content/uploads/2025/xx.xx/Australian-Flow-Batteries-RFB40X-Series-2024.pdf))

45. PowerReserve - Verizon Residential Accessories

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Verizon advertises an alkaline-cell voice-backup device at USD39.xx.xx excluding batteries. This supports a qualifying primary-zinc premises route and price comparator, not assumed Global attachment or first-sale realization. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Verizon advertises an alkaline-cell voice-backup device at USD39.xx.xx excluding batteries. This supports a qualifying primary-zinc premises route and price comparator, not assumed Global attachment or first-sale realization. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Advertised voice-only protection reaches xx.xx hours; internet and television protection are excluded. This supports service-specific Day-Scale classification. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Advertised voice-only protection reaches xx.xx hours; internet and television protection are excluded. This supports service-specific Day-Scale classification. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))

46. Alkaline Manganese Dioxide Handbook and Application Manual - Energizer

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The manufacturer's alkaline manganese-dioxide classification supports the zinc-family mapping for qualifying premises backup. It provides no telecom purchasing weight. ([data.energizer.com](https://data.energizer.com/pdfs/alkaline_appman.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The manufacturer's alkaline manganese-dioxide classification supports the zinc-family mapping for qualifying premises backup. It provides no telecom purchasing weight. ([data.energizer.com](https://data.energizer.com/pdfs/alkaline_appman.pdf))

47. ITU-T Work Programme - Aqueous Zinc-Based Battery Systems for Base Station Applications

- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The aqueous-zinc base-station work item is Under study with December 2027 timing. It constrains the forecast commercialization assumption but establishes neither approval nor customer purchases. ([itu.int](https://www.itu.int/itu-t/workprog/wp_item.aspx?isn=xx.xx))

48. ITU-T L.1397 - Battery System with Integrated Control and Monitoring Information Model

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The October 2025 recommendation names lithium-lead, lithium-sodium and sodium-lead combinations. This supports mixed-family classification, not inseparable pricing or Global prevalence. ([itu.int](https://www.itu.int/rec/dologin_pub.asp?id=T-REC-L.xx.xx-xx.xx-I%xx.xx%21PDF-E&lang=e&type=items))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The October 2025 recommendation names lithium-lead, lithium-sodium and sodium-lead combinations. This supports mixed-family classification, not inseparable pricing or Global prevalence. ([itu.int](https://www.itu.int/rec/dologin_pub.asp?id=T-REC-L.xx.xx-xx.xx-I%xx.xx%21PDF-E&lang=e&type=items))

49. ETSI EN 300 132-1 V2.2.1 - ICT Power Supply Interface: Alternating Current
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The ICT standard identifies the protected-load AC interface, supporting output-side attribution rather than classification by chemistry or normal utility input. It supplies no sales mix. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013201v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The ICT standard identifies the protected-load AC interface, supporting output-side attribution rather than classification by chemistry or normal utility input. It supplies no sales mix. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013201v020201p.pdf))
50. ETSI EN 300 132-2 V2.8.1 - ICT Power Supply Interface: Direct Current
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The ICT standard separately identifies the DC protected-equipment interface, supporting the DC-output boundary independently of battery chemistry. It is not a purchasing census. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013202v020801p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The ICT standard separately identifies the DC protected-equipment interface, supporting the DC-output boundary independently of battery chemistry. It is not a purchasing census. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013202v020801p.pdf))
51. Vertiv NetSure Inverter Series - Converged AC and DC Power System
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: NetSure Inverter Series identifies AC and DC loads supported through a common battery bank. This establishes a combined-output proposition, not its modeled purchasing fraction or future adoption. ([vertiv.com](https://www.vertiv.com/en-us/products-catalog/critical-power/dc-power-systems/vertiv-netsure-inverter-series/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: NetSure Inverter Series identifies AC and DC loads supported through a common battery bank. This establishes a combined-output proposition, not its modeled purchasing fraction or future adoption. ([vertiv.com](https://www.vertiv.com/en-us/products-catalog/critical-power/dc-power-systems/vertiv-netsure-inverter-series/))

52. ETSI EN 302 099 V2.2.1 - Powering of Equipment in Access Network
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Local powering uses a colocated source; allocation follows the backed source rather than receiver inventory. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Local powering uses a colocated source; allocation follows the backed source rather than receiver inventory. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Remote-source backup is distinguished from local backup, supporting the parent commercial boundary but not purchasing weights. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Remote-source backup is distinguished from local backup, supporting the parent commercial boundary but not purchasing weights. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Centralized powering originates at a telecommunications center. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Centralized powering originates at a telecommunications center. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Cluster powering uses a source outside the telecommunications center, supporting separation within Remote Powering. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Cluster powering uses a source outside the telecommunications center, supporting separation within Remote Powering. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Reverse powering is customer-origin supply, supporting source-level attribution of the battery-backed provider package. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Reverse powering is customer-origin supply, supporting source-level attribution of the battery-backed provider package. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))

53. Set Up Your Battery Backup - AT&T G.Fast Service with BGW210

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The 2021 provider document names a battery-backed package protecting G.fast customer and distribution equipment through reverse power feed. It establishes a dated source-backup proposition, not current Global quantities. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The 2021 provider document names a battery-backed package protecting G.fast customer and distribution equipment through reverse power feed. It establishes a dated source-backup proposition, not current Global quantities. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The provider advertises a xx.xx-hour service window for the particular package, supporting Day-Scale mapping without a universal premises-duration inference. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The provider advertises a xx.xx-hour service window for the particular package, supporting Day-Scale mapping without a universal premises-duration inference. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

54. DNA Tower Offers Battery Capacity in Electricity Reserve Markets with Elisa DES

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The June xx.xx 2025 announcement reports DNA Tower batteries connected to Finnish reserve markets while retaining outage continuity. This establishes a specific mixed-duty implementation, not Global attachment or guaranteed returns. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/press-releases/dna-tower-becomes-worlds-first-tower-company-to-offer-battery-capacity-in-electricity-reserve-markets-with-elisa-des))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The June xx.xx 2025 announcement reports DNA Tower batteries connected to Finnish reserve markets while retaining outage continuity. This establishes a specific mixed-duty implementation, not Global attachment or guaranteed returns. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/press-releases/dna-tower-becomes-worlds-first-tower-company-to-offer-battery-capacity-in-electricity-reserve-markets-with-elisa-des))

55. Case Elisa: Virtual Power Plant in the Telecom Industry

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The company case reports over 2,000 aggregated sites and approximately xx.xx MWh. This is an installed commercial scale check, not annual purchasing value or Global prevalence. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/customer-stories/elisacase))

19.4. Africa

Table 292. Africa Telecom Battery Backup System Market, by Country growth contribution, 2025-2032

Category	2025 value (USD Million)	2032 value (USD Million)	Added value (USD Million)	2025 share (%)	2032 share (%)	Change (pp)	Growth share (%)	CAGR (%)
Egypt	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Kenya	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nigeria	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Unallocated / remaining scope	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scope total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 293. Africa Telecom Battery Backup System Market Size, by Region, 2017-2032 (USD Million)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Egypt	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Kenya	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nigeria	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 294. Africa Telecom Battery Backup System Market Size, by Offering, 2017-2032 (USD Million)

Offering	2023	2024	2025	2026	2027	2032	CAGR (%)
Battery Units and Assemblies	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Complete Backup Systems	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 295. Africa Telecom Battery Backup System Market Size, by Battery Technology, 2017-2032 (USD Million)

Battery Technology	2023	2024	2025	2026	2027	2032	CAGR (%)
Aqueous Zinc-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Flow Batteries	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lithium-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Metal-Air	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Multi-Chemistry	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Sodium-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 296. Africa Telecom Battery Backup System Market Size, by Lead-Acid, 2017-2032 (USD Million)

Lead-Acid	2023	2024	2025	2026	2027	2032	CAGR (%)
Flooded Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Valve-Regulated Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 297. Africa Telecom Battery Backup System Market Size, by Valve-Regulated Lead-Acid, 2017-2032 (USD Million)

Valve-Regulated Lead-Acid	2023	2024	2025	2026	2027	2032	CAGR (%)
Absorbent Glass Mat	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Gel	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 298. Africa Telecom Battery Backup System Market Size, by Lithium-Based, 2017-2032 (USD Million)

Lithium-Based	2023	2024	2025	2026	2027	2032	CAGR (%)
Lithium-Ion	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lithium-Metal	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 299. Africa Telecom Battery Backup System Market Size, by Nickel-Based, 2017-2032 (USD Million)

Nickel-Based	2023	2024	2025	2026	2027	2032	CAGR (%)
Nickel-Cadmium	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Iron	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Metal Hydride	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Zinc	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 300. Africa Telecom Battery Backup System Market Size, by Power Interface, 2017-2032 (USD Million)

Power Interface	2023	2024	2025	2026	2027	2032	CAGR (%)
AC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Combined AC/DC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
DC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 301. Africa Telecom Battery Backup System Market Size, by Network Application, 2017-2032 (USD Million)

Network Application	2023	2024	2025	2026	2027	2032	CAGR (%)
Core Networks & Network Control	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Customer-Premises Connectivity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Network Interconnection & Peering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Transport & Backhaul Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Wireless Access Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Wireline Access Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 302. Africa Telecom Battery Backup System Market Size, by Buyer Type, 2017-2032 (USD Million)

Buyer Type	2023	2024	2025	2026	2027	2032	CAGR (%)
Business & Institutional Connectivity Owners	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Equipment Leasing & Rental Providers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Household Connectivity Purchasers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Energy-Service Providers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Infrastructure & Tower Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecommunications Network Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 303. Africa Telecom Battery Backup System Market Size, by Installation Environment, 2017-2032 (USD Million)

Installation Environment	2023	2024	2025	2026	2027	2032	CAGR (%)
Non-Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Underground Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 304. Africa Telecom Battery Backup System Market Size, by Weather-Protected Locations, 2017-2032 (USD Million)

Weather-Protected Locations	2023	2024	2025	2026	2027	2032	CAGR (%)
Enclosed Locations Without Temperature Control	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Partly Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Temperature-Controlled Enclosed Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 305. Africa Telecom Battery Backup System Market Size, by Non-Weather-Protected Locations, 2017-2032 (USD Million)

Non-Weather-Protected Locations	2023	2024	2025	2026	2027	2032	CAGR (%)
Open-Air Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Sheltered Non-Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 306. Africa Telecom Battery Backup System Market Size, by Powering Architecture, 2017-2032 (USD Million)

Powering Architecture	2023	2024	2025	2026	2027	2032	CAGR (%)
Local Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Remote Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 307. Africa Telecom Battery Backup System Market Size, by Remote Powering, 2017-2032 (USD Million)

Remote Powering	2023	2024	2025	2026	2027	2032	CAGR (%)
Centralized Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Cluster Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reverse Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 308. Africa Telecom Battery Backup System Market Size, by Commercial Delivery Model, 2017-2032 (USD Million)

Commercial Delivery Model	2023	2024	2025	2026	2027	2032	CAGR (%)
Leased or Rented Equipment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Managed Backup Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Owned Equipment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 309. Africa Telecom Battery Backup System Market Size, by Sales Channel, 2017-2032 (USD Million)

Sales Channel	2023	2024	2025	2026	2027	2032	CAGR (%)
Direct Manufacturer Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Distributor and Retailer Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Systems Integrator and Contractor Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Service Provider Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 310. Africa Telecom Battery Backup System Market Size, by Grid Availability, 2017-2032 (USD Million)

Grid Availability	2023	2024	2025	2026	2027	2032	CAGR (%)
Off-Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reliable Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Unreliable Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 311. Africa Telecom Battery Backup System Market Size, by Backup Duty, 2017-2032 (USD Million)

Backup Duty	2023	2024	2025	2026	2027	2032	CAGR (%)
Backup with Energy Management	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reserve-Only Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 312. Africa Telecom Battery Backup System Market Size, by Backup Autonomy, 2017-2032 (USD Million)

Backup Autonomy	2023	2024	2025	2026	2027	2032	CAGR (%)
Day-Scale Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Extended-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Intermediate-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Short-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. China Tower - 2025 Annual Results, March 18, 2026
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The xx.xx.149m-site inventory constrains wireless activity; forecast purchasing remains modeled.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The xx.xx.149m-site inventory constrains wireless activity; forecast purchasing remains modeled.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Replacement/improvement CAPEX fell from RMB6837m to RMB5474m, qualifying automatic replacement-led growth.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Replacement/improvement CAPEX fell from RMB6837m to RMB5474m, qualifying automatic replacement-led growth.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Disclosed tower operations establish a material infrastructure purchasing setting, not a global buyer share.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Disclosed tower operations establish a material infrastructure purchasing setting, not a global buyer share.
2. Broadband Commission - The State of Broadband: Our Digital World, 2025
   - Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))

3. Battery Backup - Meriwether Lewis Electric Cooperative
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Separately available replacement batteries support a battery-only replacement route.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Separately available replacement batteries support a battery-only replacement route.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The USD100-plus-tax device is a retail comparator, not an observed 2025 first-sale realization.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The USD100-plus-tax device is a retail comparator, not an observed 2025 first-sale realization.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Customer purchase and replacement responsibilities support household-funded procurement.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Customer purchase and replacement responsibilities support household-funded procurement.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Purchased equipment does not automatically include continuing service-plan coverage.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Purchased equipment does not automatically include continuing service-plan coverage.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Local provider sales establish this route alongside manufacturer-direct purchasing.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Local provider sales establish this route alongside manufacturer-direct purchasing.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The provider advertises approximately five hours for combined voice and internet, supporting service-specific Extended classification, not an observed 2025 purchase mix. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The provider advertises approximately five hours for combined voice and internet, supporting service-specific Extended classification, not an observed 2025 purchase mix. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The same proposition advertises xx.xx-hour voice-only protection, supporting Day-Scale mapping without equating duration with a universally larger purchase basket. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The same proposition advertises xx.xx-hour voice-only protection, supporting Day-Scale mapping without equating duration with a universally larger purchase basket. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
4. EnerSys 2026 Proxy Statement and Annual Report
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Direct customer supply is disclosed within a diversified international business; telecom channel proportions are not disclosed.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Direct customer supply is disclosed within a diversified international business; telecom channel proportions are not disclosed.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Distributor supply is disclosed, supporting route occurrence rather than its modeled sales weight.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Distributor supply is disclosed, supporting route occurrence rather than its modeled sales weight.

5. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025

   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: Audited 2025 telecom revenue of RMB1,xx.xx declined xx.xx%; telecom purchasing weakness is retained as counterevidence to automatic substitution-led aggregate growth. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Audited 2025 telecom revenue of RMB1,xx.xx declined xx.xx%; telecom purchasing weakness is retained as counterevidence to automatic substitution-led aggregate growth. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: Telecom-specific results are separated from adjacent data-center and power-storage growth when assessing lithium substitution; the filing does not disclose the modeled Global split. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom-specific results are separated from adjacent data-center and power-storage growth when assessing lithium substitution; the filing does not disclose the modeled Global split. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

6. Amara Raja Energy & Mobility - Q2/H1 FY2026 Earnings Presentation, November 6, 2025

   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand. ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))

7. IHS Holding Limited - First-Quarter 2026 Financial Statements

   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement. ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

8. Ofcom - Mobile RAN Power Resilience: Technical Report and CFI Update, February 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The evaluated xx.xx-minute alternative supplies a subhour commercial-planning anchor, not observed shipments.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The evaluated xx.xx-minute alternative supplies a subhour commercial-planning anchor, not observed shipments.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: One-hour and two-hour alternatives anchor the analytical Intermediate band. Aggregate scenarios include multiple years of operating costs and are not annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: One-hour and two-hour alternatives anchor the analytical Intermediate band. Aggregate scenarios include multiple years of operating costs and are not annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The four-hour alternative anchors the Extended band's lower boundary without establishing a Global minimum or purchasing allocation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The four-hour alternative anchors the Extended band's lower boundary without establishing a Global minimum or purchasing allocation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

9. Ofcom - Your Landline Is Going Digital: What You Need to Know

- Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
- Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Restricted provider-funded eligibility constrains operator-funded premises attribution and forecast adoption.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Restricted provider-funded eligibility constrains operator-funded premises attribution and forecast adoption.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Eligibility is not universal household funding; purchaser proportions remain assumptions.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Eligibility is not universal household funding; purchaser proportions remain assumptions.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Eligibility-limited provider backup and the one-hour minimum for qualifying customers constrain premises demand and anchor the Intermediate band's lower boundary. They do not establish universal adoption. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Eligibility-limited provider backup and the one-hour minimum for qualifying customers constrain premises demand and anchor the Intermediate band's lower boundary. They do not establish universal adoption. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

10. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone
    - Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue. ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
    - Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions. ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: USD45m financing and xx.xx planned site modernizations support an expansion signal, not observed backup-only service revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: USD45m financing and xx.xx planned site modernizations support an expansion signal, not observed backup-only service revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Energy-service activity supports the role; the modeled provider-as-buyer subcontract share is not established.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Energy-service activity supports the role; the modeled provider-as-buyer subcontract share is not established.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: More than xx.xx% weak/off-grid project exposure constrains service-cohort concentration, not the global grid mix.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: More than xx.xx% weak/off-grid project exposure constrains service-cohort concentration, not the global grid mix.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The project confirms disconnected-site commercial demand; its weak/off-grid combined statistic does not separate those categories.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The project confirms disconnected-site commercial demand; its weak/off-grid combined statistic does not separate those categories.
11. Fingrid - How to Participate in the Reserve Markets
    - Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue. ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Applicable owner permission and market agreements are commercial access gates. They constrain forecast mixed-duty adoption without measuring its Global percentage. ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))
12. Government of India, Department of Telecommunications - Telecom Statistics India 2025, international comparison tables
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Wireless and fixed-access customer pools are distinguished in the country model.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Wireless and fixed-access customer pools are distinguished in the country model.

13. American Tower Corporation - Annual Report on Form 10-K for 2025
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African operating-country inventories provide installed-commercial-footprint anchors.

14. IHS Holding Limited - Annual Report on Form 20-F for 2024
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: African maintenance-capex envelopes and differentiated power arrangements support higher purchasing intensity, but do not isolate battery-only revenue.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Nigerian power-management activity supports a material network-backup purchasing context.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Nigerian power-management activity supports a material network-backup purchasing context.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: South African contractual differences qualify an Africa-wide managed-power assumption.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: South African contractual differences qualify an Africa-wide managed-power assumption.

15. PowerSafe SBS Batteries | EnerSys
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Named telecom batteries support the battery-unit offering boundary; allocation weights are assumed.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Named telecom batteries support the battery-unit offering boundary; allocation weights are assumed.

16. Vertiv NetSure M Series
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Configured enclosure, power and battery options support broader system classification, not universal bundle inclusion.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Configured enclosure, power and battery options support broader system classification, not universal bundle inclusion.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: A marketed outdoor enclosure supports a protection option; global adoption and configuration proportions remain modeled.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A marketed outdoor enclosure supports a protection option; global adoption and configuration proportions remain modeled.

17. Ofcom - Network and Service Resilience Guidance for Communications Providers, June 16, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Core is a distinct, comparatively concentrated function with explicit backup expectations; global spending remains estimated.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Core is a distinct, comparatively concentrated function with explicit backup expectations; global spending remains estimated.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The stated xx.xx-xx.xx-fold site-scale distinction motivates lower-value, more numerous transport purchase equivalents.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The stated xx.xx-xx.xx-fold site-scale distinction motivates lower-value, more numerous transport purchase equivalents.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Peering and non-Internet interconnection are distinct functions; attributable backup purchase values are not disclosed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Peering and non-Internet interconnection are distinct functions; attributable backup purchase values are not disclosed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: June 2026 guidance identifies approximately four hours as good practice for active fixed-access cabinets. This supports a conditional Extended purchasing shift, not completed orders or a Global mandate. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/network-and-service-resilience-guidance-for-communications-providerspdf?v=xx.xx))
18. Technology and Tools | First Responder Network Authority
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Radio access, transport backhaul and core are separate network functions, supporting functional attribution without duplicate facility counting.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Radio access, transport backhaul and core are separate network functions, supporting functional attribution without duplicate facility counting.
19. Mobile Network Hardening Program | Australian Department of Infrastructure
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Completed battery enhancements and broader resilience projects provide a delivered regional demand signal, not a global forecast rate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Completed battery enhancements and broader resilience projects provide a delivered regional demand signal, not a global forecast rate.
20. BT - Digital Voice for Business Service Schedule, May 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Business customers bear backup-power expense, supporting a distinct institutional/business payer route rather than consumer eligibility extrapolation.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Business customers bear backup-power expense, supporting a distinct institutional/business payer route rather than consumer eligibility extrapolation.
21. Los Angeles Metro - Board Report 2024-1128, UPS Battery Replacement
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Completed and additional UPS battery replacements support continuing underground demand; mixed-load project budgets are not telecom-only revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Completed and additional UPS battery replacements support continuing underground demand; mixed-load project budgets are not telecom-only revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The transit authority's purchasing program supports an institutional own-use role, not its global spending proportion.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The transit authority's purchasing program supports an institutional own-use role, not its global spending proportion.

22. ETSI EN 300 019-1-3 V3.1.1 - Stationary Use at Weatherprotected Locations, May 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Weather-protected categories distinguish enclosure from environmental control; the standard does not measure market mix.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Weather-protected categories distinguish enclosure from environmental control; the standard does not measure market mix.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Maintained temperature control is a separate classification premise for the modeled conditional allocation.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Maintained temperature control is a separate classification premise for the modeled conditional allocation.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Enclosed locations without temperature control are distinguished from controlled locations.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Enclosed locations without temperature control are distinguished from controlled locations.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Partial weather protection is recognized separately; sales weights and future adoption remain assumed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Partial weather protection is recognized separately; sales weights and future adoption remain assumed.
23. ETSI EN 300 019-1-4 V3.1.1 - Stationary Use at Non-Weatherprotected Locations, May 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Non-weather-protected locations form a distinct classification regime, not a measured global spending pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Non-weather-protected locations form a distinct classification regime, not a measured global spending pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Sheltered non-weather-protected locations support the named conditional category.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Sheltered non-weather-protected locations support the named conditional category.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Open-air locations are separately recognized; their purchasing mix remains modeled.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Open-air locations are separately recognized; their purchasing mix remains modeled.
24. DC Power Plant / Rectifiers - UPS Rental
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Battery and complete DC-plant rentals establish delivery-category occurrence; global fees and utilization are not disclosed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Battery and complete DC-plant rentals establish delivery-category occurrence; global fees and utilization are not disclosed.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Commercial rental availability is a role premise only; modeled lessor sub-hire procurement remains unverified.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Commercial rental availability is a role premise only; modeled lessor sub-hire procurement remains unverified.

25. Helios Towers - Full Year Results 2025, March 12, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Grid-integration investment supplies a connection-improvement counterforce used conditionally in the forecast.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Grid-integration investment supplies a connection-improvement counterforce used conditionally in the forecast.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Reported xx.xx-hour average daily grid availability supports weak-grid commercial exposure, without a global classification share.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Reported xx.xx-hour average daily grid availability supports weak-grid commercial exposure, without a global classification share.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Grid integration and alternative-power investment qualify assumptions of permanently unchanged disconnected-site exposure.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Grid integration and alternative-power investment qualify assumptions of permanently unchanged disconnected-site exposure.
26. Telecommunications | Aggreko US
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Telecom battery-storage rental for temporary continuity supports delivery occurrence, not the estimated global fee scale.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom battery-storage rental for temporary continuity supports delivery occurrence, not the estimated global fee scale.
27. EnerSys PowerSafe SBS Front Terminal Batteries | Alpine Power Systems
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A named battery distributor supports the intermediary route; its listing is not a global channel-sales observation.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A named battery distributor supports the intermediary route; its listing is not a global channel-sales observation.
28. DC Power Services | Vertiv
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Cross-manufacturer projects and narrower upgrades support integration-prime and supported-replacement routes; numerical route proportions remain assumed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Cross-manufacturer projects and narrower upgrades support integration-prime and supported-replacement routes; numerical route proportions remain assumed.

29. Shuangdeng Group Co., Ltd. - Global Offering Prospectus, August 18, 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The company's own five-month 2025 lead-acid realization of RMB520.xx.xx/kWh constrains the relative-price bridge; syndicated industry claims are excluded. Forecast convergence remains assumed. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The company's own five-month 2025 lead-acid realization of RMB520.xx.xx/kWh constrains the relative-price bridge; syndicated industry claims are excluded. Forecast convergence remains assumed. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Own lithium-ion realization of RMB595.xx.xx/kWh is an input to the Lithium-Based value model, not a Global share or a Lithium-Metal sales observation. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Own lithium-ion realization of RMB595.xx.xx/kWh is an input to the Lithium-Based value model, not a Global share or a Lithium-Metal sales observation. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
30. Amara Raja Crosses 1 GWh Lithium Storage Deployment Powering India's Telecom Networks
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The April xx.xx 2026 disclosure reports approximately xx.xx GWh across xx.xx cumulative telecom lithium sites over four years. This is a commercial adoption scale check, not annual Global revenue or a supplier-share input. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The April xx.xx 2026 disclosure reports approximately xx.xx GWh across xx.xx cumulative telecom lithium sites over four years. This is a commercial adoption scale check, not annual Global revenue or a supplier-share input. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The disclosed deployment identifies lithium-ion commercialization at scale, supporting the subtype's established commercial position without directly measuring its conditional Global share. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The disclosed deployment identifies lithium-ion commercialization at scale, supporting the subtype's established commercial position without directly measuring its conditional Global share. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
31. Central Office Power Systems - EnerSys
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The central-office portfolio identifies Flooded Lead-Acid as a distinct telecom alternative, supporting the legacy-network category mapping but not its purchasing fraction. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The central-office portfolio identifies Flooded Lead-Acid as a distinct telecom alternative, supporting the legacy-network category mapping but not its purchasing fraction. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The portfolio separately identifies Valve-Regulated Lead-Acid, supporting the within-lead construction boundary used by the model. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The portfolio separately identifies Valve-Regulated Lead-Acid, supporting the within-lead construction boundary used by the model. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))

32. PowerSafe OPzV Batteries - EnerSys

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: EnerSys identifies OPzV as Gel and lists telecom applications. This supports commercial subtype mapping, not the assumed Gel/AGM volume or price mix.
([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-opzv/))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: EnerSys identifies OPzV as Gel and lists telecom applications. This supports commercial subtype mapping, not the assumed Gel/AGM volume or price mix.
([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-opzv/))

33. Bolloré - 2017 Registration Document

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The official filing identifies LMP professional outage-protection applications including telecom relays. This is a dated commercial boundary input, not evidence of 2025 telecom shipment value.
([bollore.com](https://www.bollore.com/wp-content/uploads/2018/xx.xx/bollore_ddr_2017_gb_bag-xx.xx-juin.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The official filing identifies LMP professional outage-protection applications including telecom relays. This is a dated commercial boundary input, not evidence of 2025 telecom shipment value.
([bollore.com](https://www.bollore.com/wp-content/uploads/2018/xx.xx/bollore_ddr_2017_gb_bag-xx.xx-juin.pdf))

34. Bolloré - Business Report 2025

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The 2025 report establishes continuing Lithium Metal Polymer commercial applications in electricity storage and buses, while omitting separately attributable telecom sales. It constrains the low-access expected-purchase model; no capacity-to-sales conversion is used.
([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The 2025 report establishes continuing Lithium Metal Polymer commercial applications in electricity storage and buses, while omitting separately attributable telecom sales. It constrains the low-access expected-purchase model; no capacity-to-sales conversion is used.
([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The report preserves the distinction between LMP and conventional lithium-ion, supporting the exhaustive subtype attribution rule rather than treating polymer packaging as Lithium-Metal.
([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The report preserves the distinction between LMP and conventional lithium-ion, supporting the exhaustive subtype attribution rule rather than treating polymer packaging as Lithium-Metal.
([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))

35. AT&T to Replace U-Verse Cabinet Batteries - Fierce Network, January 15, 2008

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The January xx.xx 2008 report corroborates AT&T's replacement of approximately xx.xx Avestor batteries after the supplier's closure. The obsolete stock is therefore not carried into the 2025 or 2032 purchasing numerator.
([fierce-network.com](https://www.fierce-network.com/telecom/at-t-to-replace-u-verse-cabinet-batteries))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The January xx.xx 2008 report corroborates AT&T's replacement of approximately xx.xx Avestor batteries after the supplier's closure. The obsolete stock is therefore not carried into the 2025 or 2032 purchasing numerator.
([fierce-network.com](https://www.fierce-network.com/telecom/at-t-to-replace-u-verse-cabinet-batteries))

36. PowerSafe NiCd Batteries - EnerSys
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: EnerSys identifies Nickel-Cadmium for central offices and outside plant, supporting the modeled legacy telecom cohort but not its installed attachment or replacement spending. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-nicd/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: EnerSys identifies Nickel-Cadmium for central offices and outside plant, supporting the modeled legacy telecom cohort but not its installed attachment or replacement spending. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-nicd/))
37. FDK Ni-MH Battery Is Chosen for the Cellect 600 Product of Alpha Technologies
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The October xx.xx 2015 announcement identifies NiMH in Alpha's Cellect xx.xx small-cell backup proposition. It supports a historical cohort rather than current fulfillment or assumed surviving stock. ([fdk.com](https://www.fdk.com/whatsnew-e/release20151019-e.html))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The October xx.xx 2015 announcement identifies NiMH in Alpha's Cellect xx.xx small-cell backup proposition. It supports a historical cohort rather than current fulfillment or assumed surviving stock. ([fdk.com](https://www.fdk.com/whatsnew-e/release20151019-e.html))
38. Products - Encell Technology
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Encell positions its Fused Iron Nickel-Iron battery for telecom. This supports the commercial category lead, while current purchases and attachment remain modeled. ([encell.com](https://encell.com/products/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Encell positions its Fused Iron Nickel-Iron battery for telecom. This supports the commercial category lead, while current purchases and attachment remain modeled. ([encell.com](https://encell.com/products/))
39. Telecom/5G - ZAF Energy Systems
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: ZAF positions Nickel-Zinc for telecom/5G. Its supplier proposition supports application mapping, not the modeled annual attachment or threefold forecast value multiplier. ([zafsys.com](https://zafsys.com/telecom-5g/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: ZAF positions Nickel-Zinc for telecom/5G. Its supplier proposition supports application mapping, not the modeled annual attachment or threefold forecast value multiplier. ([zafsys.com](https://zafsys.com/telecom-5g/))
40. HORIEN Salt Battery Solutions and Inlyte Energy Announce a Strategic Partnership
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: HORIEN's March xx.xx 2025 statement identifies sodium-metal-chloride telecom backup. Its separate partnership announcement is not counted as delivered telecom sales. ([horien.com](https://horien.com/wp-content/uploads/2025/xx.xx/Press-Release_HORIEN-Inlyte-International-Version.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: HORIEN's March xx.xx 2025 statement identifies sodium-metal-chloride telecom backup. Its separate partnership announcement is not counted as delivered telecom sales. ([horien.com](https://horien.com/wp-content/uploads/2025/xx.xx/Press-Release_HORIEN-Inlyte-International-Version.pdf))
41. Energy Backup - Phinergy
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Phinergy markets Aluminum-Air continuity offerings to telecom operators and tower companies. The source supports category and buyer mapping, not the modeled installed attachment or replacement numerator. ([phinergy.com](https://phinergy.com/solutions/energy-backup/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Phinergy markets Aluminum-Air continuity offerings to telecom operators and tower companies. The source supports category and buyer mapping, not the modeled installed attachment or replacement numerator. ([phinergy.com](https://phinergy.com/solutions/energy-backup/))

42. Australian Flow Batteries - RFB40X Series

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: RFB40X literature identifies telecom among stationary commercial applications. It supports the qualifying project boundary, not delivered projects, revenue or assumed attachment. ([afb.energy](https://www.afb.energy/wp-content/uploads/2025/xx.xx/Australian-Flow-Batteries-RFB40X-Series-2024.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: RFB40X literature identifies telecom among stationary commercial applications. It supports the qualifying project boundary, not delivered projects, revenue or assumed attachment. ([afb.energy](https://www.afb.energy/wp-content/uploads/2025/xx.xx/Australian-Flow-Batteries-RFB40X-Series-2024.pdf))

43. PowerReserve - Verizon Residential Accessories

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Verizon advertises an alkaline-cell voice-backup device at USD39.xx.xx excluding batteries. This supports a qualifying primary-zinc premises route and price comparator, not assumed Global attachment or first-sale realization. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Verizon advertises an alkaline-cell voice-backup device at USD39.xx.xx excluding batteries. This supports a qualifying primary-zinc premises route and price comparator, not assumed Global attachment or first-sale realization. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Advertised voice-only protection reaches xx.xx hours; internet and television protection are excluded. This supports service-specific Day-Scale classification. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Advertised voice-only protection reaches xx.xx hours; internet and television protection are excluded. This supports service-specific Day-Scale classification. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))

44. Alkaline Manganese Dioxide Handbook and Application Manual - Energizer

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The manufacturer's alkaline manganese-dioxide classification supports the zinc-family mapping for qualifying premises backup. It provides no telecom purchasing weight. ([data.energizer.com](https://data.energizer.com/pdfs/alkaline_appman.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The manufacturer's alkaline manganese-dioxide classification supports the zinc-family mapping for qualifying premises backup. It provides no telecom purchasing weight. ([data.energizer.com](https://data.energizer.com/pdfs/alkaline_appman.pdf))

45. ITU-T Work Programme - Aqueous Zinc-Based Battery Systems for Base Station Applications

- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The aqueous-zinc base-station work item is Under study with December 2027 timing. It constrains the forecast commercialization assumption but establishes neither approval nor customer purchases. ([itu.int](https://www.itu.int/itu-t/workprog/wp_item.aspx?isn=xx.xx))

46. ITU-T L.1397 - Battery System with Integrated Control and Monitoring Information Model

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The October 2025 recommendation names lithium-lead, lithium-sodium and sodium-lead combinations. This supports mixed-family classification, not inseparable pricing or Global prevalence. ([itu.int](https://www.itu.int/rec/dologin_pub.asp?id=T-REC-L.xx.xx-xx.xx-I%xx.xx%21PDF-E&lang=e&type=items))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The October 2025 recommendation names lithium-lead, lithium-sodium and sodium-lead combinations. This supports mixed-family classification, not inseparable pricing or Global prevalence. ([itu.int](https://www.itu.int/rec/dologin_pub.asp?id=T-REC-L.xx.xx-xx.xx-I%xx.xx%21PDF-E&lang=e&type=items))

47. ETSI EN 300 132-1 V2.2.1 - ICT Power Supply Interface: Alternating Current
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The ICT standard identifies the protected-load AC interface, supporting output-side attribution rather than classification by chemistry or normal utility input. It supplies no sales mix. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013201v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The ICT standard identifies the protected-load AC interface, supporting output-side attribution rather than classification by chemistry or normal utility input. It supplies no sales mix. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013201v020201p.pdf))
48. ETSI EN 300 132-2 V2.8.1 - ICT Power Supply Interface: Direct Current
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The ICT standard separately identifies the DC protected-equipment interface, supporting the DC-output boundary independently of battery chemistry. It is not a purchasing census. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013202v020801p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The ICT standard separately identifies the DC protected-equipment interface, supporting the DC-output boundary independently of battery chemistry. It is not a purchasing census. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013202v020801p.pdf))
49. Vertiv NetSure Inverter Series - Converged AC and DC Power System
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: NetSure Inverter Series identifies AC and DC loads supported through a common battery bank. This establishes a combined-output proposition, not its modeled purchasing fraction or future adoption. ([vertiv.com](https://www.vertiv.com/en-us/products-catalog/critical-power/dc-power-systems/vertiv-netsure-inverter-series/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: NetSure Inverter Series identifies AC and DC loads supported through a common battery bank. This establishes a combined-output proposition, not its modeled purchasing fraction or future adoption. ([vertiv.com](https://www.vertiv.com/en-us/products-catalog/critical-power/dc-power-systems/vertiv-netsure-inverter-series/))

50. ETSI EN 302 099 V2.2.1 - Powering of Equipment in Access Network
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Local powering uses a colocated source; allocation follows the backed source rather than receiver inventory. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Local powering uses a colocated source; allocation follows the backed source rather than receiver inventory. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Remote-source backup is distinguished from local backup, supporting the parent commercial boundary but not purchasing weights. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Remote-source backup is distinguished from local backup, supporting the parent commercial boundary but not purchasing weights. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Centralized powering originates at a telecommunications center. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Centralized powering originates at a telecommunications center. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Cluster powering uses a source outside the telecommunications center, supporting separation within Remote Powering. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Cluster powering uses a source outside the telecommunications center, supporting separation within Remote Powering. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Reverse powering is customer-origin supply, supporting source-level attribution of the battery-backed provider package. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Reverse powering is customer-origin supply, supporting source-level attribution of the battery-backed provider package. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))

51. Set Up Your Battery Backup - AT&T G.Fast Service with BGW210

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The 2021 provider document names a battery-backed package protecting G.fast customer and distribution equipment through reverse power feed. It establishes a dated source-backup proposition, not current Global quantities. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The 2021 provider document names a battery-backed package protecting G.fast customer and distribution equipment through reverse power feed. It establishes a dated source-backup proposition, not current Global quantities. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The provider advertises a xx.xx-hour service window for the particular package, supporting Day-Scale mapping without a universal premises-duration inference. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The provider advertises a xx.xx-hour service window for the particular package, supporting Day-Scale mapping without a universal premises-duration inference. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

52. DNA Tower Offers Battery Capacity in Electricity Reserve Markets with Elisa DES

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The June xx.xx 2025 announcement reports DNA Tower batteries connected to Finnish reserve markets while retaining outage continuity. This establishes a specific mixed-duty implementation, not Global attachment or guaranteed returns. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/press-releases/dna-tower-becomes-worlds-first-tower-company-to-offer-battery-capacity-in-electricity-reserve-markets-with-elisa-des))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The June xx.xx 2025 announcement reports DNA Tower batteries connected to Finnish reserve markets while retaining outage continuity. This establishes a specific mixed-duty implementation, not Global attachment or guaranteed returns. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/press-releases/dna-tower-becomes-worlds-first-tower-company-to-offer-battery-capacity-in-electricity-reserve-markets-with-elisa-des))

53. Case Elisa: Virtual Power Plant in the Telecom Industry

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The company case reports over 2,000 aggregated sites and approximately xx.xx MWh. This is an installed commercial scale check, not annual purchasing value or Global prevalence. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/customer-stories/elisacase))

19.5. Latin America

Table 313. Latin America Telecom Battery Backup System Market, by Country growth contribution, 2025-2032

Category	2025 value (USD Million)	2032 value (USD Million)	Added value (USD Million)	2025 share (%)	2032 share (%)	Change (pp)	Growth share (%)	CAGR (%)
Argentina	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Chile	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Colombia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Peru	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Unallocated / remaining scope	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scope total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 314. Latin America Telecom Battery Backup System Market Size, by Region, 2017-2032 (USD Million)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Argentina	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Chile	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Colombia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Peru	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 315. Latin America Telecom Battery Backup System Market Size, by Offering, 2017-2032 (USD Million)

Offering	2023	2024	2025	2026	2027	2032	CAGR (%)
Battery Units and Assemblies	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Complete Backup Systems	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 316. Latin America Telecom Battery Backup System Market Size, by Battery Technology, 2017-2032 (USD Million)

Battery Technology	2023	2024	2025	2026	2027	2032	CAGR (%)
Aqueous Zinc-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Flow Batteries	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lithium-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Metal-Air	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Multi-Chemistry	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Sodium-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 317. Latin America Telecom Battery Backup System Market Size, by Lead-Acid, 2017-2032 (USD Million)

Lead-Acid	2023	2024	2025	2026	2027	2032	CAGR (%)
Flooded Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Valve-Regulated Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 318. Latin America Telecom Battery Backup System Market Size, by Valve-Regulated Lead-Acid, 2017-2032 (USD Million)

Valve-Regulated Lead-Acid	2023	2024	2025	2026	2027	2032	CAGR (%)
Absorbent Glass Mat	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Gel	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 319. Latin America Telecom Battery Backup System Market Size, by Lithium-Based, 2017-2032 (USD Million)

Lithium-Based	2023	2024	2025	2026	2027	2032	CAGR (%)
Lithium-Ion	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lithium-Metal	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 320. Latin America Telecom Battery Backup System Market Size, by Nickel-Based, 2017-2032 (USD Million)

Nickel-Based	2023	2024	2025	2026	2027	2032	CAGR (%)
Nickel-Cadmium	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Iron	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Metal Hydride	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Zinc	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 321. Latin America Telecom Battery Backup System Market Size, by Power Interface, 2017-2032 (USD Million)

Power Interface	2023	2024	2025	2026	2027	2032	CAGR (%)
AC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Combined AC/DC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
DC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 322. Latin America Telecom Battery Backup System Market Size, by Network Application, 2017-2032 (USD Million)

Network Application	2023	2024	2025	2026	2027	2032	CAGR (%)
Core Networks & Network Control	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Customer-Premises Connectivity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Network Interconnection & Peering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Transport & Backhaul Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Wireless Access Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Wireline Access Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 323. Latin America Telecom Battery Backup System Market Size, by Buyer Type, 2017-2032 (USD Million)

Buyer Type	2023	2024	2025	2026	2027	2032	CAGR (%)
Business & Institutional Connectivity Owners	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Equipment Leasing & Rental Providers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Household Connectivity Purchasers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Energy-Service Providers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Infrastructure & Tower Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecommunications Network Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 324. Latin America Telecom Battery Backup System Market Size, by Installation Environment, 2017-2032 (USD Million)

Installation Environment	2023	2024	2025	2026	2027	2032	CAGR (%)
Non-Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Underground Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 325. Latin America Telecom Battery Backup System Market Size, by Weather-Protected Locations, 2017-2032 (USD Million)

Weather-Protected Locations	2023	2024	2025	2026	2027	2032	CAGR (%)
Enclosed Locations Without Temperature Control	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Partly Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Temperature-Controlled Enclosed Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 326. Latin America Telecom Battery Backup System Market Size, by Non-Weather-Protected Locations, 2017-2032 (USD Million)

Non-Weather-Protected Locations	2023	2024	2025	2026	2027	2032	CAGR (%)
Open-Air Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Sheltered Non-Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 327. Latin America Telecom Battery Backup System Market Size, by Powering Architecture, 2017-2032 (USD Million)

Powering Architecture	2023	2024	2025	2026	2027	2032	CAGR (%)
Local Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Remote Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 328. Latin America Telecom Battery Backup System Market Size, by Remote Powering, 2017-2032 (USD Million)

Remote Powering	2023	2024	2025	2026	2027	2032	CAGR (%)
Centralized Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Cluster Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reverse Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 329. Latin America Telecom Battery Backup System Market Size, by Commercial Delivery Model, 2017-2032 (USD Million)

Commercial Delivery Model	2023	2024	2025	2026	2027	2032	CAGR (%)
Leased or Rented Equipment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Managed Backup Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Owned Equipment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 330. Latin America Telecom Battery Backup System Market Size, by Sales Channel, 2017-2032 (USD Million)

Sales Channel	2023	2024	2025	2026	2027	2032	CAGR (%)
Direct Manufacturer Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Distributor and Retailer Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Systems Integrator and Contractor Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Service Provider Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 331. Latin America Telecom Battery Backup System Market Size, by Grid Availability, 2017-2032 (USD Million)

Grid Availability	2023	2024	2025	2026	2027	2032	CAGR (%)
Off-Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reliable Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Unreliable Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 332. Latin America Telecom Battery Backup System Market Size, by Backup Duty, 2017-2032 (USD Million)

Backup Duty	2023	2024	2025	2026	2027	2032	CAGR (%)
Backup with Energy Management	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reserve-Only Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 333. Latin America Telecom Battery Backup System Market Size, by Backup Autonomy, 2017-2032 (USD Million)

Backup Autonomy	2023	2024	2025	2026	2027	2032	CAGR (%)
Day-Scale Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Extended-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Intermediate-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Short-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. China Tower - 2025 Annual Results, March 18, 2026
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The xx.xx.149m-site inventory constrains wireless activity; forecast purchasing remains modeled.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The xx.xx.149m-site inventory constrains wireless activity; forecast purchasing remains modeled.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Replacement/improvement CAPEX fell from RMB6837m to RMB5474m, qualifying automatic replacement-led growth.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Replacement/improvement CAPEX fell from RMB6837m to RMB5474m, qualifying automatic replacement-led growth.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Disclosed tower operations establish a material infrastructure purchasing setting, not a global buyer share.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Disclosed tower operations establish a material infrastructure purchasing setting, not a global buyer share.
2. Broadband Commission - The State of Broadband: Our Digital World, 2025
   - Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))

3. Battery Backup - Meriwether Lewis Electric Cooperative
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Separately available replacement batteries support a battery-only replacement route.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Separately available replacement batteries support a battery-only replacement route.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The USD100-plus-tax device is a retail comparator, not an observed 2025 first-sale realization.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The USD100-plus-tax device is a retail comparator, not an observed 2025 first-sale realization.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Customer purchase and replacement responsibilities support household-funded procurement.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Customer purchase and replacement responsibilities support household-funded procurement.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Purchased equipment does not automatically include continuing service-plan coverage.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Purchased equipment does not automatically include continuing service-plan coverage.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Local provider sales establish this route alongside manufacturer-direct purchasing.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Local provider sales establish this route alongside manufacturer-direct purchasing.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The provider advertises approximately five hours for combined voice and internet, supporting service-specific Extended classification, not an observed 2025 purchase mix. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The provider advertises approximately five hours for combined voice and internet, supporting service-specific Extended classification, not an observed 2025 purchase mix. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The same proposition advertises xx.xx-hour voice-only protection, supporting Day-Scale mapping without equating duration with a universally larger purchase basket. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The same proposition advertises xx.xx-hour voice-only protection, supporting Day-Scale mapping without equating duration with a universally larger purchase basket. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
4. EnerSys 2026 Proxy Statement and Annual Report
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Direct customer supply is disclosed within a diversified international business; telecom channel proportions are not disclosed.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Direct customer supply is disclosed within a diversified international business; telecom channel proportions are not disclosed.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Distributor supply is disclosed, supporting route occurrence rather than its modeled sales weight.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Distributor supply is disclosed, supporting route occurrence rather than its modeled sales weight.

5. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025

   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: Audited 2025 telecom revenue of RMB1,xx.xx declined xx.xx%; telecom purchasing weakness is retained as counterevidence to automatic substitution-led aggregate growth. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Audited 2025 telecom revenue of RMB1,xx.xx declined xx.xx%; telecom purchasing weakness is retained as counterevidence to automatic substitution-led aggregate growth. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: Telecom-specific results are separated from adjacent data-center and power-storage growth when assessing lithium substitution; the filing does not disclose the modeled Global split. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom-specific results are separated from adjacent data-center and power-storage growth when assessing lithium substitution; the filing does not disclose the modeled Global split. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

6. Amara Raja Energy & Mobility - Q2/H1 FY2026 Earnings Presentation, November 6, 2025

   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand. ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))

7. IHS Holding Limited - First-Quarter 2026 Financial Statements

   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement. ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

8. Ofcom - Mobile RAN Power Resilience: Technical Report and CFI Update, February 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The evaluated xx.xx-minute alternative supplies a subhour commercial-planning anchor, not observed shipments.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The evaluated xx.xx-minute alternative supplies a subhour commercial-planning anchor, not observed shipments.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: One-hour and two-hour alternatives anchor the analytical Intermediate band. Aggregate scenarios include multiple years of operating costs and are not annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: One-hour and two-hour alternatives anchor the analytical Intermediate band. Aggregate scenarios include multiple years of operating costs and are not annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The four-hour alternative anchors the Extended band's lower boundary without establishing a Global minimum or purchasing allocation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The four-hour alternative anchors the Extended band's lower boundary without establishing a Global minimum or purchasing allocation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

9. Ofcom - Your Landline Is Going Digital: What You Need to Know

- Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
- Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Restricted provider-funded eligibility constrains operator-funded premises attribution and forecast adoption.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Restricted provider-funded eligibility constrains operator-funded premises attribution and forecast adoption.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Eligibility is not universal household funding; purchaser proportions remain assumptions.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Eligibility is not universal household funding; purchaser proportions remain assumptions.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Eligibility-limited provider backup and the one-hour minimum for qualifying customers constrain premises demand and anchor the Intermediate band's lower boundary. They do not establish universal adoption. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Eligibility-limited provider backup and the one-hour minimum for qualifying customers constrain premises demand and anchor the Intermediate band's lower boundary. They do not establish universal adoption. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

10. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone
    - Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue. ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
    - Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions. ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: USD45m financing and xx.xx planned site modernizations support an expansion signal, not observed backup-only service revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: USD45m financing and xx.xx planned site modernizations support an expansion signal, not observed backup-only service revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Energy-service activity supports the role; the modeled provider-as-buyer subcontract share is not established.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Energy-service activity supports the role; the modeled provider-as-buyer subcontract share is not established.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: More than xx.xx% weak/off-grid project exposure constrains service-cohort concentration, not the global grid mix.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: More than xx.xx% weak/off-grid project exposure constrains service-cohort concentration, not the global grid mix.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The project confirms disconnected-site commercial demand; its weak/off-grid combined statistic does not separate those categories.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The project confirms disconnected-site commercial demand; its weak/off-grid combined statistic does not separate those categories.
11. Fingrid - How to Participate in the Reserve Markets
    - Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue. ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Applicable owner permission and market agreements are commercial access gates. They constrain forecast mixed-duty adoption without measuring its Global percentage. ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))
12. Government of India, Department of Telecommunications - Telecom Statistics India 2025, international comparison tables
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National fixed-access and mobile pools constrain the modeled country purchasing footprint.

13. American Tower Corporation - Annual Report on Form 10-K for 2025
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-owned and operated tower inventories constrain Latin American commercial activity.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.

14. IHS Holding Limited - Annual Report on Form 20-F for 2024
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Different Latin American power and maintenance economics prevent use of tower-wide revenue as backup-system demand.

15. OECD - High-capacity broadband networks gain ground across OECD, October 13, 2026
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Latin American fibre migration supports a conditional fixed-access expansion premise, not automatic battery attachment.

16. PowerSafe SBS Batteries | EnerSys
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Named telecom batteries support the battery-unit offering boundary; allocation weights are assumed.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Named telecom batteries support the battery-unit offering boundary; allocation weights are assumed.

17. Vertiv NetSure M Series
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Configured enclosure, power and battery options support broader system classification, not universal bundle inclusion.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Configured enclosure, power and battery options support broader system classification, not universal bundle inclusion.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: A marketed outdoor enclosure supports a protection option; global adoption and configuration proportions remain modeled.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A marketed outdoor enclosure supports a protection option; global adoption and configuration proportions remain modeled.

18. Ofcom - Network and Service Resilience Guidance for Communications Providers, June 16, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Core is a distinct, comparatively concentrated function with explicit backup expectations; global spending remains estimated.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Core is a distinct, comparatively concentrated function with explicit backup expectations; global spending remains estimated.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The stated xx.xx-xx.xx-fold site-scale distinction motivates lower-value, more numerous transport purchase equivalents.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The stated xx.xx-xx.xx-fold site-scale distinction motivates lower-value, more numerous transport purchase equivalents.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Peering and non-Internet interconnection are distinct functions; attributable backup purchase values are not disclosed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Peering and non-Internet interconnection are distinct functions; attributable backup purchase values are not disclosed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: June 2026 guidance identifies approximately four hours as good practice for active fixed-access cabinets. This supports a conditional Extended purchasing shift, not completed orders or a Global mandate. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/network-and-service-resilience-guidance-for-communications-providerspdf?v=xx.xx))
19. Technology and Tools | First Responder Network Authority
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Radio access, transport backhaul and core are separate network functions, supporting functional attribution without duplicate facility counting.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Radio access, transport backhaul and core are separate network functions, supporting functional attribution without duplicate facility counting.
20. Mobile Network Hardening Program | Australian Department of Infrastructure
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Completed battery enhancements and broader resilience projects provide a delivered regional demand signal, not a global forecast rate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Completed battery enhancements and broader resilience projects provide a delivered regional demand signal, not a global forecast rate.
21. BT - Digital Voice for Business Service Schedule, May 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Business customers bear backup-power expense, supporting a distinct institutional/business payer route rather than consumer eligibility extrapolation.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Business customers bear backup-power expense, supporting a distinct institutional/business payer route rather than consumer eligibility extrapolation.
22. Los Angeles Metro - Board Report 2024-1128, UPS Battery Replacement
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Completed and additional UPS battery replacements support continuing underground demand; mixed-load project budgets are not telecom-only revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Completed and additional UPS battery replacements support continuing underground demand; mixed-load project budgets are not telecom-only revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The transit authority's purchasing program supports an institutional own-use role, not its global spending proportion.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The transit authority's purchasing program supports an institutional own-use role, not its global spending proportion.

23. ETSI EN 300 019-1-3 V3.1.1 - Stationary Use at Weatherprotected Locations, May 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Weather-protected categories distinguish enclosure from environmental control; the standard does not measure market mix.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Weather-protected categories distinguish enclosure from environmental control; the standard does not measure market mix.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Maintained temperature control is a separate classification premise for the modeled conditional allocation.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Maintained temperature control is a separate classification premise for the modeled conditional allocation.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Enclosed locations without temperature control are distinguished from controlled locations.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Enclosed locations without temperature control are distinguished from controlled locations.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Partial weather protection is recognized separately; sales weights and future adoption remain assumed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Partial weather protection is recognized separately; sales weights and future adoption remain assumed.
24. ETSI EN 300 019-1-4 V3.1.1 - Stationary Use at Non-Weatherprotected Locations, May 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Non-weather-protected locations form a distinct classification regime, not a measured global spending pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Non-weather-protected locations form a distinct classification regime, not a measured global spending pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Sheltered non-weather-protected locations support the named conditional category.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Sheltered non-weather-protected locations support the named conditional category.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Open-air locations are separately recognized; their purchasing mix remains modeled.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Open-air locations are separately recognized; their purchasing mix remains modeled.
25. DC Power Plant / Rectifiers - UPS Rental
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Battery and complete DC-plant rentals establish delivery-category occurrence; global fees and utilization are not disclosed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Battery and complete DC-plant rentals establish delivery-category occurrence; global fees and utilization are not disclosed.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Commercial rental availability is a role premise only; modeled lessor sub-hire procurement remains unverified.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Commercial rental availability is a role premise only; modeled lessor sub-hire procurement remains unverified.

26. Helios Towers - Full Year Results 2025, March 12, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Grid-integration investment supplies a connection-improvement counterforce used conditionally in the forecast.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Grid-integration investment supplies a connection-improvement counterforce used conditionally in the forecast.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Reported xx.xx-hour average daily grid availability supports weak-grid commercial exposure, without a global classification share.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Reported xx.xx-hour average daily grid availability supports weak-grid commercial exposure, without a global classification share.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Grid integration and alternative-power investment qualify assumptions of permanently unchanged disconnected-site exposure.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Grid integration and alternative-power investment qualify assumptions of permanently unchanged disconnected-site exposure.
27. Telecommunications | Aggreko US
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Telecom battery-storage rental for temporary continuity supports delivery occurrence, not the estimated global fee scale.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom battery-storage rental for temporary continuity supports delivery occurrence, not the estimated global fee scale.
28. EnerSys PowerSafe SBS Front Terminal Batteries | Alpine Power Systems
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A named battery distributor supports the intermediary route; its listing is not a global channel-sales observation.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A named battery distributor supports the intermediary route; its listing is not a global channel-sales observation.
29. DC Power Services | Vertiv
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Cross-manufacturer projects and narrower upgrades support integration-prime and supported-replacement routes; numerical route proportions remain assumed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Cross-manufacturer projects and narrower upgrades support integration-prime and supported-replacement routes; numerical route proportions remain assumed.

30. Shuangdeng Group Co., Ltd. - Global Offering Prospectus, August 18, 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The company's own five-month 2025 lead-acid realization of RMB520.xx.xx/kWh constrains the relative-price bridge; syndicated industry claims are excluded. Forecast convergence remains assumed. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The company's own five-month 2025 lead-acid realization of RMB520.xx.xx/kWh constrains the relative-price bridge; syndicated industry claims are excluded. Forecast convergence remains assumed. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Own lithium-ion realization of RMB595.xx.xx/kWh is an input to the Lithium-Based value model, not a Global share or a Lithium-Metal sales observation. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Own lithium-ion realization of RMB595.xx.xx/kWh is an input to the Lithium-Based value model, not a Global share or a Lithium-Metal sales observation. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
31. Amara Raja Crosses 1 GWh Lithium Storage Deployment Powering India's Telecom Networks
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The April xx.xx 2026 disclosure reports approximately xx.xx GWh across xx.xx cumulative telecom lithium sites over four years. This is a commercial adoption scale check, not annual Global revenue or a supplier-share input. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The April xx.xx 2026 disclosure reports approximately xx.xx GWh across xx.xx cumulative telecom lithium sites over four years. This is a commercial adoption scale check, not annual Global revenue or a supplier-share input. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The disclosed deployment identifies lithium-ion commercialization at scale, supporting the subtype's established commercial position without directly measuring its conditional Global share. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The disclosed deployment identifies lithium-ion commercialization at scale, supporting the subtype's established commercial position without directly measuring its conditional Global share. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
32. Central Office Power Systems - EnerSys
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The central-office portfolio identifies Flooded Lead-Acid as a distinct telecom alternative, supporting the legacy-network category mapping but not its purchasing fraction. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The central-office portfolio identifies Flooded Lead-Acid as a distinct telecom alternative, supporting the legacy-network category mapping but not its purchasing fraction. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The portfolio separately identifies Valve-Regulated Lead-Acid, supporting the within-lead construction boundary used by the model. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The portfolio separately identifies Valve-Regulated Lead-Acid, supporting the within-lead construction boundary used by the model. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))

33. PowerSafe OPzV Batteries - EnerSys
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: EnerSys identifies OPzV as Gel and lists telecom applications. This supports commercial subtype mapping, not the assumed Gel/AGM volume or price mix. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-opzv/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: EnerSys identifies OPzV as Gel and lists telecom applications. This supports commercial subtype mapping, not the assumed Gel/AGM volume or price mix. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-opzv/))
34. Bolloré - 2017 Registration Document
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The official filing identifies LMP professional outage-protection applications including telecom relays. This is a dated commercial boundary input, not evidence of 2025 telecom shipment value. ([bollore.com](https://www.bollore.com/wp-content/uploads/2018/xx.xx/bollore_ddr_2017_gb_bag-xx.xx-juin.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The official filing identifies LMP professional outage-protection applications including telecom relays. This is a dated commercial boundary input, not evidence of 2025 telecom shipment value. ([bollore.com](https://www.bollore.com/wp-content/uploads/2018/xx.xx/bollore_ddr_2017_gb_bag-xx.xx-juin.pdf))
35. Bolloré - Business Report 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The 2025 report establishes continuing Lithium Metal Polymer commercial applications in electricity storage and buses, while omitting separately attributable telecom sales. It constrains the low-access expected-purchase model; no capacity-to-sales conversion is used. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The 2025 report establishes continuing Lithium Metal Polymer commercial applications in electricity storage and buses, while omitting separately attributable telecom sales. It constrains the low-access expected-purchase model; no capacity-to-sales conversion is used. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The report preserves the distinction between LMP and conventional lithium-ion, supporting the exhaustive subtype attribution rule rather than treating polymer packaging as Lithium-Metal. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The report preserves the distinction between LMP and conventional lithium-ion, supporting the exhaustive subtype attribution rule rather than treating polymer packaging as Lithium-Metal. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))
36. AT&T to Replace U-Verse Cabinet Batteries - Fierce Network, January 15, 2008
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The January xx.xx 2008 report corroborates AT&T's replacement of approximately xx.xx Avestor batteries after the supplier's closure. The obsolete stock is therefore not carried into the 2025 or 2032 purchasing numerator. ([fierce-network.com](https://www.fierce-network.com/telecom/at-t-to-replace-u-verse-cabinet-batteries))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The January xx.xx 2008 report corroborates AT&T's replacement of approximately xx.xx Avestor batteries after the supplier's closure. The obsolete stock is therefore not carried into the 2025 or 2032 purchasing numerator. ([fierce-network.com](https://www.fierce-network.com/telecom/at-t-to-replace-u-verse-cabinet-batteries))

37. PowerSafe NiCd Batteries - EnerSys
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: EnerSys identifies Nickel-Cadmium for central offices and outside plant, supporting the modeled legacy telecom cohort but not its installed attachment or replacement spending. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-nicd/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: EnerSys identifies Nickel-Cadmium for central offices and outside plant, supporting the modeled legacy telecom cohort but not its installed attachment or replacement spending. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-nicd/))
38. FDK Ni-MH Battery Is Chosen for the Cellect 600 Product of Alpha Technologies
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The October xx.xx 2015 announcement identifies NiMH in Alpha's Cellect xx.xx small-cell backup proposition. It supports a historical cohort rather than current fulfillment or assumed surviving stock. ([fdk.com](https://www.fdk.com/whatsnew-e/release20151019-e.html))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The October xx.xx 2015 announcement identifies NiMH in Alpha's Cellect xx.xx small-cell backup proposition. It supports a historical cohort rather than current fulfillment or assumed surviving stock. ([fdk.com](https://www.fdk.com/whatsnew-e/release20151019-e.html))
39. Products - Encell Technology
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Encell positions its Fused Iron Nickel-Iron battery for telecom. This supports the commercial category lead, while current purchases and attachment remain modeled. ([encell.com](https://encell.com/products/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Encell positions its Fused Iron Nickel-Iron battery for telecom. This supports the commercial category lead, while current purchases and attachment remain modeled. ([encell.com](https://encell.com/products/))
40. Telecom/5G - ZAF Energy Systems
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: ZAF positions Nickel-Zinc for telecom/5G. Its supplier proposition supports application mapping, not the modeled annual attachment or threefold forecast value multiplier. ([zafsys.com](https://zafsys.com/telecom-5g/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: ZAF positions Nickel-Zinc for telecom/5G. Its supplier proposition supports application mapping, not the modeled annual attachment or threefold forecast value multiplier. ([zafsys.com](https://zafsys.com/telecom-5g/))
41. HORIEN Salt Battery Solutions and Inlyte Energy Announce a Strategic Partnership
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: HORIEN's March xx.xx 2025 statement identifies sodium-metal-chloride telecom backup. Its separate partnership announcement is not counted as delivered telecom sales. ([horien.com](https://horien.com/wp-content/uploads/2025/xx.xx/Press-Release_HORIEN-Inlyte-International-Version.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: HORIEN's March xx.xx 2025 statement identifies sodium-metal-chloride telecom backup. Its separate partnership announcement is not counted as delivered telecom sales. ([horien.com](https://horien.com/wp-content/uploads/2025/xx.xx/Press-Release_HORIEN-Inlyte-International-Version.pdf))
42. Energy Backup - Phinergy
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Phinergy markets Aluminum-Air continuity offerings to telecom operators and tower companies. The source supports category and buyer mapping, not the modeled installed attachment or replacement numerator. ([phinergy.com](https://phinergy.com/solutions/energy-backup/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Phinergy markets Aluminum-Air continuity offerings to telecom operators and tower companies. The source supports category and buyer mapping, not the modeled installed attachment or replacement numerator. ([phinergy.com](https://phinergy.com/solutions/energy-backup/))

43. Australian Flow Batteries - RFB40X Series

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: RFB40X literature identifies telecom among stationary commercial applications. It supports the qualifying project boundary, not delivered projects, revenue or assumed attachment. ([afb.energy](https://www.afb.energy/wp-content/uploads/2025/xx.xx/Australian-Flow-Batteries-RFB40X-Series-2024.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: RFB40X literature identifies telecom among stationary commercial applications. It supports the qualifying project boundary, not delivered projects, revenue or assumed attachment. ([afb.energy](https://www.afb.energy/wp-content/uploads/2025/xx.xx/Australian-Flow-Batteries-RFB40X-Series-2024.pdf))

44. PowerReserve - Verizon Residential Accessories

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Verizon advertises an alkaline-cell voice-backup device at USD39.xx.xx excluding batteries. This supports a qualifying primary-zinc premises route and price comparator, not assumed Global attachment or first-sale realization. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Verizon advertises an alkaline-cell voice-backup device at USD39.xx.xx excluding batteries. This supports a qualifying primary-zinc premises route and price comparator, not assumed Global attachment or first-sale realization. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Advertised voice-only protection reaches xx.xx hours; internet and television protection are excluded. This supports service-specific Day-Scale classification. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Advertised voice-only protection reaches xx.xx hours; internet and television protection are excluded. This supports service-specific Day-Scale classification. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))

45. Alkaline Manganese Dioxide Handbook and Application Manual - Energizer

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The manufacturer's alkaline manganese-dioxide classification supports the zinc-family mapping for qualifying premises backup. It provides no telecom purchasing weight. ([data.energizer.com](https://data.energizer.com/pdfs/alkaline_appman.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The manufacturer's alkaline manganese-dioxide classification supports the zinc-family mapping for qualifying premises backup. It provides no telecom purchasing weight. ([data.energizer.com](https://data.energizer.com/pdfs/alkaline_appman.pdf))

46. ITU-T Work Programme - Aqueous Zinc-Based Battery Systems for Base Station Applications

- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The aqueous-zinc base-station work item is Under study with December 2027 timing. It constrains the forecast commercialization assumption but establishes neither approval nor customer purchases. ([itu.int](https://www.itu.int/itu-t/workprog/wp_item.aspx?isn=xx.xx))

47. ITU-T L.1397 - Battery System with Integrated Control and Monitoring Information Model

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The October 2025 recommendation names lithium-lead, lithium-sodium and sodium-lead combinations. This supports mixed-family classification, not inseparable pricing or Global prevalence. ([itu.int](https://www.itu.int/rec/dologin_pub.asp?id=T-REC-L.xx.xx-xx.xx-I%xx.xx%21PDF-E&lang=e&type=items))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The October 2025 recommendation names lithium-lead, lithium-sodium and sodium-lead combinations. This supports mixed-family classification, not inseparable pricing or Global prevalence. ([itu.int](https://www.itu.int/rec/dologin_pub.asp?id=T-REC-L.xx.xx-xx.xx-I%xx.xx%21PDF-E&lang=e&type=items))

48. ETSI EN 300 132-1 V2.2.1 - ICT Power Supply Interface: Alternating Current
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The ICT standard identifies the protected-load AC interface, supporting output-side attribution rather than classification by chemistry or normal utility input. It supplies no sales mix. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013201v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The ICT standard identifies the protected-load AC interface, supporting output-side attribution rather than classification by chemistry or normal utility input. It supplies no sales mix. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013201v020201p.pdf))
49. ETSI EN 300 132-2 V2.8.1 - ICT Power Supply Interface: Direct Current
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The ICT standard separately identifies the DC protected-equipment interface, supporting the DC-output boundary independently of battery chemistry. It is not a purchasing census. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013202v020801p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The ICT standard separately identifies the DC protected-equipment interface, supporting the DC-output boundary independently of battery chemistry. It is not a purchasing census. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013202v020801p.pdf))
50. Vertiv NetSure Inverter Series - Converged AC and DC Power System
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: NetSure Inverter Series identifies AC and DC loads supported through a common battery bank. This establishes a combined-output proposition, not its modeled purchasing fraction or future adoption. ([vertiv.com](https://www.vertiv.com/en-us/products-catalog/critical-power/dc-power-systems/vertiv-netsure-inverter-series/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: NetSure Inverter Series identifies AC and DC loads supported through a common battery bank. This establishes a combined-output proposition, not its modeled purchasing fraction or future adoption. ([vertiv.com](https://www.vertiv.com/en-us/products-catalog/critical-power/dc-power-systems/vertiv-netsure-inverter-series/))

51. ETSI EN 302 099 V2.2.1 - Powering of Equipment in Access Network
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Local powering uses a colocated source; allocation follows the backed source rather than receiver inventory. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Local powering uses a colocated source; allocation follows the backed source rather than receiver inventory. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Remote-source backup is distinguished from local backup, supporting the parent commercial boundary but not purchasing weights. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Remote-source backup is distinguished from local backup, supporting the parent commercial boundary but not purchasing weights. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Centralized powering originates at a telecommunications center. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Centralized powering originates at a telecommunications center. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Cluster powering uses a source outside the telecommunications center, supporting separation within Remote Powering. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Cluster powering uses a source outside the telecommunications center, supporting separation within Remote Powering. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Reverse powering is customer-origin supply, supporting source-level attribution of the battery-backed provider package. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Reverse powering is customer-origin supply, supporting source-level attribution of the battery-backed provider package. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))

52. Set Up Your Battery Backup - AT&T G.Fast Service with BGW210

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The 2021 provider document names a battery-backed package protecting G.fast customer and distribution equipment through reverse power feed. It establishes a dated source-backup proposition, not current Global quantities. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The 2021 provider document names a battery-backed package protecting G.fast customer and distribution equipment through reverse power feed. It establishes a dated source-backup proposition, not current Global quantities. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The provider advertises a xx.xx-hour service window for the particular package, supporting Day-Scale mapping without a universal premises-duration inference. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The provider advertises a xx.xx-hour service window for the particular package, supporting Day-Scale mapping without a universal premises-duration inference. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

53. DNA Tower Offers Battery Capacity in Electricity Reserve Markets with Elisa DES

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The June xx.xx 2025 announcement reports DNA Tower batteries connected to Finnish reserve markets while retaining outage continuity. This establishes a specific mixed-duty implementation, not Global attachment or guaranteed returns. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/press-releases/dna-tower-becomes-worlds-first-tower-company-to-offer-battery-capacity-in-electricity-reserve-markets-with-elisa-des))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The June xx.xx 2025 announcement reports DNA Tower batteries connected to Finnish reserve markets while retaining outage continuity. This establishes a specific mixed-duty implementation, not Global attachment or guaranteed returns. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/press-releases/dna-tower-becomes-worlds-first-tower-company-to-offer-battery-capacity-in-electricity-reserve-markets-with-elisa-des))

54. Case Elisa: Virtual Power Plant in the Telecom Industry

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The company case reports over 2,000 aggregated sites and approximately xx.xx MWh. This is an installed commercial scale check, not annual purchasing value or Global prevalence. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/customer-stories/elisacase))

19.6. Middle East

Table 334. Middle East Telecom Battery Backup System Market, by Country growth contribution, 2025-2032

Category	2025 value (USD Million)	2032 value (USD Million)	Added value (USD Million)	2025 share (%)	2032 share (%)	Change (pp)	Growth share (%)	CAGR (%)
Israel	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Qatar	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Saudi Arabia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Turkey	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Unallocated / remaining scope	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Arab Emirates	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scope total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 335. Middle East Telecom Battery Backup System Market Size, by Region, 2017-2032 (USD Million)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Israel	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Qatar	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Saudi Arabia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Turkey	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Arab Emirates	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 336. Middle East Telecom Battery Backup System Market Size, by Offering, 2017-2032 (USD Million)

Offering	2023	2024	2025	2026	2027	2032	CAGR (%)
Battery Units and Assemblies	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Complete Backup Systems	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 337. Middle East Telecom Battery Backup System Market Size, by Battery Technology, 2017-2032 (USD Million)

Battery Technology	2023	2024	2025	2026	2027	2032	CAGR (%)
Aqueous Zinc-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Flow Batteries	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lithium-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Metal-Air	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Multi-Chemistry	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Sodium-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 338. Middle East Telecom Battery Backup System Market Size, by Lead-Acid, 2017-2032 (USD Million)

Lead-Acid	2023	2024	2025	2026	2027	2032	CAGR (%)
Flooded Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Valve-Regulated Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 339. Middle East Telecom Battery Backup System Market Size, by Valve-Regulated Lead-Acid, 2017-2032 (USD Million)

Valve-Regulated Lead-Acid	2023	2024	2025	2026	2027	2032	CAGR (%)
Absorbent Glass Mat	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Gel	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 340. Middle East Telecom Battery Backup System Market Size, by Lithium-Based, 2017-2032 (USD Million)

Lithium-Based	2023	2024	2025	2026	2027	2032	CAGR (%)
Lithium-Ion	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lithium-Metal	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 341. Middle East Telecom Battery Backup System Market Size, by Nickel-Based, 2017-2032 (USD Million)

Nickel-Based	2023	2024	2025	2026	2027	2032	CAGR (%)
Nickel-Cadmium	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Iron	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Metal Hydride	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Zinc	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 342. Middle East Telecom Battery Backup System Market Size, by Power Interface, 2017-2032 (USD Million)

Power Interface	2023	2024	2025	2026	2027	2032	CAGR (%)
AC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Combined AC/DC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
DC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 343. Middle East Telecom Battery Backup System Market Size, by Network Application, 2017-2032 (USD Million)

Network Application	2023	2024	2025	2026	2027	2032	CAGR (%)
Core Networks & Network Control	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Customer-Premises Connectivity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Network Interconnection & Peering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Transport & Backhaul Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Wireless Access Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Wireline Access Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 344. Middle East Telecom Battery Backup System Market Size, by Buyer Type, 2017-2032 (USD Million)

Buyer Type	2023	2024	2025	2026	2027	2032	CAGR (%)
Business & Institutional Connectivity Owners	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Equipment Leasing & Rental Providers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Household Connectivity Purchasers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Energy-Service Providers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Infrastructure & Tower Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecommunications Network Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 345. Middle East Telecom Battery Backup System Market Size, by Installation Environment, 2017-2032 (USD Million)

Installation Environment	2023	2024	2025	2026	2027	2032	CAGR (%)
Non-Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Underground Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 346. Middle East Telecom Battery Backup System Market Size, by Weather-Protected Locations, 2017-2032 (USD Million)

Weather-Protected Locations	2023	2024	2025	2026	2027	2032	CAGR (%)
Enclosed Locations Without Temperature Control	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Partly Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Temperature-Controlled Enclosed Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 347. Middle East Telecom Battery Backup System Market Size, by Non-Weather-Protected Locations, 2017-2032 (USD Million)

Non-Weather-Protected Locations	2023	2024	2025	2026	2027	2032	CAGR (%)
Open-Air Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Sheltered Non-Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 348. Middle East Telecom Battery Backup System Market Size, by Powering Architecture, 2017-2032 (USD Million)

Powering Architecture	2023	2024	2025	2026	2027	2032	CAGR (%)
Local Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Remote Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 349. Middle East Telecom Battery Backup System Market Size, by Remote Powering, 2017-2032 (USD Million)

Remote Powering	2023	2024	2025	2026	2027	2032	CAGR (%)
Centralized Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Cluster Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reverse Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 350. Middle East Telecom Battery Backup System Market Size, by Commercial Delivery Model, 2017-2032 (USD Million)

Commercial Delivery Model	2023	2024	2025	2026	2027	2032	CAGR (%)
Leased or Rented Equipment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Managed Backup Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Owned Equipment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 351. Middle East Telecom Battery Backup System Market Size, by Sales Channel, 2017-2032 (USD Million)

Sales Channel	2023	2024	2025	2026	2027	2032	CAGR (%)
Direct Manufacturer Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Distributor and Retailer Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Systems Integrator and Contractor Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Service Provider Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 352. Middle East Telecom Battery Backup System Market Size, by Grid Availability, 2017-2032 (USD Million)

Grid Availability	2023	2024	2025	2026	2027	2032	CAGR (%)
Off-Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reliable Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Unreliable Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 353. Middle East Telecom Battery Backup System Market Size, by Backup Duty, 2017-2032 (USD Million)

Backup Duty	2023	2024	2025	2026	2027	2032	CAGR (%)
Backup with Energy Management	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reserve-Only Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 354. Middle East Telecom Battery Backup System Market Size, by Backup Autonomy, 2017-2032 (USD Million)

Backup Autonomy	2023	2024	2025	2026	2027	2032	CAGR (%)
Day-Scale Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Extended-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Intermediate-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Short-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. China Tower - 2025 Annual Results, March 18, 2026
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The xx.xx.149m-site inventory constrains wireless activity; forecast purchasing remains modeled.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The xx.xx.149m-site inventory constrains wireless activity; forecast purchasing remains modeled.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Replacement/improvement CAPEX fell from RMB6837m to RMB5474m, qualifying automatic replacement-led growth.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Replacement/improvement CAPEX fell from RMB6837m to RMB5474m, qualifying automatic replacement-led growth.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Disclosed tower operations establish a material infrastructure purchasing setting, not a global buyer share.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Disclosed tower operations establish a material infrastructure purchasing setting, not a global buyer share.
2. Broadband Commission - The State of Broadband: Our Digital World, 2025
   - Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))

3. Battery Backup - Meriwether Lewis Electric Cooperative
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Separately available replacement batteries support a battery-only replacement route.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Separately available replacement batteries support a battery-only replacement route.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The USD100-plus-tax device is a retail comparator, not an observed 2025 first-sale realization.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The USD100-plus-tax device is a retail comparator, not an observed 2025 first-sale realization.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Customer purchase and replacement responsibilities support household-funded procurement.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Customer purchase and replacement responsibilities support household-funded procurement.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Purchased equipment does not automatically include continuing service-plan coverage.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Purchased equipment does not automatically include continuing service-plan coverage.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Local provider sales establish this route alongside manufacturer-direct purchasing.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Local provider sales establish this route alongside manufacturer-direct purchasing.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The provider advertises approximately five hours for combined voice and internet, supporting service-specific Extended classification, not an observed 2025 purchase mix. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The provider advertises approximately five hours for combined voice and internet, supporting service-specific Extended classification, not an observed 2025 purchase mix. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The same proposition advertises xx.xx-hour voice-only protection, supporting Day-Scale mapping without equating duration with a universally larger purchase basket. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The same proposition advertises xx.xx-hour voice-only protection, supporting Day-Scale mapping without equating duration with a universally larger purchase basket. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
4. EnerSys 2026 Proxy Statement and Annual Report
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Direct customer supply is disclosed within a diversified international business; telecom channel proportions are not disclosed.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Direct customer supply is disclosed within a diversified international business; telecom channel proportions are not disclosed.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Distributor supply is disclosed, supporting route occurrence rather than its modeled sales weight.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Distributor supply is disclosed, supporting route occurrence rather than its modeled sales weight.

5. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: Audited 2025 telecom revenue of RMB1,xx.xx declined xx.xx%; telecom purchasing weakness is retained as counterevidence to automatic substitution-led aggregate growth. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Audited 2025 telecom revenue of RMB1,xx.xx declined xx.xx%; telecom purchasing weakness is retained as counterevidence to automatic substitution-led aggregate growth. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: Telecom-specific results are separated from adjacent data-center and power-storage growth when assessing lithium substitution; the filing does not disclose the modeled Global split. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom-specific results are separated from adjacent data-center and power-storage growth when assessing lithium substitution; the filing does not disclose the modeled Global split. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

6. Amara Raja Energy & Mobility - Q2/H1 FY2026 Earnings Presentation, November 6, 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand. ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))

7. IHS Holding Limited - First-Quarter 2026 Financial Statements

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement. ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

8. Ofcom - Mobile RAN Power Resilience: Technical Report and CFI Update, February 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The evaluated xx.xx-minute alternative supplies a subhour commercial-planning anchor, not observed shipments.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The evaluated xx.xx-minute alternative supplies a subhour commercial-planning anchor, not observed shipments.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: One-hour and two-hour alternatives anchor the analytical Intermediate band. Aggregate scenarios include multiple years of operating costs and are not annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: One-hour and two-hour alternatives anchor the analytical Intermediate band. Aggregate scenarios include multiple years of operating costs and are not annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The four-hour alternative anchors the Extended band's lower boundary without establishing a Global minimum or purchasing allocation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The four-hour alternative anchors the Extended band's lower boundary without establishing a Global minimum or purchasing allocation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

9. Ofcom - Your Landline Is Going Digital: What You Need to Know

- Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
- Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Restricted provider-funded eligibility constrains operator-funded premises attribution and forecast adoption.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Restricted provider-funded eligibility constrains operator-funded premises attribution and forecast adoption.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Eligibility is not universal household funding; purchaser proportions remain assumptions.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Eligibility is not universal household funding; purchaser proportions remain assumptions.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Eligibility-limited provider backup and the one-hour minimum for qualifying customers constrain premises demand and anchor the Intermediate band's lower boundary. They do not establish universal adoption. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Eligibility-limited provider backup and the one-hour minimum for qualifying customers constrain premises demand and anchor the Intermediate band's lower boundary. They do not establish universal adoption. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

10. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone
    - Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue. ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
    - Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions. ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: USD45m financing and xx.xx planned site modernizations support an expansion signal, not observed backup-only service revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: USD45m financing and xx.xx planned site modernizations support an expansion signal, not observed backup-only service revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Energy-service activity supports the role; the modeled provider-as-buyer subcontract share is not established.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Energy-service activity supports the role; the modeled provider-as-buyer subcontract share is not established.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: More than xx.xx% weak/off-grid project exposure constrains service-cohort concentration, not the global grid mix.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: More than xx.xx% weak/off-grid project exposure constrains service-cohort concentration, not the global grid mix.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The project confirms disconnected-site commercial demand; its weak/off-grid combined statistic does not separate those categories.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The project confirms disconnected-site commercial demand; its weak/off-grid combined statistic does not separate those categories.
11. Fingrid - How to Participate in the Reserve Markets
    - Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue. ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Applicable owner permission and market agreements are commercial access gates. They constrain forecast mixed-duty adoption without measuring its Global percentage. ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))
12. Government of India, Department of Telecommunications - Telecom Statistics India 2025, international comparison tables
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Country-specific fixed-access and mobile pools constrain regional demand estimates.

13. PowerSafe SBS Batteries | EnerSys
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Named telecom batteries support the battery-unit offering boundary; allocation weights are assumed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Named telecom batteries support the battery-unit offering boundary; allocation weights are assumed.
14. Vertiv NetSure M Series
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Configured enclosure, power and battery options support broader system classification, not universal bundle inclusion.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Configured enclosure, power and battery options support broader system classification, not universal bundle inclusion.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A marketed outdoor enclosure supports a protection option; global adoption and configuration proportions remain modeled.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A marketed outdoor enclosure supports a protection option; global adoption and configuration proportions remain modeled.
15. Ofcom - Network and Service Resilience Guidance for Communications Providers, June 16, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Core is a distinct, comparatively concentrated function with explicit backup expectations; global spending remains estimated.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Core is a distinct, comparatively concentrated function with explicit backup expectations; global spending remains estimated.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The stated xx.xx-xx.xx-fold site-scale distinction motivates lower-value, more numerous transport purchase equivalents.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The stated xx.xx-xx.xx-fold site-scale distinction motivates lower-value, more numerous transport purchase equivalents.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Peering and non-Internet interconnection are distinct functions; attributable backup purchase values are not disclosed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Peering and non-Internet interconnection are distinct functions; attributable backup purchase values are not disclosed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: June 2026 guidance identifies approximately four hours as good practice for active fixed-access cabinets. This supports a conditional Extended purchasing shift, not completed orders or a Global mandate. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/network-and-service-resilience-guidance-for-communications-providerspdf?v=xx.xx))
16. Technology and Tools | First Responder Network Authority
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Radio access, transport backhaul and core are separate network functions, supporting functional attribution without duplicate facility counting.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Radio access, transport backhaul and core are separate network functions, supporting functional attribution without duplicate facility counting.
17. Mobile Network Hardening Program | Australian Department of Infrastructure
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Completed battery enhancements and broader resilience projects provide a delivered regional demand signal, not a global forecast rate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Completed battery enhancements and broader resilience projects provide a delivered regional demand signal, not a global forecast rate.

18. BT - Digital Voice for Business Service Schedule, May 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Business customers bear backup-power expense, supporting a distinct institutional/business payer route rather than consumer eligibility extrapolation.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Business customers bear backup-power expense, supporting a distinct institutional/business payer route rather than consumer eligibility extrapolation.
19. Los Angeles Metro - Board Report 2024-1128, UPS Battery Replacement
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Completed and additional UPS battery replacements support continuing underground demand; mixed-load project budgets are not telecom-only revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Completed and additional UPS battery replacements support continuing underground demand; mixed-load project budgets are not telecom-only revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The transit authority's purchasing program supports an institutional own-use role, not its global spending proportion.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The transit authority's purchasing program supports an institutional own-use role, not its global spending proportion.
20. ETSI EN 300 019-1-3 V3.1.1 - Stationary Use at Weatherprotected Locations, May 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Weather-protected categories distinguish enclosure from environmental control; the standard does not measure market mix.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Weather-protected categories distinguish enclosure from environmental control; the standard does not measure market mix.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Maintained temperature control is a separate classification premise for the modeled conditional allocation.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Maintained temperature control is a separate classification premise for the modeled conditional allocation.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Enclosed locations without temperature control are distinguished from controlled locations.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Enclosed locations without temperature control are distinguished from controlled locations.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Partial weather protection is recognized separately; sales weights and future adoption remain assumed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Partial weather protection is recognized separately; sales weights and future adoption remain assumed.
21. ETSI EN 300 019-1-4 V3.1.1 - Stationary Use at Non-Weatherprotected Locations, May 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Non-weather-protected locations form a distinct classification regime, not a measured global spending pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Non-weather-protected locations form a distinct classification regime, not a measured global spending pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Sheltered non-weather-protected locations support the named conditional category.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Sheltered non-weather-protected locations support the named conditional category.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Open-air locations are separately recognized; their purchasing mix remains modeled.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Open-air locations are separately recognized; their purchasing mix remains modeled.

22. DC Power Plant / Rectifiers - UPS Rental
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Battery and complete DC-plant rentals establish delivery-category occurrence; global fees and utilization are not disclosed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Battery and complete DC-plant rentals establish delivery-category occurrence; global fees and utilization are not disclosed.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Commercial rental availability is a role premise only; modeled lessor sub-hire procurement remains unverified.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Commercial rental availability is a role premise only; modeled lessor sub-hire procurement remains unverified.
23. Helios Towers - Full Year Results 2025, March 12, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Grid-integration investment supplies a connection-improvement counterforce used conditionally in the forecast.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Grid-integration investment supplies a connection-improvement counterforce used conditionally in the forecast.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Reported xx.xx-hour average daily grid availability supports weak-grid commercial exposure, without a global classification share.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Reported xx.xx-hour average daily grid availability supports weak-grid commercial exposure, without a global classification share.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Grid integration and alternative-power investment qualify assumptions of permanently unchanged disconnected-site exposure.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Grid integration and alternative-power investment qualify assumptions of permanently unchanged disconnected-site exposure.
24. Telecommunications | Aggreko US
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Telecom battery-storage rental for temporary continuity supports delivery occurrence, not the estimated global fee scale.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom battery-storage rental for temporary continuity supports delivery occurrence, not the estimated global fee scale.
25. EnerSys PowerSafe SBS Front Terminal Batteries | Alpine Power Systems
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A named battery distributor supports the intermediary route; its listing is not a global channel-sales observation.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A named battery distributor supports the intermediary route; its listing is not a global channel-sales observation.
26. DC Power Services | Vertiv
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Cross-manufacturer projects and narrower upgrades support integration-prime and supported-replacement routes; numerical route proportions remain assumed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Cross-manufacturer projects and narrower upgrades support integration-prime and supported-replacement routes; numerical route proportions remain assumed.

27. Shuangdeng Group Co., Ltd. - Global Offering Prospectus, August 18, 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The company's own five-month 2025 lead-acid realization of RMB520.xx.xx/kWh constrains the relative-price bridge; syndicated industry claims are excluded. Forecast convergence remains assumed. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The company's own five-month 2025 lead-acid realization of RMB520.xx.xx/kWh constrains the relative-price bridge; syndicated industry claims are excluded. Forecast convergence remains assumed. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Own lithium-ion realization of RMB595.xx.xx/kWh is an input to the Lithium-Based value model, not a Global share or a Lithium-Metal sales observation. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Own lithium-ion realization of RMB595.xx.xx/kWh is an input to the Lithium-Based value model, not a Global share or a Lithium-Metal sales observation. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
28. Amara Raja Crosses 1 GWh Lithium Storage Deployment Powering India's Telecom Networks
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The April xx.xx 2026 disclosure reports approximately xx.xx GWh across xx.xx cumulative telecom lithium sites over four years. This is a commercial adoption scale check, not annual Global revenue or a supplier-share input. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The April xx.xx 2026 disclosure reports approximately xx.xx GWh across xx.xx cumulative telecom lithium sites over four years. This is a commercial adoption scale check, not annual Global revenue or a supplier-share input. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The disclosed deployment identifies lithium-ion commercialization at scale, supporting the subtype's established commercial position without directly measuring its conditional Global share. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The disclosed deployment identifies lithium-ion commercialization at scale, supporting the subtype's established commercial position without directly measuring its conditional Global share. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
29. Central Office Power Systems - EnerSys
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The central-office portfolio identifies Flooded Lead-Acid as a distinct telecom alternative, supporting the legacy-network category mapping but not its purchasing fraction. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The central-office portfolio identifies Flooded Lead-Acid as a distinct telecom alternative, supporting the legacy-network category mapping but not its purchasing fraction. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The portfolio separately identifies Valve-Regulated Lead-Acid, supporting the within-lead construction boundary used by the model. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The portfolio separately identifies Valve-Regulated Lead-Acid, supporting the within-lead construction boundary used by the model. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))

30. PowerSafe OPzV Batteries - EnerSys

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: EnerSys identifies OPzV as Gel and lists telecom applications. This supports commercial subtype mapping, not the assumed Gel/AGM volume or price mix. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-opzv/))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: EnerSys identifies OPzV as Gel and lists telecom applications. This supports commercial subtype mapping, not the assumed Gel/AGM volume or price mix. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-opzv/))

31. Bolloré - 2017 Registration Document

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The official filing identifies LMP professional outage-protection applications including telecom relays. This is a dated commercial boundary input, not evidence of 2025 telecom shipment value. ([bollore.com](https://www.bollore.com/wp-content/uploads/2018/xx.xx/bollore_ddr_2017_gb_bag-xx.xx-juin.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The official filing identifies LMP professional outage-protection applications including telecom relays. This is a dated commercial boundary input, not evidence of 2025 telecom shipment value. ([bollore.com](https://www.bollore.com/wp-content/uploads/2018/xx.xx/bollore_ddr_2017_gb_bag-xx.xx-juin.pdf))

32. Bolloré - Business Report 2025

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The 2025 report establishes continuing Lithium Metal Polymer commercial applications in electricity storage and buses, while omitting separately attributable telecom sales. It constrains the low-access expected-purchase model; no capacity-to-sales conversion is used. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The 2025 report establishes continuing Lithium Metal Polymer commercial applications in electricity storage and buses, while omitting separately attributable telecom sales. It constrains the low-access expected-purchase model; no capacity-to-sales conversion is used. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The report preserves the distinction between LMP and conventional lithium-ion, supporting the exhaustive subtype attribution rule rather than treating polymer packaging as Lithium-Metal. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The report preserves the distinction between LMP and conventional lithium-ion, supporting the exhaustive subtype attribution rule rather than treating polymer packaging as Lithium-Metal. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))

33. AT&T to Replace U-Verse Cabinet Batteries - Fierce Network, January 15, 2008

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The January xx.xx 2008 report corroborates AT&T's replacement of approximately xx.xx Avestor batteries after the supplier's closure. The obsolete stock is therefore not carried into the 2025 or 2032 purchasing numerator. ([fierce-network.com](https://www.fierce-network.com/telecom/at-t-to-replace-u-verse-cabinet-batteries))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The January xx.xx 2008 report corroborates AT&T's replacement of approximately xx.xx Avestor batteries after the supplier's closure. The obsolete stock is therefore not carried into the 2025 or 2032 purchasing numerator. ([fierce-network.com](https://www.fierce-network.com/telecom/at-t-to-replace-u-verse-cabinet-batteries))

34. PowerSafe NiCd Batteries - EnerSys
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: EnerSys identifies Nickel-Cadmium for central offices and outside plant, supporting the modeled legacy telecom cohort but not its installed attachment or replacement spending. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-nicd/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: EnerSys identifies Nickel-Cadmium for central offices and outside plant, supporting the modeled legacy telecom cohort but not its installed attachment or replacement spending. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-nicd/))
35. FDK Ni-MH Battery Is Chosen for the Cellect 600 Product of Alpha Technologies
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The October xx.xx 2015 announcement identifies NiMH in Alpha's Cellect xx.xx small-cell backup proposition. It supports a historical cohort rather than current fulfillment or assumed surviving stock. ([fdk.com](https://www.fdk.com/whatsnew-e/release20151019-e.html))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The October xx.xx 2015 announcement identifies NiMH in Alpha's Cellect xx.xx small-cell backup proposition. It supports a historical cohort rather than current fulfillment or assumed surviving stock. ([fdk.com](https://www.fdk.com/whatsnew-e/release20151019-e.html))
36. Products - Encell Technology
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Encell positions its Fused Iron Nickel-Iron battery for telecom. This supports the commercial category lead, while current purchases and attachment remain modeled. ([encell.com](https://encell.com/products/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Encell positions its Fused Iron Nickel-Iron battery for telecom. This supports the commercial category lead, while current purchases and attachment remain modeled. ([encell.com](https://encell.com/products/))
37. Telecom/5G - ZAF Energy Systems
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: ZAF positions Nickel-Zinc for telecom/5G. Its supplier proposition supports application mapping, not the modeled annual attachment or threefold forecast value multiplier. ([zafsys.com](https://zafsys.com/telecom-5g/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: ZAF positions Nickel-Zinc for telecom/5G. Its supplier proposition supports application mapping, not the modeled annual attachment or threefold forecast value multiplier. ([zafsys.com](https://zafsys.com/telecom-5g/))
38. HORIEN Salt Battery Solutions and Inlyte Energy Announce a Strategic Partnership
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: HORIEN's March xx.xx 2025 statement identifies sodium-metal-chloride telecom backup. Its separate partnership announcement is not counted as delivered telecom sales. ([horien.com](https://horien.com/wp-content/uploads/2025/xx.xx/Press-Release_HORIEN-Inlyte-International-Version.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: HORIEN's March xx.xx 2025 statement identifies sodium-metal-chloride telecom backup. Its separate partnership announcement is not counted as delivered telecom sales. ([horien.com](https://horien.com/wp-content/uploads/2025/xx.xx/Press-Release_HORIEN-Inlyte-International-Version.pdf))
39. Energy Backup - Phinergy
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Phinergy markets Aluminum-Air continuity offerings to telecom operators and tower companies. The source supports category and buyer mapping, not the modeled installed attachment or replacement numerator. ([phinergy.com](https://phinergy.com/solutions/energy-backup/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Phinergy markets Aluminum-Air continuity offerings to telecom operators and tower companies. The source supports category and buyer mapping, not the modeled installed attachment or replacement numerator. ([phinergy.com](https://phinergy.com/solutions/energy-backup/))

40. Australian Flow Batteries - RFB40X Series

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: RFB40X literature identifies telecom among stationary commercial applications. It supports the qualifying project boundary, not delivered projects, revenue or assumed attachment. ([afb.energy](https://www.afb.energy/wp-content/uploads/2025/xx.xx/Australian-Flow-Batteries-RFB40X-Series-2024.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: RFB40X literature identifies telecom among stationary commercial applications. It supports the qualifying project boundary, not delivered projects, revenue or assumed attachment. ([afb.energy](https://www.afb.energy/wp-content/uploads/2025/xx.xx/Australian-Flow-Batteries-RFB40X-Series-2024.pdf))

41. PowerReserve - Verizon Residential Accessories

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Verizon advertises an alkaline-cell voice-backup device at USD39.xx.xx excluding batteries. This supports a qualifying primary-zinc premises route and price comparator, not assumed Global attachment or first-sale realization. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Verizon advertises an alkaline-cell voice-backup device at USD39.xx.xx excluding batteries. This supports a qualifying primary-zinc premises route and price comparator, not assumed Global attachment or first-sale realization. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Advertised voice-only protection reaches xx.xx hours; internet and television protection are excluded. This supports service-specific Day-Scale classification. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Advertised voice-only protection reaches xx.xx hours; internet and television protection are excluded. This supports service-specific Day-Scale classification. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))

42. Alkaline Manganese Dioxide Handbook and Application Manual - Energizer

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The manufacturer's alkaline manganese-dioxide classification supports the zinc-family mapping for qualifying premises backup. It provides no telecom purchasing weight. ([data.energizer.com](https://data.energizer.com/pdfs/alkaline_appman.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The manufacturer's alkaline manganese-dioxide classification supports the zinc-family mapping for qualifying premises backup. It provides no telecom purchasing weight. ([data.energizer.com](https://data.energizer.com/pdfs/alkaline_appman.pdf))

43. ITU-T Work Programme - Aqueous Zinc-Based Battery Systems for Base Station Applications

- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The aqueous-zinc base-station work item is Under study with December 2027 timing. It constrains the forecast commercialization assumption but establishes neither approval nor customer purchases. ([itu.int](https://www.itu.int/itu-t/workprog/wp_item.aspx?isn=xx.xx))

44. ITU-T L.1397 - Battery System with Integrated Control and Monitoring Information Model

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The October 2025 recommendation names lithium-lead, lithium-sodium and sodium-lead combinations. This supports mixed-family classification, not inseparable pricing or Global prevalence. ([itu.int](https://www.itu.int/rec/dologin_pub.asp?id=T-REC-L.xx.xx-xx.xx-I%xx.xx%21PDF-E&lang=e&type=items))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The October 2025 recommendation names lithium-lead, lithium-sodium and sodium-lead combinations. This supports mixed-family classification, not inseparable pricing or Global prevalence. ([itu.int](https://www.itu.int/rec/dologin_pub.asp?id=T-REC-L.xx.xx-xx.xx-I%xx.xx%21PDF-E&lang=e&type=items))

45. ETSI EN 300 132-1 V2.2.1 - ICT Power Supply Interface: Alternating Current
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The ICT standard identifies the protected-load AC interface, supporting output-side attribution rather than classification by chemistry or normal utility input. It supplies no sales mix. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013201v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The ICT standard identifies the protected-load AC interface, supporting output-side attribution rather than classification by chemistry or normal utility input. It supplies no sales mix. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013201v020201p.pdf))
46. ETSI EN 300 132-2 V2.8.1 - ICT Power Supply Interface: Direct Current
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The ICT standard separately identifies the DC protected-equipment interface, supporting the DC-output boundary independently of battery chemistry. It is not a purchasing census. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013202v020801p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The ICT standard separately identifies the DC protected-equipment interface, supporting the DC-output boundary independently of battery chemistry. It is not a purchasing census. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013202v020801p.pdf))
47. Vertiv NetSure Inverter Series - Converged AC and DC Power System
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: NetSure Inverter Series identifies AC and DC loads supported through a common battery bank. This establishes a combined-output proposition, not its modeled purchasing fraction or future adoption. ([vertiv.com](https://www.vertiv.com/en-us/products-catalog/critical-power/dc-power-systems/vertiv-netsure-inverter-series/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: NetSure Inverter Series identifies AC and DC loads supported through a common battery bank. This establishes a combined-output proposition, not its modeled purchasing fraction or future adoption. ([vertiv.com](https://www.vertiv.com/en-us/products-catalog/critical-power/dc-power-systems/vertiv-netsure-inverter-series/))

48. ETSI EN 302 099 V2.2.1 - Powering of Equipment in Access Network
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Local powering uses a colocated source; allocation follows the backed source rather than receiver inventory. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Local powering uses a colocated source; allocation follows the backed source rather than receiver inventory. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Remote-source backup is distinguished from local backup, supporting the parent commercial boundary but not purchasing weights. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Remote-source backup is distinguished from local backup, supporting the parent commercial boundary but not purchasing weights. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Centralized powering originates at a telecommunications center. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Centralized powering originates at a telecommunications center. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Cluster powering uses a source outside the telecommunications center, supporting separation within Remote Powering. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Cluster powering uses a source outside the telecommunications center, supporting separation within Remote Powering. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Reverse powering is customer-origin supply, supporting source-level attribution of the battery-backed provider package. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Reverse powering is customer-origin supply, supporting source-level attribution of the battery-backed provider package. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))

49. Set Up Your Battery Backup - AT&T G.Fast Service with BGW210

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The 2021 provider document names a battery-backed package protecting G.fast customer and distribution equipment through reverse power feed. It establishes a dated source-backup proposition, not current Global quantities. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The 2021 provider document names a battery-backed package protecting G.fast customer and distribution equipment through reverse power feed. It establishes a dated source-backup proposition, not current Global quantities. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The provider advertises a xx.xx-hour service window for the particular package, supporting Day-Scale mapping without a universal premises-duration inference. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The provider advertises a xx.xx-hour service window for the particular package, supporting Day-Scale mapping without a universal premises-duration inference. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

50. DNA Tower Offers Battery Capacity in Electricity Reserve Markets with Elisa DES

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The June xx.xx 2025 announcement reports DNA Tower batteries connected to Finnish reserve markets while retaining outage continuity. This establishes a specific mixed-duty implementation, not Global attachment or guaranteed returns. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/press-releases/dna-tower-becomes-worlds-first-tower-company-to-offer-battery-capacity-in-electricity-reserve-markets-with-elisa-des))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The June xx.xx 2025 announcement reports DNA Tower batteries connected to Finnish reserve markets while retaining outage continuity. This establishes a specific mixed-duty implementation, not Global attachment or guaranteed returns. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/press-releases/dna-tower-becomes-worlds-first-tower-company-to-offer-battery-capacity-in-electricity-reserve-markets-with-elisa-des))

51. Case Elisa: Virtual Power Plant in the Telecom Industry

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The company case reports over 2,000 aggregated sites and approximately xx.xx MWh. This is an installed commercial scale check, not annual purchasing value or Global prevalence. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/customer-stories/elisacase))

20. Telecom Battery Backup System Market, by Group

Americas supports a documented manufacturer-independent lifecycle route. ▪▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ Country and site eligibility require confirmation, and the territorial listing does not establish identical commitments for every included battery technology.

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▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪ ▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪ ▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ A Singapore-based distributor can preserve eligible origin documentation through that route, but cannot infer ASEAN preference merely from routing batteries through Singapore. Exporters should compare documented preferential supply with ordinary import treatment; eligibility, destination requirements, and customer acceptance remain separate conditions.

GCC customs coordination and product acceptance are related but distinct. The published customs-union framework provides common external-border arrangements and first-entry clearance principles. ▪▪▪▪ ▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪

▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪ ▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪ Suppliers should verify the actual battery or system's originating status before choosing a trans-Tasman route; purchasing or warehousing third-country equipment does not itself demonstrate qualification. A common distribution relationship can simplify

coordination, while separate import routes may remain preferable when the claimed origin benefit cannot be substantiated.

[illegible] Infrastructure owners should assess the participant relationship in each country before extending a common service proposition. Shared market infrastructure can support coordinated commercial planning, but does not prove acceptance of a particular telecom battery asset or equivalent access in Iceland.

European Union battery passports create a common preparation timetable for relevant categories from February xx.xx 2027. [illegible] Passport preparation is therefore a product-accountability decision, not proof of telecom buyer qualification.

BRICS cooperation does not establish a common battery purchasing gate. Brazil's July 2025 account of the leaders' declaration describes ICT knowledge and policy exchange. [illegible]

[illegible] Diversification can reduce dependency while introducing renewed acceptance and support obligations. Collective policy does not establish identical implementation by Canadian, US, UK, Japanese, or European purchasing organizations.

[illegible] A continuity-and-support proposition may address more of that requirement than equipment alone, but brings broader contractual exposure. The group framework establishes planning

objectives, not a uniform battery tender, supplier approval, or automatic access to constituent buyers.

■■■■■ ■■■■■■■■■■■ ■■■■■■ ■■■■■■■ ■■■■■■■■ ■■■ ■■■■■■■ ■■■■■■■■■ They are non-additive commercial lenses within the Global market, not additional market perimeters.

Figure 35. Global Telecom Battery Backup System Market Size, by Group, 2025 vs 2026 vs 2032

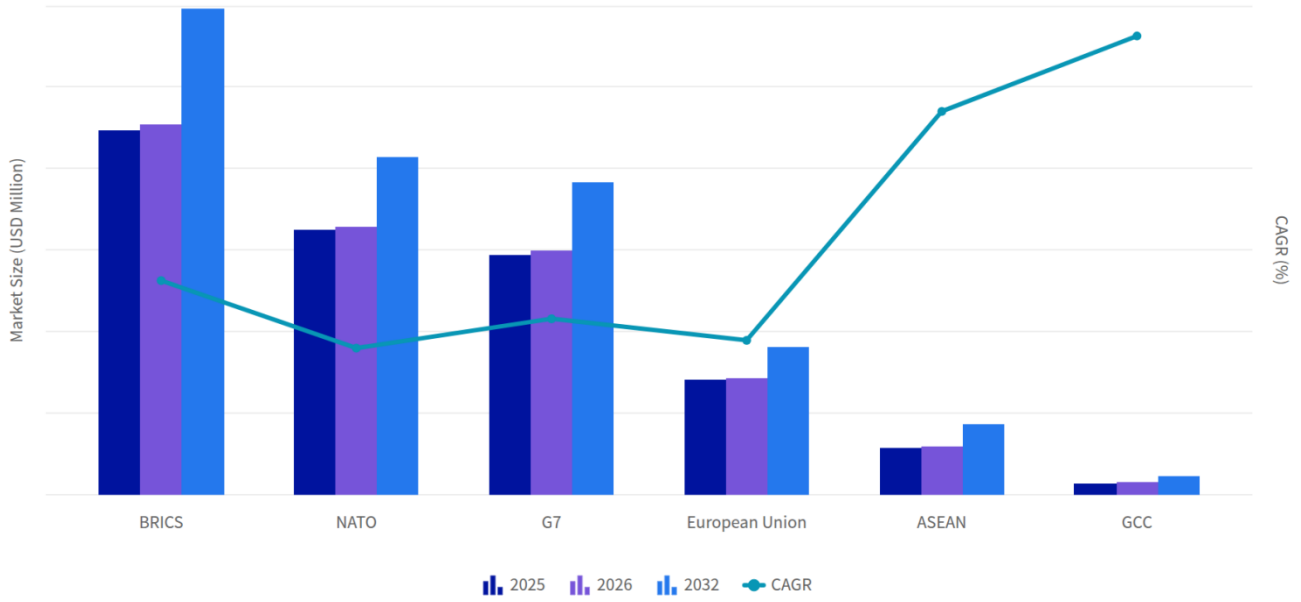

Table 355. Global Telecom Battery Backup System Market Size, by Group, 2017-2032 (USD Million)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Sources & Evidence

1. Vertiv NetSure M Series
   - Vertiv's EMEA catalog presents NetSure M Series telecom enclosures with battery options and a sales-contact route; it does not establish destination-specific fulfillment.
2. Recycling | EnerSys
   - EnerSys lists North and Central America and South America and describes spent lead-acid collection regardless of manufacturer, with recycling documentation.
3. Digital Product Passport for Batteries | European Commission
   - Relevant battery passports become mandatory from February xx.xx 2027; finished-battery accountability is distinct from component documentation.

4. How to Apply for a Back to Back Preferential Certificate of Origin
   · Singapore Customs describes eligible back-to-back ATIGA certificates based on the first exporting party's preferential certificate and applicable treaty conditions.
5. GCC Customs Union: Procedures and Implementation Steps
   · The GCC's published customs-union framework describes common external-border arrangements, first-entry clearance, and treatment of restricted goods.
6. Certificates of Conformity - SASO
   · SASO identifies Gulf conformity arrangements for covered low-voltage electrical equipment; this does not establish applicability to every telecom backup offering.
7. Saudi Arabia - Standards for Trade
   · The official Saudi Arabia trade guide describes SASO's national authority and Saudi conformity administration alongside GCC standards coordination.
8. Australia-New Zealand Closer Economic Relations Trade Agreement
   · New Zealand Customs describes CER origin requirements, Australia's exporter declaration, and evidence supporting preferential claims in New Zealand.
9. Fingrid Group - Management's Review, January-March 2025
   · Fingrid reports the March 2025 joint mFRR market rollout involving Finnish, Swedish, Norwegian, and Danish transmission system operators.
10. Implementation Guides - Nordic Balancing Model
    · The joint Nordic market materials retain TSO-specific arrangements, supporting limits to treating coordinated infrastructure as uniform participant access.
11. Declaração dos Líderes do BRICS Ressalta Avanço em Tecnologias da Informação e Comunicação
    · Brazil's July 2025 account of the BRICS declaration describes ICT knowledge sharing and policy exchange, not a battery purchasing authorization.
12. EPR Portal for Battery Waste Management - CPCB
    · India's official battery portal describes producer registration and extended producer responsibility under the Battery Waste Management Rules.
13. G7 Call to Action on Enhancing Energy Security
    · The October 2025 G7 call emphasizes supply-chain diversification, traceability, and cooperation, with implementation consistent with domestic priorities.
14. 2026 Resilience Baseline Requirements
    · NATO's September xx.xx 2026 requirements address civil communications continuity, national arrangements, vendor ownership, dependencies, and critical supply-chain oversight.
15. What Obligations Do Battery Producers Have?
    · Germany requires producer registration before batteries are placed on its market.
16. Regras - Qualidade dos Serviços de Telecomunicações
    · Brazil's interruption guidance connects unplanned service loss with proportional consumer redress.
17. China Tower - 2025 Annual Results, March 18, 2026
    · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue.
    ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))
18. Broadband Commission - The State of Broadband: Our Digital World, 2025
    · Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))

19. Battery Backup - Meriwether Lewis Electric Cooperative

    · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))

20. EnerSys 2026 Proxy Statement and Annual Report

    · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))

21. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025

    · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

22. Amara Raja Energy & Mobility - Q2/H1 FY2026 Earnings Presentation, November 6, 2025

    · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand. ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))

23. IHS Holding Limited - First-Quarter 2026 Financial Statements

    · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement. ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

24. Ofcom - Mobile RAN Power Resilience: Technical Report and CFI Update, February 2025

    · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

    · Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

25. Ofcom - Your Landline Is Going Digital: What You Need to Know

    · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

    · Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

26. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone
    - Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue. ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
    - Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions. ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
27. Fingrid - How to Participate in the Reserve Markets
    - Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue. ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))

20.1. BRICS

Table 356. BRICS Telecom Battery Backup System Market, by Country growth contribution, 2025-2032

Category	2025 value (USD Million)	2032 value (USD Million)	Added value (USD Million)	2025 share (%)	2032 share (%)	Change (pp)	Growth share (%)	CAGR (%)
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scope total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 357. BRICS Telecom Battery Backup System Market Size, by Group, 2017-2032 (USD Million)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 358. BRICS Telecom Battery Backup System Market Size, by Offering, 2017-2032 (USD Million)

Offering	2023	2024	2025	2026	2027	2032	CAGR (%)
Battery Units and Assemblies	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Complete Backup Systems	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 359. BRICS Telecom Battery Backup System Market Size, by Battery Technology, 2017-2032 (USD Million)

Battery Technology	2023	2024	2025	2026	2027	2032	CAGR (%)
Aqueous Zinc-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Flow Batteries	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lithium-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Metal-Air	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Multi-Chemistry	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Sodium-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 360. BRICS Telecom Battery Backup System Market Size, by Lead-Acid, 2017-2032 (USD Million)

Lead-Acid	2023	2024	2025	2026	2027	2032	CAGR (%)
Flooded Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Valve-Regulated Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 361. BRICS Telecom Battery Backup System Market Size, by Valve-Regulated Lead-Acid, 2017-2032 (USD Million)

Valve-Regulated Lead-Acid	2023	2024	2025	2026	2027	2032	CAGR (%)
Absorbent Glass Mat	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Gel	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 362. BRICS Telecom Battery Backup System Market Size, by Lithium-Based, 2017-2032 (USD Million)

Lithium-Based	2023	2024	2025	2026	2027	2032	CAGR (%)
Lithium-Ion	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lithium-Metal	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 363. BRICS Telecom Battery Backup System Market Size, by Nickel-Based, 2017-2032 (USD Million)

Nickel-Based	2023	2024	2025	2026	2027	2032	CAGR (%)
Nickel-Cadmium	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Iron	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Metal Hydride	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Zinc	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 364. BRICS Telecom Battery Backup System Market Size, by Power Interface, 2017-2032 (USD Million)

Power Interface	2023	2024	2025	2026	2027	2032	CAGR (%)
AC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Combined AC/DC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
DC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 365. BRICS Telecom Battery Backup System Market Size, by Network Application, 2017-2032 (USD Million)

Network Application	2023	2024	2025	2026	2027	2032	CAGR (%)
Core Networks & Network Control	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Customer-Premises Connectivity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Network Interconnection & Peering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Transport & Backhaul Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Wireless Access Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Wireline Access Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 366. BRICS Telecom Battery Backup System Market Size, by Buyer Type, 2017-2032 (USD Million)

Buyer Type	2023	2024	2025	2026	2027	2032	CAGR (%)
Business & Institutional Connectivity Owners	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Equipment Leasing & Rental Providers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Household Connectivity Purchasers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Energy-Service Providers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Infrastructure & Tower Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecommunications Network Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 367. BRICS Telecom Battery Backup System Market Size, by Installation Environment, 2017-2032 (USD Million)

Installation Environment	2023	2024	2025	2026	2027	2032	CAGR (%)
Non-Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Underground Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 368. BRICS Telecom Battery Backup System Market Size, by Weather-Protected Locations, 2017-2032 (USD Million)

Weather-Protected Locations	2023	2024	2025	2026	2027	2032	CAGR (%)
Enclosed Locations Without Temperature Control	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Partly Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Temperature-Controlled Enclosed Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 369. BRICS Telecom Battery Backup System Market Size, by Non-Weather-Protected Locations, 2017-2032 (USD Million)

Non-Weather-Protected Locations	2023	2024	2025	2026	2027	2032	CAGR (%)
Open-Air Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Sheltered Non-Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 370. BRICS Telecom Battery Backup System Market Size, by Powering Architecture, 2017-2032 (USD Million)

Powering Architecture	2023	2024	2025	2026	2027	2032	CAGR (%)
Local Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Remote Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 371. BRICS Telecom Battery Backup System Market Size, by Remote Powering, 2017-2032 (USD Million)

Remote Powering	2023	2024	2025	2026	2027	2032	CAGR (%)
Centralized Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Cluster Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reverse Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 372. BRICS Telecom Battery Backup System Market Size, by Commercial Delivery Model, 2017-2032 (USD Million)

Commercial Delivery Model	2023	2024	2025	2026	2027	2032	CAGR (%)
Leased or Rented Equipment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Managed Backup Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Owned Equipment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 373. BRICS Telecom Battery Backup System Market Size, by Sales Channel, 2017-2032 (USD Million)

Sales Channel	2023	2024	2025	2026	2027	2032	CAGR (%)
Direct Manufacturer Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Distributor and Retailer Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Systems Integrator and Contractor Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Service Provider Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 374. BRICS Telecom Battery Backup System Market Size, by Grid Availability, 2017-2032 (USD Million)

Grid Availability	2023	2024	2025	2026	2027	2032	CAGR (%)
Off-Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reliable Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Unreliable Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 375. BRICS Telecom Battery Backup System Market Size, by Backup Duty, 2017-2032 (USD Million)

Backup Duty	2023	2024	2025	2026	2027	2032	CAGR (%)
Backup with Energy Management	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reserve-Only Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 376. BRICS Telecom Battery Backup System Market Size, by Backup Autonomy, 2017-2032 (USD Million)

Backup Autonomy	2023	2024	2025	2026	2027	2032	CAGR (%)
Day-Scale Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Extended-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Intermediate-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Short-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. China Tower - 2025 Annual Results, March 18, 2026
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The xx.xx.149m-site inventory constrains wireless activity; forecast purchasing remains modeled.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The xx.xx.149m-site inventory constrains wireless activity; forecast purchasing remains modeled.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Replacement/improvement CAPEX fell from RMB6837m to RMB5474m, qualifying automatic replacement-led growth.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Replacement/improvement CAPEX fell from RMB6837m to RMB5474m, qualifying automatic replacement-led growth.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Disclosed tower operations establish a material infrastructure purchasing setting, not a global buyer share.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Disclosed tower operations establish a material infrastructure purchasing setting, not a global buyer share.
2. Broadband Commission - The State of Broadband: Our Digital World, 2025
   - Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))

3. Battery Backup - Meriwether Lewis Electric Cooperative
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Separately available replacement batteries support a battery-only replacement route.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Separately available replacement batteries support a battery-only replacement route.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The USD100-plus-tax device is a retail comparator, not an observed 2025 first-sale realization.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The USD100-plus-tax device is a retail comparator, not an observed 2025 first-sale realization.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Customer purchase and replacement responsibilities support household-funded procurement.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Customer purchase and replacement responsibilities support household-funded procurement.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Purchased equipment does not automatically include continuing service-plan coverage.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Purchased equipment does not automatically include continuing service-plan coverage.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Local provider sales establish this route alongside manufacturer-direct purchasing.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Local provider sales establish this route alongside manufacturer-direct purchasing.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The provider advertises approximately five hours for combined voice and internet, supporting service-specific Extended classification, not an observed 2025 purchase mix. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The provider advertises approximately five hours for combined voice and internet, supporting service-specific Extended classification, not an observed 2025 purchase mix. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The same proposition advertises xx.xx-hour voice-only protection, supporting Day-Scale mapping without equating duration with a universally larger purchase basket. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The same proposition advertises xx.xx-hour voice-only protection, supporting Day-Scale mapping without equating duration with a universally larger purchase basket. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
4. EnerSys 2026 Proxy Statement and Annual Report
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Direct customer supply is disclosed within a diversified international business; telecom channel proportions are not disclosed.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Direct customer supply is disclosed within a diversified international business; telecom channel proportions are not disclosed.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Distributor supply is disclosed, supporting route occurrence rather than its modeled sales weight.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Distributor supply is disclosed, supporting route occurrence rather than its modeled sales weight.

5. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025

   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom application revenue provides counterevidence to extrapolating broad energy-storage growth into China's backup forecast.

   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: Audited 2025 telecom revenue of RMB1,xx.xx declined xx.xx%; telecom purchasing weakness is retained as counterevidence to automatic substitution-led aggregate growth. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Audited 2025 telecom revenue of RMB1,xx.xx declined xx.xx%; telecom purchasing weakness is retained as counterevidence to automatic substitution-led aggregate growth. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: Telecom-specific results are separated from adjacent data-center and power-storage growth when assessing lithium substitution; the filing does not disclose the modeled Global split. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom-specific results are separated from adjacent data-center and power-storage growth when assessing lithium substitution; the filing does not disclose the modeled Global split. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

6. Amara Raja Energy & Mobility - Q2/H1 FY2026 Earnings Presentation, November 6, 2025

   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand. ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))

7. IHS Holding Limited - First-Quarter 2026 Financial Statements

   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement. ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

8. Ofcom - Mobile RAN Power Resilience: Technical Report and CFI Update, February 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The evaluated xx.xx-minute alternative supplies a subhour commercial-planning anchor, not observed shipments.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The evaluated xx.xx-minute alternative supplies a subhour commercial-planning anchor, not observed shipments.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: One-hour and two-hour alternatives anchor the analytical Intermediate band. Aggregate scenarios include multiple years of operating costs and are not annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: One-hour and two-hour alternatives anchor the analytical Intermediate band. Aggregate scenarios include multiple years of operating costs and are not annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The four-hour alternative anchors the Extended band's lower boundary without establishing a Global minimum or purchasing allocation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The four-hour alternative anchors the Extended band's lower boundary without establishing a Global minimum or purchasing allocation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

9. Ofcom - Your Landline Is Going Digital: What You Need to Know

- Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
- Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Restricted provider-funded eligibility constrains operator-funded premises attribution and forecast adoption.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Restricted provider-funded eligibility constrains operator-funded premises attribution and forecast adoption.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Eligibility is not universal household funding; purchaser proportions remain assumptions.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Eligibility is not universal household funding; purchaser proportions remain assumptions.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Eligibility-limited provider backup and the one-hour minimum for qualifying customers constrain premises demand and anchor the Intermediate band's lower boundary. They do not establish universal adoption. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Eligibility-limited provider backup and the one-hour minimum for qualifying customers constrain premises demand and anchor the Intermediate band's lower boundary. They do not establish universal adoption. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

10. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone
    - Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue. ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
    - Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions. ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: USD45m financing and xx.xx planned site modernizations support an expansion signal, not observed backup-only service revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: USD45m financing and xx.xx planned site modernizations support an expansion signal, not observed backup-only service revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Energy-service activity supports the role; the modeled provider-as-buyer subcontract share is not established.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Energy-service activity supports the role; the modeled provider-as-buyer subcontract share is not established.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: More than xx.xx% weak/off-grid project exposure constrains service-cohort concentration, not the global grid mix.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: More than xx.xx% weak/off-grid project exposure constrains service-cohort concentration, not the global grid mix.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The project confirms disconnected-site commercial demand; its weak/off-grid combined statistic does not separate those categories.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The project confirms disconnected-site commercial demand; its weak/off-grid combined statistic does not separate those categories.
11. Fingrid - How to Participate in the Reserve Markets
    - Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue. ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Applicable owner permission and market agreements are commercial access gates. They constrain forecast mixed-duty adoption without measuring its Global percentage. ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))
12. China Tower announces 2025 annual results - March 18, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.

13. American Tower Corporation - Annual Report on Form 10-K for 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
14. IHS Holding Limited - Annual Report on Form 20-F for 2024
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: South African contractual differences qualify an Africa-wide managed-power assumption.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: South African contractual differences qualify an Africa-wide managed-power assumption.
15. PowerSafe SBS Batteries | EnerSys
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Named telecom batteries support the battery-unit offering boundary; allocation weights are assumed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Named telecom batteries support the battery-unit offering boundary; allocation weights are assumed.
16. Vertiv NetSure M Series
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Configured enclosure, power and battery options support broader system classification, not universal bundle inclusion.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Configured enclosure, power and battery options support broader system classification, not universal bundle inclusion.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A marketed outdoor enclosure supports a protection option; global adoption and configuration proportions remain modeled.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A marketed outdoor enclosure supports a protection option; global adoption and configuration proportions remain modeled.
17. Ofcom - Network and Service Resilience Guidance for Communications Providers, June 16, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Core is a distinct, comparatively concentrated function with explicit backup expectations; global spending remains estimated.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Core is a distinct, comparatively concentrated function with explicit backup expectations; global spending remains estimated.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The stated xx.xx-xx.xx-fold site-scale distinction motivates lower-value, more numerous transport purchase equivalents.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The stated xx.xx-xx.xx-fold site-scale distinction motivates lower-value, more numerous transport purchase equivalents.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Peering and non-Internet interconnection are distinct functions; attributable backup purchase values are not disclosed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Peering and non-Internet interconnection are distinct functions; attributable backup purchase values are not disclosed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: June 2026 guidance identifies approximately four hours as good practice for active fixed-access cabinets. This supports a conditional Extended purchasing shift, not completed orders or a Global mandate. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/network-and-service-resilience-guidance-for-communications-providerspdf?v=xx.xx))

18. Technology and Tools | First Responder Network Authority
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Radio access, transport backhaul and core are separate network functions, supporting functional attribution without duplicate facility counting.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Radio access, transport backhaul and core are separate network functions, supporting functional attribution without duplicate facility counting.
19. Mobile Network Hardening Program | Australian Department of Infrastructure
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Completed battery enhancements and broader resilience projects provide a delivered regional demand signal, not a global forecast rate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Completed battery enhancements and broader resilience projects provide a delivered regional demand signal, not a global forecast rate.
20. BT - Digital Voice for Business Service Schedule, May 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Business customers bear backup-power expense, supporting a distinct institutional/business payer route rather than consumer eligibility extrapolation.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Business customers bear backup-power expense, supporting a distinct institutional/business payer route rather than consumer eligibility extrapolation.
21. Los Angeles Metro - Board Report 2024-1128, UPS Battery Replacement
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Completed and additional UPS battery replacements support continuing underground demand; mixed-load project budgets are not telecom-only revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Completed and additional UPS battery replacements support continuing underground demand; mixed-load project budgets are not telecom-only revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The transit authority's purchasing program supports an institutional own-use role, not its global spending proportion.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The transit authority's purchasing program supports an institutional own-use role, not its global spending proportion.
22. ETSI EN 300 019-1-3 V3.1.1 - Stationary Use at Weatherprotected Locations, May 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Weather-protected categories distinguish enclosure from environmental control; the standard does not measure market mix.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Weather-protected categories distinguish enclosure from environmental control; the standard does not measure market mix.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Maintained temperature control is a separate classification premise for the modeled conditional allocation.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Maintained temperature control is a separate classification premise for the modeled conditional allocation.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Enclosed locations without temperature control are distinguished from controlled locations.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Enclosed locations without temperature control are distinguished from controlled locations.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Partial weather protection is recognized separately; sales weights and future adoption remain assumed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Partial weather protection is recognized separately; sales weights and future adoption remain assumed.

23. ETSI EN 300 019-1-4 V3.1.1 - Stationary Use at Non-Weatherprotected Locations, May 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Non-weather-protected locations form a distinct classification regime, not a measured global spending pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Non-weather-protected locations form a distinct classification regime, not a measured global spending pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Sheltered non-weather-protected locations support the named conditional category.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Sheltered non-weather-protected locations support the named conditional category.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Open-air locations are separately recognized; their purchasing mix remains modeled.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Open-air locations are separately recognized; their purchasing mix remains modeled.
24. DC Power Plant / Rectifiers - UPS Rental
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Battery and complete DC-plant rentals establish delivery-category occurrence; global fees and utilization are not disclosed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Battery and complete DC-plant rentals establish delivery-category occurrence; global fees and utilization are not disclosed.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Commercial rental availability is a role premise only; modeled lessor sub-hire procurement remains unverified.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Commercial rental availability is a role premise only; modeled lessor sub-hire procurement remains unverified.
25. Helios Towers - Full Year Results 2025, March 12, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Grid-integration investment supplies a connection-improvement counterforce used conditionally in the forecast.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Grid-integration investment supplies a connection-improvement counterforce used conditionally in the forecast.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Reported xx.xx-hour average daily grid availability supports weak-grid commercial exposure, without a global classification share.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Reported xx.xx-hour average daily grid availability supports weak-grid commercial exposure, without a global classification share.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Grid integration and alternative-power investment qualify assumptions of permanently unchanged disconnected-site exposure.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Grid integration and alternative-power investment qualify assumptions of permanently unchanged disconnected-site exposure.
26. Telecommunications | Aggreko US
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Telecom battery-storage rental for temporary continuity supports delivery occurrence, not the estimated global fee scale.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom battery-storage rental for temporary continuity supports delivery occurrence, not the estimated global fee scale.
27. EnerSys PowerSafe SBS Front Terminal Batteries | Alpine Power Systems
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A named battery distributor supports the intermediary route; its listing is not a global channel-sales observation.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A named battery distributor supports the intermediary route; its listing is not a global channel-sales observation.

28. DC Power Services | Vertiv

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Cross-manufacturer projects and narrower upgrades support integration-prime and supported-replacement routes; numerical route proportions remain assumed.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Cross-manufacturer projects and narrower upgrades support integration-prime and supported-replacement routes; numerical route proportions remain assumed.

29. Shuangdeng Group Co., Ltd. - Global Offering Prospectus, August 18, 2025

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The company's own five-month 2025 lead-acid realization of RMB520.xx.xx/kWh constrains the relative-price bridge; syndicated industry claims are excluded. Forecast convergence remains assumed. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The company's own five-month 2025 lead-acid realization of RMB520.xx.xx/kWh constrains the relative-price bridge; syndicated industry claims are excluded. Forecast convergence remains assumed. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Own lithium-ion realization of RMB595.xx.xx/kWh is an input to the Lithium-Based value model, not a Global share or a Lithium-Metal sales observation. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Own lithium-ion realization of RMB595.xx.xx/kWh is an input to the Lithium-Based value model, not a Global share or a Lithium-Metal sales observation. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))

30. Amara Raja Crosses 1 GWh Lithium Storage Deployment Powering India's Telecom Networks

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The April xx.xx 2026 disclosure reports approximately xx.xx GWh across xx.xx cumulative telecom lithium sites over four years. This is a commercial adoption scale check, not annual Global revenue or a supplier-share input. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The April xx.xx 2026 disclosure reports approximately xx.xx GWh across xx.xx cumulative telecom lithium sites over four years. This is a commercial adoption scale check, not annual Global revenue or a supplier-share input. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The disclosed deployment identifies lithium-ion commercialization at scale, supporting the subtype's established commercial position without directly measuring its conditional Global share. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The disclosed deployment identifies lithium-ion commercialization at scale, supporting the subtype's established commercial position without directly measuring its conditional Global share. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))

31. Central Office Power Systems - EnerSys

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The central-office portfolio identifies Flooded Lead-Acid as a distinct telecom alternative, supporting the legacy-network category mapping but not its purchasing fraction. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The central-office portfolio identifies Flooded Lead-Acid as a distinct telecom alternative, supporting the legacy-network category mapping but not its purchasing fraction. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The portfolio separately identifies Valve-Regulated Lead-Acid, supporting the within-lead construction boundary used by the model. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The portfolio separately identifies Valve-Regulated Lead-Acid, supporting the within-lead construction boundary used by the model. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))

32. PowerSafe OPzV Batteries - EnerSys

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: EnerSys identifies OPzV as Gel and lists telecom applications. This supports commercial subtype mapping, not the assumed Gel/AGM volume or price mix. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-opzv/))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: EnerSys identifies OPzV as Gel and lists telecom applications. This supports commercial subtype mapping, not the assumed Gel/AGM volume or price mix. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-opzv/))

33. Bolloré - 2017 Registration Document

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The official filing identifies LMP professional outage-protection applications including telecom relays. This is a dated commercial boundary input, not evidence of 2025 telecom shipment value. ([bollore.com](https://www.bollore.com/wp-content/uploads/2018/xx.xx/bollore_ddr_2017_gb_bag-xx.xx-juin.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The official filing identifies LMP professional outage-protection applications including telecom relays. This is a dated commercial boundary input, not evidence of 2025 telecom shipment value. ([bollore.com](https://www.bollore.com/wp-content/uploads/2018/xx.xx/bollore_ddr_2017_gb_bag-xx.xx-juin.pdf))

34. Bolloré - Business Report 2025

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The 2025 report establishes continuing Lithium Metal Polymer commercial applications in electricity storage and buses, while omitting separately attributable telecom sales. It constrains the low-access expected-purchase model; no capacity-to-sales conversion is used. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The 2025 report establishes continuing Lithium Metal Polymer commercial applications in electricity storage and buses, while omitting separately attributable telecom sales. It constrains the low-access expected-purchase model; no capacity-to-sales conversion is used. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The report preserves the distinction between LMP and conventional lithium-ion, supporting the exhaustive subtype attribution rule rather than treating polymer packaging as Lithium-Metal. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The report preserves the distinction between LMP and conventional lithium-ion, supporting the exhaustive subtype attribution rule rather than treating polymer packaging as Lithium-Metal. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))

35. AT&T to Replace U-Verse Cabinet Batteries - Fierce Network, January 15, 2008

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The January xx.xx 2008 report corroborates AT&T's replacement of approximately xx.xx Avestor batteries after the supplier's closure. The obsolete stock is therefore not carried into the 2025 or 2032 purchasing numerator. ([fierce-network.com](https://www.fierce-network.com/telecom/at-t-to-replace-u-verse-cabinet-batteries))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The January xx.xx 2008 report corroborates AT&T's replacement of approximately xx.xx Avestor batteries after the supplier's closure. The obsolete stock is therefore not carried into the 2025 or 2032 purchasing numerator. ([fierce-network.com](https://www.fierce-network.com/telecom/at-t-to-replace-u-verse-cabinet-batteries))

36. PowerSafe NiCd Batteries - EnerSys

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: EnerSys identifies Nickel-Cadmium for central offices and outside plant, supporting the modeled legacy telecom cohort but not its installed attachment or replacement spending. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-nicd/))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: EnerSys identifies Nickel-Cadmium for central offices and outside plant, supporting the modeled legacy telecom cohort but not its installed attachment or replacement spending. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-nicd/))

37. FDK Ni-MH Battery Is Chosen for the Cellect 600 Product of Alpha Technologies

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The October xx.xx 2015 announcement identifies NiMH in Alpha's Cellect xx.xx small-cell backup proposition. It supports a historical cohort rather than current fulfillment or assumed surviving stock. ([fdk.com](https://www.fdk.com/whatsnew-e/release20151019-e.html))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The October xx.xx 2015 announcement identifies NiMH in Alpha's Cellect xx.xx small-cell backup proposition. It supports a historical cohort rather than current fulfillment or assumed surviving stock. ([fdk.com](https://www.fdk.com/whatsnew-e/release20151019-e.html))

38. Products - Encell Technology
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Encell positions its Fused Iron Nickel-Iron battery for telecom. This supports the commercial category lead, while current purchases and attachment remain modeled. ([encell.com](https://encell.com/products/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Encell positions its Fused Iron Nickel-Iron battery for telecom. This supports the commercial category lead, while current purchases and attachment remain modeled. ([encell.com](https://encell.com/products/))
39. Telecom/5G - ZAF Energy Systems
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: ZAF positions Nickel-Zinc for telecom/5G. Its supplier proposition supports application mapping, not the modeled annual attachment or threefold forecast value multiplier. ([zafsys.com](https://zafsys.com/telecom-5g/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: ZAF positions Nickel-Zinc for telecom/5G. Its supplier proposition supports application mapping, not the modeled annual attachment or threefold forecast value multiplier. ([zafsys.com](https://zafsys.com/telecom-5g/))
40. HORIEN Salt Battery Solutions and Inlyte Energy Announce a Strategic Partnership
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: HORIEN's March xx.xx 2025 statement identifies sodium-metal-chloride telecom backup. Its separate partnership announcement is not counted as delivered telecom sales. ([horien.com](https://horien.com/wp-content/uploads/2025/xx.xx/Press-Release_HORIEN-Inlyte-International-Version.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: HORIEN's March xx.xx 2025 statement identifies sodium-metal-chloride telecom backup. Its separate partnership announcement is not counted as delivered telecom sales. ([horien.com](https://horien.com/wp-content/uploads/2025/xx.xx/Press-Release_HORIEN-Inlyte-International-Version.pdf))
41. Energy Backup - Phinergy
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Phinergy markets Aluminum-Air continuity offerings to telecom operators and tower companies. The source supports category and buyer mapping, not the modeled installed attachment or replacement numerator. ([phinergy.com](https://phinergy.com/solutions/energy-backup/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Phinergy markets Aluminum-Air continuity offerings to telecom operators and tower companies. The source supports category and buyer mapping, not the modeled installed attachment or replacement numerator. ([phinergy.com](https://phinergy.com/solutions/energy-backup/))
42. Australian Flow Batteries - RFB40X Series
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: RFB40X literature identifies telecom among stationary commercial applications. It supports the qualifying project boundary, not delivered projects, revenue or assumed attachment. ([afb.energy](https://www.afb.energy/wp-content/uploads/2025/xx.xx/Australian-Flow-Batteries-RFB40X-Series-2024.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: RFB40X literature identifies telecom among stationary commercial applications. It supports the qualifying project boundary, not delivered projects, revenue or assumed attachment. ([afb.energy](https://www.afb.energy/wp-content/uploads/2025/xx.xx/Australian-Flow-Batteries-RFB40X-Series-2024.pdf))

43. PowerReserve - Verizon Residential Accessories
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Verizon advertises an alkaline-cell voice-backup device at USD39.xx.xx excluding batteries. This supports a qualifying primary-zinc premises route and price comparator, not assumed Global attachment or first-sale realization. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Verizon advertises an alkaline-cell voice-backup device at USD39.xx.xx excluding batteries. This supports a qualifying primary-zinc premises route and price comparator, not assumed Global attachment or first-sale realization. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Advertised voice-only protection reaches xx.xx hours; internet and television protection are excluded. This supports service-specific Day-Scale classification. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Advertised voice-only protection reaches xx.xx hours; internet and television protection are excluded. This supports service-specific Day-Scale classification. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
44. Alkaline Manganese Dioxide Handbook and Application Manual - Energizer
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The manufacturer's alkaline manganese-dioxide classification supports the zinc-family mapping for qualifying premises backup. It provides no telecom purchasing weight. ([data.energizer.com](https://data.energizer.com/pdfs/alkaline_appman.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The manufacturer's alkaline manganese-dioxide classification supports the zinc-family mapping for qualifying premises backup. It provides no telecom purchasing weight. ([data.energizer.com](https://data.energizer.com/pdfs/alkaline_appman.pdf))
45. ITU-T Work Programme - Aqueous Zinc-Based Battery Systems for Base Station Applications
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The aqueous-zinc base-station work item is Under study with December 2027 timing. It constrains the forecast commercialization assumption but establishes neither approval nor customer purchases. ([itu.int](https://www.itu.int/itu-t/workprog/wp_item.aspx?isn=xx.xx))
46. ITU-T L.1397 - Battery System with Integrated Control and Monitoring Information Model
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The October 2025 recommendation names lithium-lead, lithium-sodium and sodium-lead combinations. This supports mixed-family classification, not inseparable pricing or Global prevalence. ([itu.int](https://www.itu.int/rec/dologin_pub.asp?id=T-REC-L.xx.xx-xx.xx-I%xx.xx%21PDF-E&lang=e&type=items))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The October 2025 recommendation names lithium-lead, lithium-sodium and sodium-lead combinations. This supports mixed-family classification, not inseparable pricing or Global prevalence. ([itu.int](https://www.itu.int/rec/dologin_pub.asp?id=T-REC-L.xx.xx-xx.xx-I%xx.xx%21PDF-E&lang=e&type=items))
47. ETSI EN 300 132-1 V2.2.1 - ICT Power Supply Interface: Alternating Current
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The ICT standard identifies the protected-load AC interface, supporting output-side attribution rather than classification by chemistry or normal utility input. It supplies no sales mix. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013201v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The ICT standard identifies the protected-load AC interface, supporting output-side attribution rather than classification by chemistry or normal utility input. It supplies no sales mix. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013201v020201p.pdf))

48. ETSI EN 300 132-2 V2.8.1 - ICT Power Supply Interface: Direct Current
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The ICT standard separately identifies the DC protected-equipment interface, supporting the DC-output boundary independently of battery chemistry. It is not a purchasing census. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013202v020801p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The ICT standard separately identifies the DC protected-equipment interface, supporting the DC-output boundary independently of battery chemistry. It is not a purchasing census. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013202v020801p.pdf))
49. Vertiv NetSure Inverter Series - Converged AC and DC Power System
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: NetSure Inverter Series identifies AC and DC loads supported through a common battery bank. This establishes a combined-output proposition, not its modeled purchasing fraction or future adoption. ([vertiv.com](https://www.vertiv.com/en-us/products-catalog/critical-power/dc-power-systems/vertiv-netsure-inverter-series/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: NetSure Inverter Series identifies AC and DC loads supported through a common battery bank. This establishes a combined-output proposition, not its modeled purchasing fraction or future adoption. ([vertiv.com](https://www.vertiv.com/en-us/products-catalog/critical-power/dc-power-systems/vertiv-netsure-inverter-series/))

50. ETSI EN 302 099 V2.2.1 - Powering of Equipment in Access Network
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Local powering uses a colocated source; allocation follows the backed source rather than receiver inventory. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Local powering uses a colocated source; allocation follows the backed source rather than receiver inventory. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Remote-source backup is distinguished from local backup, supporting the parent commercial boundary but not purchasing weights. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Remote-source backup is distinguished from local backup, supporting the parent commercial boundary but not purchasing weights. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Centralized powering originates at a telecommunications center. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Centralized powering originates at a telecommunications center. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Cluster powering uses a source outside the telecommunications center, supporting separation within Remote Powering. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Cluster powering uses a source outside the telecommunications center, supporting separation within Remote Powering. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Reverse powering is customer-origin supply, supporting source-level attribution of the battery-backed provider package. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Reverse powering is customer-origin supply, supporting source-level attribution of the battery-backed provider package. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))

51. Set Up Your Battery Backup - AT&T G.Fast Service with BGW210

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The 2021 provider document names a battery-backed package protecting G.fast customer and distribution equipment through reverse power feed. It establishes a dated source-backup proposition, not current Global quantities. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The 2021 provider document names a battery-backed package protecting G.fast customer and distribution equipment through reverse power feed. It establishes a dated source-backup proposition, not current Global quantities. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The provider advertises a xx.xx-hour service window for the particular package, supporting Day-Scale mapping without a universal premises-duration inference. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The provider advertises a xx.xx-hour service window for the particular package, supporting Day-Scale mapping without a universal premises-duration inference. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

52. DNA Tower Offers Battery Capacity in Electricity Reserve Markets with Elisa DES

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The June xx.xx 2025 announcement reports DNA Tower batteries connected to Finnish reserve markets while retaining outage continuity. This establishes a specific mixed-duty implementation, not Global attachment or guaranteed returns. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/press-releases/dna-tower-becomes-worlds-first-tower-company-to-offer-battery-capacity-in-electricity-reserve-markets-with-elisa-des))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The June xx.xx 2025 announcement reports DNA Tower batteries connected to Finnish reserve markets while retaining outage continuity. This establishes a specific mixed-duty implementation, not Global attachment or guaranteed returns. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/press-releases/dna-tower-becomes-worlds-first-tower-company-to-offer-battery-capacity-in-electricity-reserve-markets-with-elisa-des))

53. Case Elisa: Virtual Power Plant in the Telecom Industry

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The company case reports over 2,000 aggregated sites and approximately xx.xx MWh. This is an installed commercial scale check, not annual purchasing value or Global prevalence. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/customer-stories/elisacase))

20.2. NATO

Table 377. NATO Telecom Battery Backup System Market, by Country growth contribution, 2025-2032

Category	2025 value (USD Million)	2032 value (USD Million)	Added value (USD Million)	2025 share (%)	2032 share (%)	Change (pp)	Growth share (%)	CAGR (%)
Albania	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Belgium	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Bulgaria	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 377 - continued

Category	2025 value (USD Million)	2032 value (USD Million)	Added value (USD Million)	2025 share (%)	2032 share (%)	Change (pp)	Growth share (%)	CAGR (%)
Croatia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Czech Republic	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Denmark	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Estonia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Finland	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Greece	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Hungary	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Iceland	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latvia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lithuania	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Luxembourg	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Montenegro	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Netherlands	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North Macedonia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Norway	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Poland	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Portugal	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Romania	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Slovakia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Slovenia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Sweden	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Turkey	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scope total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 378. NATO Telecom Battery Backup System Market Size, by Group, 2017-2032 (USD Million)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
Albania	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Belgium	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Bulgaria	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Croatia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Czech Republic	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Denmark	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Estonia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Finland	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Greece	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Hungary	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Iceland	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latvia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lithuania	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Luxembourg	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Montenegro	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Netherlands	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North Macedonia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Norway	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Poland	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Portugal	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Romania	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Slovakia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Slovenia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Sweden	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Turkey	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 379. NATO Telecom Battery Backup System Market Size, by Offering, 2017-2032 (USD Million)

Offering	2023	2024	2025	2026	2027	2032	CAGR (%)
Battery Units and Assemblies	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Complete Backup Systems	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 380. NATO Telecom Battery Backup System Market Size, by Battery Technology, 2017-2032 (USD Million)

Battery Technology	2023	2024	2025	2026	2027	2032	CAGR (%)
Aqueous Zinc-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Flow Batteries	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lithium-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Metal-Air	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Multi-Chemistry	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Sodium-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 381. NATO Telecom Battery Backup System Market Size, by Lead-Acid, 2017-2032 (USD Million)

Lead-Acid	2023	2024	2025	2026	2027	2032	CAGR (%)
Flooded Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Valve-Regulated Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 382. NATO Telecom Battery Backup System Market Size, by Valve-Regulated Lead-Acid, 2017-2032 (USD Million)

Valve-Regulated Lead-Acid	2023	2024	2025	2026	2027	2032	CAGR (%)
Absorbent Glass Mat	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Gel	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 383. NATO Telecom Battery Backup System Market Size, by Lithium-Based, 2017-2032 (USD Million)

Lithium-Based	2023	2024	2025	2026	2027	2032	CAGR (%)
Lithium-Ion	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lithium-Metal	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 384. NATO Telecom Battery Backup System Market Size, by Nickel-Based, 2017-2032 (USD Million)

Nickel-Based	2023	2024	2025	2026	2027	2032	CAGR (%)
Nickel-Cadmium	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Iron	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Metal Hydride	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Zinc	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 385. NATO Telecom Battery Backup System Market Size, by Power Interface, 2017-2032 (USD Million)

Power Interface	2023	2024	2025	2026	2027	2032	CAGR (%)
AC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Combined AC/DC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
DC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 386. NATO Telecom Battery Backup System Market Size, by Network Application, 2017-2032 (USD Million)

Network Application	2023	2024	2025	2026	2027	2032	CAGR (%)
Core Networks & Network Control	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Customer-Premises Connectivity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Network Interconnection & Peering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Transport & Backhaul Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Wireless Access Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Wireline Access Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 387. NATO Telecom Battery Backup System Market Size, by Buyer Type, 2017-2032 (USD Million)

Buyer Type	2023	2024	2025	2026	2027	2032	CAGR (%)
Business & Institutional Connectivity Owners	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Equipment Leasing & Rental Providers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Household Connectivity Purchasers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Energy-Service Providers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Infrastructure & Tower Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecommunications Network Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 388. NATO Telecom Battery Backup System Market Size, by Installation Environment, 2017-2032 (USD Million)

Installation Environment	2023	2024	2025	2026	2027	2032	CAGR (%)
Non-Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Underground Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 389. NATO Telecom Battery Backup System Market Size, by Weather-Protected Locations, 2017-2032 (USD Million)

Weather-Protected Locations	2023	2024	2025	2026	2027	2032	CAGR (%)
Enclosed Locations Without Temperature Control	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Partly Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Temperature-Controlled Enclosed Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 390. NATO Telecom Battery Backup System Market Size, by Non-Weather-Protected Locations, 2017-2032 (USD Million)

Non-Weather-Protected Locations	2023	2024	2025	2026	2027	2032	CAGR (%)
Open-Air Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Sheltered Non-Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 391. NATO Telecom Battery Backup System Market Size, by Powering Architecture, 2017-2032 (USD Million)

Powering Architecture	2023	2024	2025	2026	2027	2032	CAGR (%)
Local Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Remote Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 392. NATO Telecom Battery Backup System Market Size, by Remote Powering, 2017-2032 (USD Million)

Remote Powering	2023	2024	2025	2026	2027	2032	CAGR (%)
Centralized Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Cluster Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reverse Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 393. NATO Telecom Battery Backup System Market Size, by Commercial Delivery Model, 2017-2032 (USD Million)

Commercial Delivery Model	2023	2024	2025	2026	2027	2032	CAGR (%)
Leased or Rented Equipment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Managed Backup Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Owned Equipment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 394. NATO Telecom Battery Backup System Market Size, by Sales Channel, 2017-2032 (USD Million)

Sales Channel	2023	2024	2025	2026	2027	2032	CAGR (%)
Direct Manufacturer Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Distributor and Retailer Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Systems Integrator and Contractor Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Service Provider Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 395. NATO Telecom Battery Backup System Market Size, by Grid Availability, 2017-2032 (USD Million)

Grid Availability	2023	2024	2025	2026	2027	2032	CAGR (%)
Off-Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reliable Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Unreliable Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 396. NATO Telecom Battery Backup System Market Size, by Backup Duty, 2017-2032 (USD Million)

Backup Duty	2023	2024	2025	2026	2027	2032	CAGR (%)
Backup with Energy Management	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reserve-Only Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 397. NATO Telecom Battery Backup System Market Size, by Backup Autonomy, 2017-2032 (USD Million)

Backup Autonomy	2023	2024	2025	2026	2027	2032	CAGR (%)
Day-Scale Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Extended-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Intermediate-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Short-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. China Tower - 2025 Annual Results, March 18, 2026
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The xx.xx.149m-site inventory constrains wireless activity; forecast purchasing remains modeled.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The xx.xx.149m-site inventory constrains wireless activity; forecast purchasing remains modeled.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Replacement/improvement CAPEX fell from RMB6837m to RMB5474m, qualifying automatic replacement-led growth.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Replacement/improvement CAPEX fell from RMB6837m to RMB5474m, qualifying automatic replacement-led growth.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Disclosed tower operations establish a material infrastructure purchasing setting, not a global buyer share.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Disclosed tower operations establish a material infrastructure purchasing setting, not a global buyer share.
2. Broadband Commission - The State of Broadband: Our Digital World, 2025
   - Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))

3. Battery Backup - Meriwether Lewis Electric Cooperative
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Separately available replacement batteries support a battery-only replacement route.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Separately available replacement batteries support a battery-only replacement route.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The USD100-plus-tax device is a retail comparator, not an observed 2025 first-sale realization.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The USD100-plus-tax device is a retail comparator, not an observed 2025 first-sale realization.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Customer purchase and replacement responsibilities support household-funded procurement.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Customer purchase and replacement responsibilities support household-funded procurement.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Purchased equipment does not automatically include continuing service-plan coverage.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Purchased equipment does not automatically include continuing service-plan coverage.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Local provider sales establish this route alongside manufacturer-direct purchasing.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Local provider sales establish this route alongside manufacturer-direct purchasing.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The provider advertises approximately five hours for combined voice and internet, supporting service-specific Extended classification, not an observed 2025 purchase mix. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The provider advertises approximately five hours for combined voice and internet, supporting service-specific Extended classification, not an observed 2025 purchase mix. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The same proposition advertises xx.xx-hour voice-only protection, supporting Day-Scale mapping without equating duration with a universally larger purchase basket. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The same proposition advertises xx.xx-hour voice-only protection, supporting Day-Scale mapping without equating duration with a universally larger purchase basket. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
4. EnerSys 2026 Proxy Statement and Annual Report
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Direct customer supply is disclosed within a diversified international business; telecom channel proportions are not disclosed.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Direct customer supply is disclosed within a diversified international business; telecom channel proportions are not disclosed.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Distributor supply is disclosed, supporting route occurrence rather than its modeled sales weight.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Distributor supply is disclosed, supporting route occurrence rather than its modeled sales weight.

5. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: Audited 2025 telecom revenue of RMB1,xx.xx declined xx.xx%; telecom purchasing weakness is retained as counterevidence to automatic substitution-led aggregate growth. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Audited 2025 telecom revenue of RMB1,xx.xx declined xx.xx%; telecom purchasing weakness is retained as counterevidence to automatic substitution-led aggregate growth. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: Telecom-specific results are separated from adjacent data-center and power-storage growth when assessing lithium substitution; the filing does not disclose the modeled Global split. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom-specific results are separated from adjacent data-center and power-storage growth when assessing lithium substitution; the filing does not disclose the modeled Global split. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

6. Amara Raja Energy & Mobility - Q2/H1 FY2026 Earnings Presentation, November 6, 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand. ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))

7. IHS Holding Limited - First-Quarter 2026 Financial Statements

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement. ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

8. Ofcom - Mobile RAN Power Resilience: Technical Report and CFI Update, February 2025
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))
   - Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The evaluated xx.xx-minute alternative supplies a subhour commercial-planning anchor, not observed shipments. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The evaluated xx.xx-minute alternative supplies a subhour commercial-planning anchor, not observed shipments. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: One-hour and two-hour alternatives anchor the analytical Intermediate band. Aggregate scenarios include multiple years of operating costs and are not annual battery revenue. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: One-hour and two-hour alternatives anchor the analytical Intermediate band. Aggregate scenarios include multiple years of operating costs and are not annual battery revenue. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The four-hour alternative anchors the Extended band's lower boundary without establishing a Global minimum or purchasing allocation. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The four-hour alternative anchors the Extended band's lower boundary without establishing a Global minimum or purchasing allocation. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

9. Ofcom - Your Landline Is Going Digital: What You Need to Know

- Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
- Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Restricted provider-funded eligibility constrains operator-funded premises attribution and forecast adoption.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Restricted provider-funded eligibility constrains operator-funded premises attribution and forecast adoption.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Eligibility is not universal household funding; purchaser proportions remain assumptions.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Eligibility is not universal household funding; purchaser proportions remain assumptions.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Eligibility-limited provider backup and the one-hour minimum for qualifying customers constrain premises demand and anchor the Intermediate band's lower boundary. They do not establish universal adoption. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Eligibility-limited provider backup and the one-hour minimum for qualifying customers constrain premises demand and anchor the Intermediate band's lower boundary. They do not establish universal adoption. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

10. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone
    - Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue. ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
    - Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions. ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: USD45m financing and xx.xx planned site modernizations support an expansion signal, not observed backup-only service revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: USD45m financing and xx.xx planned site modernizations support an expansion signal, not observed backup-only service revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Energy-service activity supports the role; the modeled provider-as-buyer subcontract share is not established.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Energy-service activity supports the role; the modeled provider-as-buyer subcontract share is not established.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: More than xx.xx% weak/off-grid project exposure constrains service-cohort concentration, not the global grid mix.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: More than xx.xx% weak/off-grid project exposure constrains service-cohort concentration, not the global grid mix.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The project confirms disconnected-site commercial demand; its weak/off-grid combined statistic does not separate those categories.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The project confirms disconnected-site commercial demand; its weak/off-grid combined statistic does not separate those categories.
11. Fingrid - How to Participate in the Reserve Markets
    - Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue. ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Reserve-market permissions and participation agreements establish an access constraint; no telecom-battery reserve-income uplift is included.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Applicable owner permission and market agreements are commercial access gates. They constrain forecast mixed-duty adoption without measuring its Global percentage. ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))
12. American Tower Corporation - Annual Report on Form 10-K for 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.

13. Cellnex - Integrated Annual Report 2025
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Polish site portfolio supports country-specific network activity.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Polish site portfolio supports country-specific network activity.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Danish site portfolio constrains the small-country footprint bridge.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Danish site portfolio constrains the small-country footprint bridge.

14. CPUC Requires Wireless Companies to Better Serve Customers in Emergencies - July 16, 2020
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.

15. CRTC - Request for Information on Telecommunications Network Resiliency, May 12, 2026
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The information request seeks evidence on possible backup requirements and customer equipment costs; it is not an enacted national procurement program.

16. FCC - Internet Access Services: Status as of December 31, 2024, official state-government-hosted copy
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.

17. PowerSafe SBS Batteries | EnerSys
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Named telecom batteries support the battery-unit offering boundary; allocation weights are assumed.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Named telecom batteries support the battery-unit offering boundary; allocation weights are assumed.

18. Vertiv NetSure M Series
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Configured enclosure, power and battery options support broader system classification, not universal bundle inclusion.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Configured enclosure, power and battery options support broader system classification, not universal bundle inclusion.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A marketed outdoor enclosure supports a protection option; global adoption and configuration proportions remain modeled.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A marketed outdoor enclosure supports a protection option; global adoption and configuration proportions remain modeled.
19. Ofcom - Network and Service Resilience Guidance for Communications Providers, June 16, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Core is a distinct, comparatively concentrated function with explicit backup expectations; global spending remains estimated.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Core is a distinct, comparatively concentrated function with explicit backup expectations; global spending remains estimated.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The stated xx.xx-xx.xx-fold site-scale distinction motivates lower-value, more numerous transport purchase equivalents.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The stated xx.xx-xx.xx-fold site-scale distinction motivates lower-value, more numerous transport purchase equivalents.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Peering and non-Internet interconnection are distinct functions; attributable backup purchase values are not disclosed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Peering and non-Internet interconnection are distinct functions; attributable backup purchase values are not disclosed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: June 2026 guidance identifies approximately four hours as good practice for active fixed-access cabinets. This supports a conditional Extended purchasing shift, not completed orders or a Global mandate. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/network-and-service-resilience-guidance-for-communications-providerspdf?v=xx.xx))
20. Technology and Tools | First Responder Network Authority
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Radio access, transport backhaul and core are separate network functions, supporting functional attribution without duplicate facility counting.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Radio access, transport backhaul and core are separate network functions, supporting functional attribution without duplicate facility counting.
21. Mobile Network Hardening Program | Australian Department of Infrastructure
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Completed battery enhancements and broader resilience projects provide a delivered regional demand signal, not a global forecast rate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Completed battery enhancements and broader resilience projects provide a delivered regional demand signal, not a global forecast rate.
22. BT - Digital Voice for Business Service Schedule, May 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Business customers bear backup-power expense, supporting a distinct institutional/business payer route rather than consumer eligibility extrapolation.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Business customers bear backup-power expense, supporting a distinct institutional/business payer route rather than consumer eligibility extrapolation.

23. Los Angeles Metro - Board Report 2024-1128, UPS Battery Replacement
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Completed and additional UPS battery replacements support continuing underground demand; mixed-load project budgets are not telecom-only revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Completed and additional UPS battery replacements support continuing underground demand; mixed-load project budgets are not telecom-only revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The transit authority's purchasing program supports an institutional own-use role, not its global spending proportion.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The transit authority's purchasing program supports an institutional own-use role, not its global spending proportion.
24. ETSI EN 300 019-1-3 V3.1.1 - Stationary Use at Weatherprotected Locations, May 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Weather-protected categories distinguish enclosure from environmental control; the standard does not measure market mix.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Weather-protected categories distinguish enclosure from environmental control; the standard does not measure market mix.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Maintained temperature control is a separate classification premise for the modeled conditional allocation.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Maintained temperature control is a separate classification premise for the modeled conditional allocation.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Enclosed locations without temperature control are distinguished from controlled locations.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Enclosed locations without temperature control are distinguished from controlled locations.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Partial weather protection is recognized separately; sales weights and future adoption remain assumed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Partial weather protection is recognized separately; sales weights and future adoption remain assumed.
25. ETSI EN 300 019-1-4 V3.1.1 - Stationary Use at Non-Weatherprotected Locations, May 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Non-weather-protected locations form a distinct classification regime, not a measured global spending pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Non-weather-protected locations form a distinct classification regime, not a measured global spending pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Sheltered non-weather-protected locations support the named conditional category.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Sheltered non-weather-protected locations support the named conditional category.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Open-air locations are separately recognized; their purchasing mix remains modeled.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Open-air locations are separately recognized; their purchasing mix remains modeled.

26. DC Power Plant / Rectifiers - UPS Rental
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Battery and complete DC-plant rentals establish delivery-category occurrence; global fees and utilization are not disclosed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Battery and complete DC-plant rentals establish delivery-category occurrence; global fees and utilization are not disclosed.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Commercial rental availability is a role premise only; modeled lessor sub-hire procurement remains unverified.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Commercial rental availability is a role premise only; modeled lessor sub-hire procurement remains unverified.
27. Helios Towers - Full Year Results 2025, March 12, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Grid-integration investment supplies a connection-improvement counterforce used conditionally in the forecast.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Grid-integration investment supplies a connection-improvement counterforce used conditionally in the forecast.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Reported xx.xx-hour average daily grid availability supports weak-grid commercial exposure, without a global classification share.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Reported xx.xx-hour average daily grid availability supports weak-grid commercial exposure, without a global classification share.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Grid integration and alternative-power investment qualify assumptions of permanently unchanged disconnected-site exposure.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Grid integration and alternative-power investment qualify assumptions of permanently unchanged disconnected-site exposure.
28. Telecommunications | Aggreko US
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Telecom battery-storage rental for temporary continuity supports delivery occurrence, not the estimated global fee scale.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom battery-storage rental for temporary continuity supports delivery occurrence, not the estimated global fee scale.
29. EnerSys PowerSafe SBS Front Terminal Batteries | Alpine Power Systems
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A named battery distributor supports the intermediary route; its listing is not a global channel-sales observation.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A named battery distributor supports the intermediary route; its listing is not a global channel-sales observation.
30. DC Power Services | Vertiv
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Cross-manufacturer projects and narrower upgrades support integration-prime and supported-replacement routes; numerical route proportions remain assumed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Cross-manufacturer projects and narrower upgrades support integration-prime and supported-replacement routes; numerical route proportions remain assumed.

31. Shuangdeng Group Co., Ltd. - Global Offering Prospectus, August 18, 2025

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The company's own five-month 2025 lead-acid realization of RMB520.xx.xx/kWh constrains the relative-price bridge; syndicated industry claims are excluded. Forecast convergence remains assumed. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The company's own five-month 2025 lead-acid realization of RMB520.xx.xx/kWh constrains the relative-price bridge; syndicated industry claims are excluded. Forecast convergence remains assumed. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Own lithium-ion realization of RMB595.xx.xx/kWh is an input to the Lithium-Based value model, not a Global share or a Lithium-Metal sales observation. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Own lithium-ion realization of RMB595.xx.xx/kWh is an input to the Lithium-Based value model, not a Global share or a Lithium-Metal sales observation. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))

32. Amara Raja Crosses 1 GWh Lithium Storage Deployment Powering India's Telecom Networks

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The April xx.xx 2026 disclosure reports approximately xx.xx GWh across xx.xx cumulative telecom lithium sites over four years. This is a commercial adoption scale check, not annual Global revenue or a supplier-share input. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The April xx.xx 2026 disclosure reports approximately xx.xx GWh across xx.xx cumulative telecom lithium sites over four years. This is a commercial adoption scale check, not annual Global revenue or a supplier-share input. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The disclosed deployment identifies lithium-ion commercialization at scale, supporting the subtype's established commercial position without directly measuring its conditional Global share. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The disclosed deployment identifies lithium-ion commercialization at scale, supporting the subtype's established commercial position without directly measuring its conditional Global share. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))

33. Central Office Power Systems - EnerSys

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The central-office portfolio identifies Flooded Lead-Acid as a distinct telecom alternative, supporting the legacy-network category mapping but not its purchasing fraction. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The central-office portfolio identifies Flooded Lead-Acid as a distinct telecom alternative, supporting the legacy-network category mapping but not its purchasing fraction. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The portfolio separately identifies Valve-Regulated Lead-Acid, supporting the within-lead construction boundary used by the model. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The portfolio separately identifies Valve-Regulated Lead-Acid, supporting the within-lead construction boundary used by the model. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))

34. PowerSafe OPzV Batteries - EnerSys

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: EnerSys identifies OPzV as Gel and lists telecom applications. This supports commercial subtype mapping, not the assumed Gel/AGM volume or price mix.
([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-opzv/))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: EnerSys identifies OPzV as Gel and lists telecom applications. This supports commercial subtype mapping, not the assumed Gel/AGM volume or price mix.
([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-opzv/))

35. Bolloré - 2017 Registration Document

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The official filing identifies LMP professional outage-protection applications including telecom relays. This is a dated commercial boundary input, not evidence of 2025 telecom shipment value.
([bollore.com](https://www.bollore.com/wp-content/uploads/2018/xx.xx/bollore_ddr_2017_gb_bag-xx.xx-juin.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The official filing identifies LMP professional outage-protection applications including telecom relays. This is a dated commercial boundary input, not evidence of 2025 telecom shipment value.
([bollore.com](https://www.bollore.com/wp-content/uploads/2018/xx.xx/bollore_ddr_2017_gb_bag-xx.xx-juin.pdf))

36. Bolloré - Business Report 2025

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The 2025 report establishes continuing Lithium Metal Polymer commercial applications in electricity storage and buses, while omitting separately attributable telecom sales. It constrains the low-access expected-purchase model; no capacity-to-sales conversion is used.
([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The 2025 report establishes continuing Lithium Metal Polymer commercial applications in electricity storage and buses, while omitting separately attributable telecom sales. It constrains the low-access expected-purchase model; no capacity-to-sales conversion is used.
([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The report preserves the distinction between LMP and conventional lithium-ion, supporting the exhaustive subtype attribution rule rather than treating polymer packaging as Lithium-Metal.
([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The report preserves the distinction between LMP and conventional lithium-ion, supporting the exhaustive subtype attribution rule rather than treating polymer packaging as Lithium-Metal.
([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))

37. AT&T to Replace U-Verse Cabinet Batteries - Fierce Network, January 15, 2008

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The January xx.xx 2008 report corroborates AT&T's replacement of approximately xx.xx Avestor batteries after the supplier's closure. The obsolete stock is therefore not carried into the 2025 or 2032 purchasing numerator.
([fierce-network.com](https://www.fierce-network.com/telecom/at-t-to-replace-u-verse-cabinet-batteries))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The January xx.xx 2008 report corroborates AT&T's replacement of approximately xx.xx Avestor batteries after the supplier's closure. The obsolete stock is therefore not carried into the 2025 or 2032 purchasing numerator.
([fierce-network.com](https://www.fierce-network.com/telecom/at-t-to-replace-u-verse-cabinet-batteries))

38. PowerSafe NiCd Batteries - EnerSys
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: EnerSys identifies Nickel-Cadmium for central offices and outside plant, supporting the modeled legacy telecom cohort but not its installed attachment or replacement spending. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-nicd/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: EnerSys identifies Nickel-Cadmium for central offices and outside plant, supporting the modeled legacy telecom cohort but not its installed attachment or replacement spending. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-nicd/))
39. FDK Ni-MH Battery Is Chosen for the Cellect 600 Product of Alpha Technologies
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The October xx.xx 2015 announcement identifies NiMH in Alpha's Cellect xx.xx small-cell backup proposition. It supports a historical cohort rather than current fulfillment or assumed surviving stock. ([fdk.com](https://www.fdk.com/whatsnew-e/release20151019-e.html))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The October xx.xx 2015 announcement identifies NiMH in Alpha's Cellect xx.xx small-cell backup proposition. It supports a historical cohort rather than current fulfillment or assumed surviving stock. ([fdk.com](https://www.fdk.com/whatsnew-e/release20151019-e.html))
40. Products - Encell Technology
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Encell positions its Fused Iron Nickel-Iron battery for telecom. This supports the commercial category lead, while current purchases and attachment remain modeled. ([encell.com](https://encell.com/products/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Encell positions its Fused Iron Nickel-Iron battery for telecom. This supports the commercial category lead, while current purchases and attachment remain modeled. ([encell.com](https://encell.com/products/))
41. Telecom/5G - ZAF Energy Systems
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: ZAF positions Nickel-Zinc for telecom/5G. Its supplier proposition supports application mapping, not the modeled annual attachment or threefold forecast value multiplier. ([zafsys.com](https://zafsys.com/telecom-5g/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: ZAF positions Nickel-Zinc for telecom/5G. Its supplier proposition supports application mapping, not the modeled annual attachment or threefold forecast value multiplier. ([zafsys.com](https://zafsys.com/telecom-5g/))
42. HORIEN Salt Battery Solutions and Inlyte Energy Announce a Strategic Partnership
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: HORIEN's March xx.xx 2025 statement identifies sodium-metal-chloride telecom backup. Its separate partnership announcement is not counted as delivered telecom sales. ([horien.com](https://horien.com/wp-content/uploads/2025/xx.xx/Press-Release_HORIEN-Inlyte-International-Version.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: HORIEN's March xx.xx 2025 statement identifies sodium-metal-chloride telecom backup. Its separate partnership announcement is not counted as delivered telecom sales. ([horien.com](https://horien.com/wp-content/uploads/2025/xx.xx/Press-Release_HORIEN-Inlyte-International-Version.pdf))
43. Energy Backup - Phinergy
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Phinergy markets Aluminum-Air continuity offerings to telecom operators and tower companies. The source supports category and buyer mapping, not the modeled installed attachment or replacement numerator. ([phinergy.com](https://phinergy.com/solutions/energy-backup/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Phinergy markets Aluminum-Air continuity offerings to telecom operators and tower companies. The source supports category and buyer mapping, not the modeled installed attachment or replacement numerator. ([phinergy.com](https://phinergy.com/solutions/energy-backup/))

44. Australian Flow Batteries - RFB40X Series

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: RFB40X literature identifies telecom among stationary commercial applications. It supports the qualifying project boundary, not delivered projects, revenue or assumed attachment. ([afb.energy](https://www.afb.energy/wp-content/uploads/2025/xx.xx/Australian-Flow-Batteries-RFB40X-Series-2024.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: RFB40X literature identifies telecom among stationary commercial applications. It supports the qualifying project boundary, not delivered projects, revenue or assumed attachment. ([afb.energy](https://www.afb.energy/wp-content/uploads/2025/xx.xx/Australian-Flow-Batteries-RFB40X-Series-2024.pdf))

45. PowerReserve - Verizon Residential Accessories

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Verizon advertises an alkaline-cell voice-backup device at USD39.xx.xx excluding batteries. This supports a qualifying primary-zinc premises route and price comparator, not assumed Global attachment or first-sale realization. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Verizon advertises an alkaline-cell voice-backup device at USD39.xx.xx excluding batteries. This supports a qualifying primary-zinc premises route and price comparator, not assumed Global attachment or first-sale realization. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Advertised voice-only protection reaches xx.xx hours; internet and television protection are excluded. This supports service-specific Day-Scale classification. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Advertised voice-only protection reaches xx.xx hours; internet and television protection are excluded. This supports service-specific Day-Scale classification. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))

46. Alkaline Manganese Dioxide Handbook and Application Manual - Energizer

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The manufacturer's alkaline manganese-dioxide classification supports the zinc-family mapping for qualifying premises backup. It provides no telecom purchasing weight. ([data.energizer.com](https://data.energizer.com/pdfs/alkaline_appman.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The manufacturer's alkaline manganese-dioxide classification supports the zinc-family mapping for qualifying premises backup. It provides no telecom purchasing weight. ([data.energizer.com](https://data.energizer.com/pdfs/alkaline_appman.pdf))

47. ITU-T Work Programme - Aqueous Zinc-Based Battery Systems for Base Station Applications

- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The aqueous-zinc base-station work item is Under study with December 2027 timing. It constrains the forecast commercialization assumption but establishes neither approval nor customer purchases. ([itu.int](https://www.itu.int/itu-t/workprog/wp_item.aspx?isn=xx.xx))

48. ITU-T L.1397 - Battery System with Integrated Control and Monitoring Information Model

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The October 2025 recommendation names lithium-lead, lithium-sodium and sodium-lead combinations. This supports mixed-family classification, not inseparable pricing or Global prevalence. ([itu.int](https://www.itu.int/rec/dologin_pub.asp?id=T-REC-L.xx.xx-xx.xx-I%xx.xx%21PDF-E&lang=e&type=items))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The October 2025 recommendation names lithium-lead, lithium-sodium and sodium-lead combinations. This supports mixed-family classification, not inseparable pricing or Global prevalence. ([itu.int](https://www.itu.int/rec/dologin_pub.asp?id=T-REC-L.xx.xx-xx.xx-I%xx.xx%21PDF-E&lang=e&type=items))

49. ETSI EN 300 132-1 V2.2.1 - ICT Power Supply Interface: Alternating Current
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The ICT standard identifies the protected-load AC interface, supporting output-side attribution rather than classification by chemistry or normal utility input. It supplies no sales mix. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013201v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The ICT standard identifies the protected-load AC interface, supporting output-side attribution rather than classification by chemistry or normal utility input. It supplies no sales mix. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013201v020201p.pdf))
50. ETSI EN 300 132-2 V2.8.1 - ICT Power Supply Interface: Direct Current
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The ICT standard separately identifies the DC protected-equipment interface, supporting the DC-output boundary independently of battery chemistry. It is not a purchasing census. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013202v020801p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The ICT standard separately identifies the DC protected-equipment interface, supporting the DC-output boundary independently of battery chemistry. It is not a purchasing census. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013202v020801p.pdf))
51. Vertiv NetSure Inverter Series - Converged AC and DC Power System
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: NetSure Inverter Series identifies AC and DC loads supported through a common battery bank. This establishes a combined-output proposition, not its modeled purchasing fraction or future adoption. ([vertiv.com](https://www.vertiv.com/en-us/products-catalog/critical-power/dc-power-systems/vertiv-netsure-inverter-series/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: NetSure Inverter Series identifies AC and DC loads supported through a common battery bank. This establishes a combined-output proposition, not its modeled purchasing fraction or future adoption. ([vertiv.com](https://www.vertiv.com/en-us/products-catalog/critical-power/dc-power-systems/vertiv-netsure-inverter-series/))

52. ETSI EN 302 099 V2.2.1 - Powering of Equipment in Access Network
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Local powering uses a colocated source; allocation follows the backed source rather than receiver inventory. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Local powering uses a colocated source; allocation follows the backed source rather than receiver inventory. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Remote-source backup is distinguished from local backup, supporting the parent commercial boundary but not purchasing weights. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Remote-source backup is distinguished from local backup, supporting the parent commercial boundary but not purchasing weights. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Centralized powering originates at a telecommunications center. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Centralized powering originates at a telecommunications center. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Cluster powering uses a source outside the telecommunications center, supporting separation within Remote Powering. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Cluster powering uses a source outside the telecommunications center, supporting separation within Remote Powering. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Reverse powering is customer-origin supply, supporting source-level attribution of the battery-backed provider package. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Reverse powering is customer-origin supply, supporting source-level attribution of the battery-backed provider package. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))

53. Set Up Your Battery Backup - AT&T G.Fast Service with BGW210

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The 2021 provider document names a battery-backed package protecting G.fast customer and distribution equipment through reverse power feed. It establishes a dated source-backup proposition, not current Global quantities. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The 2021 provider document names a battery-backed package protecting G.fast customer and distribution equipment through reverse power feed. It establishes a dated source-backup proposition, not current Global quantities. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The provider advertises a xx.xx-hour service window for the particular package, supporting Day-Scale mapping without a universal premises-duration inference. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The provider advertises a xx.xx-hour service window for the particular package, supporting Day-Scale mapping without a universal premises-duration inference. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

54. DNA Tower Offers Battery Capacity in Electricity Reserve Markets with Elisa DES

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The June xx.xx 2025 announcement reports DNA Tower batteries connected to Finnish reserve markets while retaining outage continuity. This establishes a specific mixed-duty implementation, not Global attachment or guaranteed returns. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/press-releases/dna-tower-becomes-worlds-first-tower-company-to-offer-battery-capacity-in-electricity-reserve-markets-with-elisa-des))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The June xx.xx 2025 announcement reports DNA Tower batteries connected to Finnish reserve markets while retaining outage continuity. This establishes a specific mixed-duty implementation, not Global attachment or guaranteed returns. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/press-releases/dna-tower-becomes-worlds-first-tower-company-to-offer-battery-capacity-in-electricity-reserve-markets-with-elisa-des))

55. Case Elisa: Virtual Power Plant in the Telecom Industry

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The company case reports over 2,000 aggregated sites and approximately xx.xx MWh. This is an installed commercial scale check, not annual purchasing value or Global prevalence. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/customer-stories/elisacase))

20.3. G7

Table 398. G7 Telecom Battery Backup System Market, by Country growth contribution, 2025-2032

Category	2025 value (USD Million)	2032 value (USD Million)	Added value (USD Million)	2025 share (%)	2032 share (%)	Change (pp)	Growth share (%)	CAGR (%)
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scope total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 399. G7 Telecom Battery Backup System Market Size, by Group, 2017-2032 (USD Million)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 400. G7 Telecom Battery Backup System Market Size, by Offering, 2017-2032 (USD Million)

Offering	2023	2024	2025	2026	2027	2032	CAGR (%)
Battery Units and Assemblies	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Complete Backup Systems	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 401. G7 Telecom Battery Backup System Market Size, by Battery Technology, 2017-2032 (USD Million)

Battery Technology	2023	2024	2025	2026	2027	2032	CAGR (%)
Aqueous Zinc-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Flow Batteries	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lithium-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Metal-Air	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Multi-Chemistry	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Sodium-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 402. G7 Telecom Battery Backup System Market Size, by Lead-Acid, 2017-2032 (USD Million)

Lead-Acid	2023	2024	2025	2026	2027	2032	CAGR (%)
Flooded Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Valve-Regulated Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 403. G7 Telecom Battery Backup System Market Size, by Valve-Regulated Lead-Acid, 2017-2032 (USD Million)

Valve-Regulated Lead-Acid	2023	2024	2025	2026	2027	2032	CAGR (%)
Absorbent Glass Mat	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Gel	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 404. G7 Telecom Battery Backup System Market Size, by Lithium-Based, 2017-2032 (USD Million)

Lithium-Based	2023	2024	2025	2026	2027	2032	CAGR (%)
Lithium-Ion	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lithium-Metal	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 405. G7 Telecom Battery Backup System Market Size, by Nickel-Based, 2017-2032 (USD Million)

Nickel-Based	2023	2024	2025	2026	2027	2032	CAGR (%)
Nickel-Cadmium	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Iron	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Metal Hydride	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Zinc	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 406. G7 Telecom Battery Backup System Market Size, by Power Interface, 2017-2032 (USD Million)

Power Interface	2023	2024	2025	2026	2027	2032	CAGR (%)
AC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Combined AC/DC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
DC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 407. G7 Telecom Battery Backup System Market Size, by Network Application, 2017-2032 (USD Million)

Network Application	2023	2024	2025	2026	2027	2032	CAGR (%)
Core Networks & Network Control	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Customer-Premises Connectivity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Network Interconnection & Peering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Transport & Backhaul Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Wireless Access Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Wireline Access Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 408. G7 Telecom Battery Backup System Market Size, by Buyer Type, 2017-2032 (USD Million)

Buyer Type	2023	2024	2025	2026	2027	2032	CAGR (%)
Business & Institutional Connectivity Owners	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Equipment Leasing & Rental Providers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Household Connectivity Purchasers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Energy-Service Providers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Infrastructure & Tower Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecommunications Network Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 409. G7 Telecom Battery Backup System Market Size, by Installation Environment, 2017-2032 (USD Million)

Installation Environment	2023	2024	2025	2026	2027	2032	CAGR (%)
Non-Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Underground Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 410. G7 Telecom Battery Backup System Market Size, by Weather-Protected Locations, 2017-2032 (USD Million)

Weather-Protected Locations	2023	2024	2025	2026	2027	2032	CAGR (%)
Enclosed Locations Without Temperature Control	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Partly Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Temperature-Controlled Enclosed Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 411. G7 Telecom Battery Backup System Market Size, by Non-Weather-Protected Locations, 2017-2032 (USD Million)

Non-Weather-Protected Locations	2023	2024	2025	2026	2027	2032	CAGR (%)
Open-Air Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Sheltered Non-Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 412. G7 Telecom Battery Backup System Market Size, by Powering Architecture, 2017-2032 (USD Million)

Powering Architecture	2023	2024	2025	2026	2027	2032	CAGR (%)
Local Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Remote Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 413. G7 Telecom Battery Backup System Market Size, by Remote Powering, 2017-2032 (USD Million)

Remote Powering	2023	2024	2025	2026	2027	2032	CAGR (%)
Centralized Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Cluster Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reverse Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 414. G7 Telecom Battery Backup System Market Size, by Commercial Delivery Model, 2017-2032 (USD Million)

Commercial Delivery Model	2023	2024	2025	2026	2027	2032	CAGR (%)
Leased or Rented Equipment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Managed Backup Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Owned Equipment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 415. G7 Telecom Battery Backup System Market Size, by Sales Channel, 2017-2032 (USD Million)

Sales Channel	2023	2024	2025	2026	2027	2032	CAGR (%)
Direct Manufacturer Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Distributor and Retailer Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Systems Integrator and Contractor Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Service Provider Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 416. G7 Telecom Battery Backup System Market Size, by Grid Availability, 2017-2032 (USD Million)

Grid Availability	2023	2024	2025	2026	2027	2032	CAGR (%)
Off-Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reliable Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Unreliable Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 417. G7 Telecom Battery Backup System Market Size, by Backup Duty, 2017-2032 (USD Million)

Backup Duty	2023	2024	2025	2026	2027	2032	CAGR (%)
Backup with Energy Management	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reserve-Only Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 418. G7 Telecom Battery Backup System Market Size, by Backup Autonomy, 2017-2032 (USD Million)

Backup Autonomy	2023	2024	2025	2026	2027	2032	CAGR (%)
Day-Scale Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Extended-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Intermediate-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Short-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. China Tower - 2025 Annual Results, March 18, 2026
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The xx.xx.149m-site inventory constrains wireless activity; forecast purchasing remains modeled.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The xx.xx.149m-site inventory constrains wireless activity; forecast purchasing remains modeled.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Replacement/improvement CAPEX fell from RMB6837m to RMB5474m, qualifying automatic replacement-led growth.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Replacement/improvement CAPEX fell from RMB6837m to RMB5474m, qualifying automatic replacement-led growth.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Disclosed tower operations establish a material infrastructure purchasing setting, not a global buyer share.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Disclosed tower operations establish a material infrastructure purchasing setting, not a global buyer share.
2. Broadband Commission - The State of Broadband: Our Digital World, 2025
   - Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))

3. Battery Backup - Meriwether Lewis Electric Cooperative
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Separately available replacement batteries support a battery-only replacement route.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Separately available replacement batteries support a battery-only replacement route.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The USD100-plus-tax device is a retail comparator, not an observed 2025 first-sale realization.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The USD100-plus-tax device is a retail comparator, not an observed 2025 first-sale realization.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Customer purchase and replacement responsibilities support household-funded procurement.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Customer purchase and replacement responsibilities support household-funded procurement.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Purchased equipment does not automatically include continuing service-plan coverage.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Purchased equipment does not automatically include continuing service-plan coverage.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Local provider sales establish this route alongside manufacturer-direct purchasing.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Local provider sales establish this route alongside manufacturer-direct purchasing.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The provider advertises approximately five hours for combined voice and internet, supporting service-specific Extended classification, not an observed 2025 purchase mix. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The provider advertises approximately five hours for combined voice and internet, supporting service-specific Extended classification, not an observed 2025 purchase mix. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The same proposition advertises xx.xx-hour voice-only protection, supporting Day-Scale mapping without equating duration with a universally larger purchase basket. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The same proposition advertises xx.xx-hour voice-only protection, supporting Day-Scale mapping without equating duration with a universally larger purchase basket. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
4. EnerSys 2026 Proxy Statement and Annual Report
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Direct customer supply is disclosed within a diversified international business; telecom channel proportions are not disclosed.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Direct customer supply is disclosed within a diversified international business; telecom channel proportions are not disclosed.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Distributor supply is disclosed, supporting route occurrence rather than its modeled sales weight.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Distributor supply is disclosed, supporting route occurrence rather than its modeled sales weight.

5. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Audited 2025 telecom revenue of RMB1,xx.xx declined xx.xx%; telecom purchasing weakness is retained as counterevidence to automatic substitution-led aggregate growth. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Audited 2025 telecom revenue of RMB1,xx.xx declined xx.xx%; telecom purchasing weakness is retained as counterevidence to automatic substitution-led aggregate growth. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Telecom-specific results are separated from adjacent data-center and power-storage growth when assessing lithium substitution; the filing does not disclose the modeled Global split. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom-specific results are separated from adjacent data-center and power-storage growth when assessing lithium substitution; the filing does not disclose the modeled Global split. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
6. Amara Raja Energy & Mobility - Q2/H1 FY2026 Earnings Presentation, November 6, 2025
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand. ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))
7. IHS Holding Limited - First-Quarter 2026 Financial Statements
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement. ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

8. Ofcom - Mobile RAN Power Resilience: Technical Report and CFI Update, February 2025
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))
   - Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The evaluated xx.xx-minute alternative supplies a subhour commercial-planning anchor, not observed shipments. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The evaluated xx.xx-minute alternative supplies a subhour commercial-planning anchor, not observed shipments. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: One-hour and two-hour alternatives anchor the analytical Intermediate band. Aggregate scenarios include multiple years of operating costs and are not annual battery revenue. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: One-hour and two-hour alternatives anchor the analytical Intermediate band. Aggregate scenarios include multiple years of operating costs and are not annual battery revenue. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The four-hour alternative anchors the Extended band's lower boundary without establishing a Global minimum or purchasing allocation. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The four-hour alternative anchors the Extended band's lower boundary without establishing a Global minimum or purchasing allocation. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

9. Ofcom - Your Landline Is Going Digital: What You Need to Know

- Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
- Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Restricted provider-funded eligibility constrains operator-funded premises attribution and forecast adoption.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Restricted provider-funded eligibility constrains operator-funded premises attribution and forecast adoption.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Eligibility is not universal household funding; purchaser proportions remain assumptions.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Eligibility is not universal household funding; purchaser proportions remain assumptions.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Eligibility-limited provider backup and the one-hour minimum for qualifying customers constrain premises demand and anchor the Intermediate band's lower boundary. They do not establish universal adoption. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Eligibility-limited provider backup and the one-hour minimum for qualifying customers constrain premises demand and anchor the Intermediate band's lower boundary. They do not establish universal adoption. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

10. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone
    - Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue. ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
    - Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions. ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: USD45m financing and xx.xx planned site modernizations support an expansion signal, not observed backup-only service revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: USD45m financing and xx.xx planned site modernizations support an expansion signal, not observed backup-only service revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Energy-service activity supports the role; the modeled provider-as-buyer subcontract share is not established.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Energy-service activity supports the role; the modeled provider-as-buyer subcontract share is not established.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: More than xx.xx% weak/off-grid project exposure constrains service-cohort concentration, not the global grid mix.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: More than xx.xx% weak/off-grid project exposure constrains service-cohort concentration, not the global grid mix.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The project confirms disconnected-site commercial demand; its weak/off-grid combined statistic does not separate those categories.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The project confirms disconnected-site commercial demand; its weak/off-grid combined statistic does not separate those categories.
11. Fingrid - How to Participate in the Reserve Markets
    - Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue. ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Applicable owner permission and market agreements are commercial access gates. They constrain forecast mixed-duty adoption without measuring its Global percentage. ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))
12. American Tower Corporation - Annual Report on Form 10-K for 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.

13. Cellnex - Integrated Annual Report 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.
14. CPUC Requires Wireless Companies to Better Serve Customers in Emergencies - July 16, 2020
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
15. CRTC - Request for Information on Telecommunications Network Resiliency, May 12, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The information request seeks evidence on possible backup requirements and customer equipment costs; it is not an enacted national procurement program.
16. FCC - Internet Access Services: Status as of December 31, 2024, official state-government-hosted copy
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
17. PowerSafe SBS Batteries | EnerSys
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Named telecom batteries support the battery-unit offering boundary; allocation weights are assumed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Named telecom batteries support the battery-unit offering boundary; allocation weights are assumed.
18. Vertiv NetSure M Series
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Configured enclosure, power and battery options support broader system classification, not universal bundle inclusion.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Configured enclosure, power and battery options support broader system classification, not universal bundle inclusion.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A marketed outdoor enclosure supports a protection option; global adoption and configuration proportions remain modeled.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A marketed outdoor enclosure supports a protection option; global adoption and configuration proportions remain modeled.

19. Ofcom - Network and Service Resilience Guidance for Communications Providers, June 16, 2026
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Core is a distinct, comparatively concentrated function with explicit backup expectations; global spending remains estimated.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Core is a distinct, comparatively concentrated function with explicit backup expectations; global spending remains estimated.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The stated xx.xx-xx.xx-fold site-scale distinction motivates lower-value, more numerous transport purchase equivalents.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The stated xx.xx-xx.xx-fold site-scale distinction motivates lower-value, more numerous transport purchase equivalents.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Peering and non-Internet interconnection are distinct functions; attributable backup purchase values are not disclosed.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Peering and non-Internet interconnection are distinct functions; attributable backup purchase values are not disclosed.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: June 2026 guidance identifies approximately four hours as good practice for active fixed-access cabinets. This supports a conditional Extended purchasing shift, not completed orders or a Global mandate. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/network-and-service-resilience-guidance-for-communications-providerspdf?v=xx.xx))

20. Technology and Tools | First Responder Network Authority
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Radio access, transport backhaul and core are separate network functions, supporting functional attribution without duplicate facility counting.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Radio access, transport backhaul and core are separate network functions, supporting functional attribution without duplicate facility counting.

21. Mobile Network Hardening Program | Australian Department of Infrastructure
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Completed battery enhancements and broader resilience projects provide a delivered regional demand signal, not a global forecast rate.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Completed battery enhancements and broader resilience projects provide a delivered regional demand signal, not a global forecast rate.

22. BT - Digital Voice for Business Service Schedule, May 2026
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Business customers bear backup-power expense, supporting a distinct institutional/business payer route rather than consumer eligibility extrapolation.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Business customers bear backup-power expense, supporting a distinct institutional/business payer route rather than consumer eligibility extrapolation.

23. Los Angeles Metro - Board Report 2024-1128, UPS Battery Replacement
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Completed and additional UPS battery replacements support continuing underground demand; mixed-load project budgets are not telecom-only revenue.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Completed and additional UPS battery replacements support continuing underground demand; mixed-load project budgets are not telecom-only revenue.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The transit authority's purchasing program supports an institutional own-use role, not its global spending proportion.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The transit authority's purchasing program supports an institutional own-use role, not its global spending proportion.

24. ETSI EN 300 019-1-3 V3.1.1 - Stationary Use at Weatherprotected Locations, May 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Weather-protected categories distinguish enclosure from environmental control; the standard does not measure market mix.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Weather-protected categories distinguish enclosure from environmental control; the standard does not measure market mix.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Maintained temperature control is a separate classification premise for the modeled conditional allocation.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Maintained temperature control is a separate classification premise for the modeled conditional allocation.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Enclosed locations without temperature control are distinguished from controlled locations.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Enclosed locations without temperature control are distinguished from controlled locations.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Partial weather protection is recognized separately; sales weights and future adoption remain assumed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Partial weather protection is recognized separately; sales weights and future adoption remain assumed.
25. ETSI EN 300 019-1-4 V3.1.1 - Stationary Use at Non-Weatherprotected Locations, May 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Non-weather-protected locations form a distinct classification regime, not a measured global spending pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Non-weather-protected locations form a distinct classification regime, not a measured global spending pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Sheltered non-weather-protected locations support the named conditional category.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Sheltered non-weather-protected locations support the named conditional category.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Open-air locations are separately recognized; their purchasing mix remains modeled.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Open-air locations are separately recognized; their purchasing mix remains modeled.
26. DC Power Plant / Rectifiers - UPS Rental
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Battery and complete DC-plant rentals establish delivery-category occurrence; global fees and utilization are not disclosed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Battery and complete DC-plant rentals establish delivery-category occurrence; global fees and utilization are not disclosed.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Commercial rental availability is a role premise only; modeled lessor sub-hire procurement remains unverified.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Commercial rental availability is a role premise only; modeled lessor sub-hire procurement remains unverified.

27. Helios Towers - Full Year Results 2025, March 12, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Grid-integration investment supplies a connection-improvement counterforce used conditionally in the forecast.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Grid-integration investment supplies a connection-improvement counterforce used conditionally in the forecast.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Reported xx.xx-hour average daily grid availability supports weak-grid commercial exposure, without a global classification share.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Reported xx.xx-hour average daily grid availability supports weak-grid commercial exposure, without a global classification share.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Grid integration and alternative-power investment qualify assumptions of permanently unchanged disconnected-site exposure.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Grid integration and alternative-power investment qualify assumptions of permanently unchanged disconnected-site exposure.
28. Telecommunications | Aggreko US
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Telecom battery-storage rental for temporary continuity supports delivery occurrence, not the estimated global fee scale.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom battery-storage rental for temporary continuity supports delivery occurrence, not the estimated global fee scale.
29. EnerSys PowerSafe SBS Front Terminal Batteries | Alpine Power Systems
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A named battery distributor supports the intermediary route; its listing is not a global channel-sales observation.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A named battery distributor supports the intermediary route; its listing is not a global channel-sales observation.
30. DC Power Services | Vertiv
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Cross-manufacturer projects and narrower upgrades support integration-prime and supported-replacement routes; numerical route proportions remain assumed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Cross-manufacturer projects and narrower upgrades support integration-prime and supported-replacement routes; numerical route proportions remain assumed.

31. Shuangdeng Group Co., Ltd. - Global Offering Prospectus, August 18, 2025

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The company's own five-month 2025 lead-acid realization of RMB520.xx.xx/kWh constrains the relative-price bridge; syndicated industry claims are excluded. Forecast convergence remains assumed. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The company's own five-month 2025 lead-acid realization of RMB520.xx.xx/kWh constrains the relative-price bridge; syndicated industry claims are excluded. Forecast convergence remains assumed. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: Own lithium-ion realization of RMB595.xx.xx/kWh is an input to the Lithium-Based value model, not a Global share or a Lithium-Metal sales observation. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Own lithium-ion realization of RMB595.xx.xx/kWh is an input to the Lithium-Based value model, not a Global share or a Lithium-Metal sales observation. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))

32. Amara Raja Crosses 1 GWh Lithium Storage Deployment Powering India's Telecom Networks

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The April xx.xx 2026 disclosure reports approximately xx.xx GWh across xx.xx cumulative telecom lithium sites over four years. This is a commercial adoption scale check, not annual Global revenue or a supplier-share input. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The April xx.xx 2026 disclosure reports approximately xx.xx GWh across xx.xx cumulative telecom lithium sites over four years. This is a commercial adoption scale check, not annual Global revenue or a supplier-share input. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The disclosed deployment identifies lithium-ion commercialization at scale, supporting the subtype's established commercial position without directly measuring its conditional Global share. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The disclosed deployment identifies lithium-ion commercialization at scale, supporting the subtype's established commercial position without directly measuring its conditional Global share. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))

33. Central Office Power Systems - EnerSys

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The central-office portfolio identifies Flooded Lead-Acid as a distinct telecom alternative, supporting the legacy-network category mapping but not its purchasing fraction. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The central-office portfolio identifies Flooded Lead-Acid as a distinct telecom alternative, supporting the legacy-network category mapping but not its purchasing fraction. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The portfolio separately identifies Valve-Regulated Lead-Acid, supporting the within-lead construction boundary used by the model. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The portfolio separately identifies Valve-Regulated Lead-Acid, supporting the within-lead construction boundary used by the model. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))

34. PowerSafe OPzV Batteries - EnerSys

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: EnerSys identifies OPzV as Gel and lists telecom applications. This supports commercial subtype mapping, not the assumed Gel/AGM volume or price mix.
([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-opzv/))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: EnerSys identifies OPzV as Gel and lists telecom applications. This supports commercial subtype mapping, not the assumed Gel/AGM volume or price mix.
([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-opzv/))

35. Bolloré - 2017 Registration Document

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The official filing identifies LMP professional outage-protection applications including telecom relays. This is a dated commercial boundary input, not evidence of 2025 telecom shipment value.
([bollore.com](https://www.bollore.com/wp-content/uploads/2018/xx.xx/bollore_ddr_2017_gb_bag-xx.xx-juin.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The official filing identifies LMP professional outage-protection applications including telecom relays. This is a dated commercial boundary input, not evidence of 2025 telecom shipment value.
([bollore.com](https://www.bollore.com/wp-content/uploads/2018/xx.xx/bollore_ddr_2017_gb_bag-xx.xx-juin.pdf))

36. Bolloré - Business Report 2025

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The 2025 report establishes continuing Lithium Metal Polymer commercial applications in electricity storage and buses, while omitting separately attributable telecom sales. It constrains the low-access expected-purchase model; no capacity-to-sales conversion is used.
([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The 2025 report establishes continuing Lithium Metal Polymer commercial applications in electricity storage and buses, while omitting separately attributable telecom sales. It constrains the low-access expected-purchase model; no capacity-to-sales conversion is used.
([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The report preserves the distinction between LMP and conventional lithium-ion, supporting the exhaustive subtype attribution rule rather than treating polymer packaging as Lithium-Metal.
([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The report preserves the distinction between LMP and conventional lithium-ion, supporting the exhaustive subtype attribution rule rather than treating polymer packaging as Lithium-Metal.
([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))

37. AT&T to Replace U-Verse Cabinet Batteries - Fierce Network, January 15, 2008

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The January xx.xx 2008 report corroborates AT&T's replacement of approximately xx.xx Avestor batteries after the supplier's closure. The obsolete stock is therefore not carried into the 2025 or 2032 purchasing numerator.
([fierce-network.com](https://www.fierce-network.com/telecom/at-t-to-replace-u-verse-cabinet-batteries))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The January xx.xx 2008 report corroborates AT&T's replacement of approximately xx.xx Avestor batteries after the supplier's closure. The obsolete stock is therefore not carried into the 2025 or 2032 purchasing numerator.
([fierce-network.com](https://www.fierce-network.com/telecom/at-t-to-replace-u-verse-cabinet-batteries))

38. PowerSafe NiCd Batteries - EnerSys
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: EnerSys identifies Nickel-Cadmium for central offices and outside plant, supporting the modeled legacy telecom cohort but not its installed attachment or replacement spending. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-nicd/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: EnerSys identifies Nickel-Cadmium for central offices and outside plant, supporting the modeled legacy telecom cohort but not its installed attachment or replacement spending. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-nicd/))
39. FDK Ni-MH Battery Is Chosen for the Cellect 600 Product of Alpha Technologies
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The October xx.xx 2015 announcement identifies NiMH in Alpha's Cellect xx.xx small-cell backup proposition. It supports a historical cohort rather than current fulfillment or assumed surviving stock. ([fdk.com](https://www.fdk.com/whatsnew-e/release20151019-e.html))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The October xx.xx 2015 announcement identifies NiMH in Alpha's Cellect xx.xx small-cell backup proposition. It supports a historical cohort rather than current fulfillment or assumed surviving stock. ([fdk.com](https://www.fdk.com/whatsnew-e/release20151019-e.html))
40. Products - Encell Technology
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Encell positions its Fused Iron Nickel-Iron battery for telecom. This supports the commercial category lead, while current purchases and attachment remain modeled. ([encell.com](https://encell.com/products/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Encell positions its Fused Iron Nickel-Iron battery for telecom. This supports the commercial category lead, while current purchases and attachment remain modeled. ([encell.com](https://encell.com/products/))
41. Telecom/5G - ZAF Energy Systems
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: ZAF positions Nickel-Zinc for telecom/5G. Its supplier proposition supports application mapping, not the modeled annual attachment or threefold forecast value multiplier. ([zafsys.com](https://zafsys.com/telecom-5g/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: ZAF positions Nickel-Zinc for telecom/5G. Its supplier proposition supports application mapping, not the modeled annual attachment or threefold forecast value multiplier. ([zafsys.com](https://zafsys.com/telecom-5g/))
42. HORIEN Salt Battery Solutions and Inlyte Energy Announce a Strategic Partnership
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: HORIEN's March xx.xx 2025 statement identifies sodium-metal-chloride telecom backup. Its separate partnership announcement is not counted as delivered telecom sales. ([horien.com](https://horien.com/wp-content/uploads/2025/xx.xx/Press-Release_HORIEN-Inlyte-International-Version.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: HORIEN's March xx.xx 2025 statement identifies sodium-metal-chloride telecom backup. Its separate partnership announcement is not counted as delivered telecom sales. ([horien.com](https://horien.com/wp-content/uploads/2025/xx.xx/Press-Release_HORIEN-Inlyte-International-Version.pdf))
43. Energy Backup - Phinergy
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Phinergy markets Aluminum-Air continuity offerings to telecom operators and tower companies. The source supports category and buyer mapping, not the modeled installed attachment or replacement numerator. ([phinergy.com](https://phinergy.com/solutions/energy-backup/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Phinergy markets Aluminum-Air continuity offerings to telecom operators and tower companies. The source supports category and buyer mapping, not the modeled installed attachment or replacement numerator. ([phinergy.com](https://phinergy.com/solutions/energy-backup/))

44. Australian Flow Batteries - RFB40X Series

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: RFB40X literature identifies telecom among stationary commercial applications. It supports the qualifying project boundary, not delivered projects, revenue or assumed attachment. ([afb.energy](https://www.afb.energy/wp-content/uploads/2025/xx.xx/Australian-Flow-Batteries-RFB40X-Series-2024.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: RFB40X literature identifies telecom among stationary commercial applications. It supports the qualifying project boundary, not delivered projects, revenue or assumed attachment. ([afb.energy](https://www.afb.energy/wp-content/uploads/2025/xx.xx/Australian-Flow-Batteries-RFB40X-Series-2024.pdf))

45. PowerReserve - Verizon Residential Accessories

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Verizon advertises an alkaline-cell voice-backup device at USD39.xx.xx excluding batteries. This supports a qualifying primary-zinc premises route and price comparator, not assumed Global attachment or first-sale realization. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Verizon advertises an alkaline-cell voice-backup device at USD39.xx.xx excluding batteries. This supports a qualifying primary-zinc premises route and price comparator, not assumed Global attachment or first-sale realization. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Advertised voice-only protection reaches xx.xx hours; internet and television protection are excluded. This supports service-specific Day-Scale classification. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Advertised voice-only protection reaches xx.xx hours; internet and television protection are excluded. This supports service-specific Day-Scale classification. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))

46. Alkaline Manganese Dioxide Handbook and Application Manual - Energizer

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The manufacturer's alkaline manganese-dioxide classification supports the zinc-family mapping for qualifying premises backup. It provides no telecom purchasing weight. ([data.energizer.com](https://data.energizer.com/pdfs/alkaline_appman.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The manufacturer's alkaline manganese-dioxide classification supports the zinc-family mapping for qualifying premises backup. It provides no telecom purchasing weight. ([data.energizer.com](https://data.energizer.com/pdfs/alkaline_appman.pdf))

47. ITU-T Work Programme - Aqueous Zinc-Based Battery Systems for Base Station Applications

- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The aqueous-zinc base-station work item is Under study with December 2027 timing. It constrains the forecast commercialization assumption but establishes neither approval nor customer purchases. ([itu.int](https://www.itu.int/itu-t/workprog/wp_item.aspx?isn=xx.xx))

48. ITU-T L.1397 - Battery System with Integrated Control and Monitoring Information Model

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The October 2025 recommendation names lithium-lead, lithium-sodium and sodium-lead combinations. This supports mixed-family classification, not inseparable pricing or Global prevalence. ([itu.int](https://www.itu.int/rec/dologin_pub.asp?id=T-REC-L.xx.xx-xx.xx-I%xx.xx%21PDF-E&lang=e&type=items))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The October 2025 recommendation names lithium-lead, lithium-sodium and sodium-lead combinations. This supports mixed-family classification, not inseparable pricing or Global prevalence. ([itu.int](https://www.itu.int/rec/dologin_pub.asp?id=T-REC-L.xx.xx-xx.xx-I%xx.xx%21PDF-E&lang=e&type=items))

49. ETSI EN 300 132-1 V2.2.1 - ICT Power Supply Interface: Alternating Current
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The ICT standard identifies the protected-load AC interface, supporting output-side attribution rather than classification by chemistry or normal utility input. It supplies no sales mix. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013201v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The ICT standard identifies the protected-load AC interface, supporting output-side attribution rather than classification by chemistry or normal utility input. It supplies no sales mix. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013201v020201p.pdf))
50. ETSI EN 300 132-2 V2.8.1 - ICT Power Supply Interface: Direct Current
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The ICT standard separately identifies the DC protected-equipment interface, supporting the DC-output boundary independently of battery chemistry. It is not a purchasing census. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013202v020801p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The ICT standard separately identifies the DC protected-equipment interface, supporting the DC-output boundary independently of battery chemistry. It is not a purchasing census. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013202v020801p.pdf))
51. Vertiv NetSure Inverter Series - Converged AC and DC Power System
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: NetSure Inverter Series identifies AC and DC loads supported through a common battery bank. This establishes a combined-output proposition, not its modeled purchasing fraction or future adoption. ([vertiv.com](https://www.vertiv.com/en-us/products-catalog/critical-power/dc-power-systems/vertiv-netsure-inverter-series/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: NetSure Inverter Series identifies AC and DC loads supported through a common battery bank. This establishes a combined-output proposition, not its modeled purchasing fraction or future adoption. ([vertiv.com](https://www.vertiv.com/en-us/products-catalog/critical-power/dc-power-systems/vertiv-netsure-inverter-series/))

52. ETSI EN 302 099 V2.2.1 - Powering of Equipment in Access Network
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Local powering uses a colocated source; allocation follows the backed source rather than receiver inventory. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Local powering uses a colocated source; allocation follows the backed source rather than receiver inventory. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Remote-source backup is distinguished from local backup, supporting the parent commercial boundary but not purchasing weights. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Remote-source backup is distinguished from local backup, supporting the parent commercial boundary but not purchasing weights. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Centralized powering originates at a telecommunications center. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Centralized powering originates at a telecommunications center. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Cluster powering uses a source outside the telecommunications center, supporting separation within Remote Powering. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Cluster powering uses a source outside the telecommunications center, supporting separation within Remote Powering. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Reverse powering is customer-origin supply, supporting source-level attribution of the battery-backed provider package. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Reverse powering is customer-origin supply, supporting source-level attribution of the battery-backed provider package. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))

53. Set Up Your Battery Backup - AT&T G.Fast Service with BGW210

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The 2021 provider document names a battery-backed package protecting G.fast customer and distribution equipment through reverse power feed. It establishes a dated source-backup proposition, not current Global quantities. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The 2021 provider document names a battery-backed package protecting G.fast customer and distribution equipment through reverse power feed. It establishes a dated source-backup proposition, not current Global quantities. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The provider advertises a xx.xx-hour service window for the particular package, supporting Day-Scale mapping without a universal premises-duration inference. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The provider advertises a xx.xx-hour service window for the particular package, supporting Day-Scale mapping without a universal premises-duration inference. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

54. DNA Tower Offers Battery Capacity in Electricity Reserve Markets with Elisa DES

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The June xx.xx 2025 announcement reports DNA Tower batteries connected to Finnish reserve markets while retaining outage continuity. This establishes a specific mixed-duty implementation, not Global attachment or guaranteed returns. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/press-releases/dna-tower-becomes-worlds-first-tower-company-to-offer-battery-capacity-in-electricity-reserve-markets-with-elisa-des))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The June xx.xx 2025 announcement reports DNA Tower batteries connected to Finnish reserve markets while retaining outage continuity. This establishes a specific mixed-duty implementation, not Global attachment or guaranteed returns. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/press-releases/dna-tower-becomes-worlds-first-tower-company-to-offer-battery-capacity-in-electricity-reserve-markets-with-elisa-des))

55. Case Elisa: Virtual Power Plant in the Telecom Industry

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The company case reports over 2,000 aggregated sites and approximately xx.xx MWh. This is an installed commercial scale check, not annual purchasing value or Global prevalence. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/customer-stories/elisacase))

20.4. European Union

Table 419. European Union Telecom Battery Backup System Market, by Country growth contribution, 2025-2032

Category	2025 value (USD Million)	2032 value (USD Million)	Added value (USD Million)	2025 share (%)	2032 share (%)	Change (pp)	Growth share (%)	CAGR (%)
Austria	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Belgium	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Bulgaria	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Croatia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Cyprus	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Czech Republic	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Denmark	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Estonia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Finland	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Greece	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Hungary	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Ireland	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latvia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lithuania	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Luxembourg	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Malta	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Netherlands	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Poland	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Portugal	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Romania	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Slovakia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Slovenia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Sweden	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scope total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 420. European Union Telecom Battery Backup System Market Size, by Group, 2017-2032 (USD Million)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
Austria	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Belgium	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Bulgaria	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Croatia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Cyprus	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Czech Republic	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Denmark	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Estonia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Finland	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Greece	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Hungary	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Ireland	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latvia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lithuania	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Luxembourg	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Malta	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Netherlands	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Poland	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Portugal	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Romania	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Slovakia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Slovenia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Sweden	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 421. European Union Telecom Battery Backup System Market Size, by Offering, 2017-2032 (USD Million)

Offering	2023	2024	2025	2026	2027	2032	CAGR (%)
Battery Units and Assemblies	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Complete Backup Systems	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 422. European Union Telecom Battery Backup System Market Size, by Battery Technology, 2017-2032 (USD Million)

Battery Technology	2023	2024	2025	2026	2027	2032	CAGR (%)
Aqueous Zinc-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Flow Batteries	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lithium-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Metal-Air	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Multi-Chemistry	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Sodium-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 423. European Union Telecom Battery Backup System Market Size, by Lead-Acid, 2017-2032 (USD Million)

Lead-Acid	2023	2024	2025	2026	2027	2032	CAGR (%)
Flooded Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Valve-Regulated Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 424. European Union Telecom Battery Backup System Market Size, by Valve-Regulated Lead-Acid, 2017-2032 (USD Million)

Valve-Regulated Lead-Acid	2023	2024	2025	2026	2027	2032	CAGR (%)
Absorbent Glass Mat	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Gel	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 425. European Union Telecom Battery Backup System Market Size, by Lithium-Based, 2017-2032 (USD Million)

Lithium-Based	2023	2024	2025	2026	2027	2032	CAGR (%)
Lithium-Ion	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lithium-Metal	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 426. European Union Telecom Battery Backup System Market Size, by Nickel-Based, 2017-2032 (USD Million)

Nickel-Based	2023	2024	2025	2026	2027	2032	CAGR (%)
Nickel-Cadmium	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Iron	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Metal Hydride	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Zinc	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 427. European Union Telecom Battery Backup System Market Size, by Power Interface, 2017-2032 (USD Million)

Power Interface	2023	2024	2025	2026	2027	2032	CAGR (%)
AC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Combined AC/DC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
DC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 428. European Union Telecom Battery Backup System Market Size, by Network Application, 2017-2032 (USD Million)

Network Application	2023	2024	2025	2026	2027	2032	CAGR (%)
Core Networks & Network Control	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Customer-Premises Connectivity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Network Interconnection & Peering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Transport & Backhaul Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Wireless Access Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Wireline Access Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 429. European Union Telecom Battery Backup System Market Size, by Buyer Type, 2017-2032 (USD Million)

Buyer Type	2023	2024	2025	2026	2027	2032	CAGR (%)
Business & Institutional Connectivity Owners	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Equipment Leasing & Rental Providers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Household Connectivity Purchasers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Energy-Service Providers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Infrastructure & Tower Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecommunications Network Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 430. European Union Telecom Battery Backup System Market Size, by Installation Environment, 2017-2032 (USD Million)

Installation Environment	2023	2024	2025	2026	2027	2032	CAGR (%)
Non-Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Underground Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 431. European Union Telecom Battery Backup System Market Size, by Weather-Protected Locations, 2017-2032 (USD Million)

Weather-Protected Locations	2023	2024	2025	2026	2027	2032	CAGR (%)
Enclosed Locations Without Temperature Control	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Partly Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Temperature-Controlled Enclosed Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 432. European Union Telecom Battery Backup System Market Size, by Non-Weather-Protected Locations, 2017-2032 (USD Million)

Non-Weather-Protected Locations	2023	2024	2025	2026	2027	2032	CAGR (%)
Open-Air Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Sheltered Non-Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 433. European Union Telecom Battery Backup System Market Size, by Powering Architecture, 2017-2032 (USD Million)

Powering Architecture	2023	2024	2025	2026	2027	2032	CAGR (%)
Local Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Remote Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 434. European Union Telecom Battery Backup System Market Size, by Remote Powering, 2017-2032 (USD Million)

Remote Powering	2023	2024	2025	2026	2027	2032	CAGR (%)
Centralized Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Cluster Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reverse Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 435. European Union Telecom Battery Backup System Market Size, by Commercial Delivery Model, 2017-2032 (USD Million)

Commercial Delivery Model	2023	2024	2025	2026	2027	2032	CAGR (%)
Leased or Rented Equipment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Managed Backup Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Owned Equipment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 436. European Union Telecom Battery Backup System Market Size, by Sales Channel, 2017-2032 (USD Million)

Sales Channel	2023	2024	2025	2026	2027	2032	CAGR (%)
Direct Manufacturer Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Distributor and Retailer Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Systems Integrator and Contractor Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Service Provider Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 437. European Union Telecom Battery Backup System Market Size, by Grid Availability, 2017-2032 (USD Million)

Grid Availability	2023	2024	2025	2026	2027	2032	CAGR (%)
Off-Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reliable Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Unreliable Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 438. European Union Telecom Battery Backup System Market Size, by Backup Duty, 2017-2032 (USD Million)

Backup Duty	2023	2024	2025	2026	2027	2032	CAGR (%)
Backup with Energy Management	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reserve-Only Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 439. European Union Telecom Battery Backup System Market Size, by Backup Autonomy, 2017-2032 (USD Million)

Backup Autonomy	2023	2024	2025	2026	2027	2032	CAGR (%)
Day-Scale Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Extended-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Intermediate-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Short-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. China Tower - 2025 Annual Results, March 18, 2026
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The xx.xx.149m-site inventory constrains wireless activity; forecast purchasing remains modeled.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The xx.xx.149m-site inventory constrains wireless activity; forecast purchasing remains modeled.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Replacement/improvement CAPEX fell from RMB6837m to RMB5474m, qualifying automatic replacement-led growth.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Replacement/improvement CAPEX fell from RMB6837m to RMB5474m, qualifying automatic replacement-led growth.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Disclosed tower operations establish a material infrastructure purchasing setting, not a global buyer share.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Disclosed tower operations establish a material infrastructure purchasing setting, not a global buyer share.
2. Broadband Commission - The State of Broadband: Our Digital World, 2025
   - Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))

3. Battery Backup - Meriwether Lewis Electric Cooperative
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Separately available replacement batteries support a battery-only replacement route.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Separately available replacement batteries support a battery-only replacement route.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The USD100-plus-tax device is a retail comparator, not an observed 2025 first-sale realization.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The USD100-plus-tax device is a retail comparator, not an observed 2025 first-sale realization.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Customer purchase and replacement responsibilities support household-funded procurement.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Customer purchase and replacement responsibilities support household-funded procurement.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Purchased equipment does not automatically include continuing service-plan coverage.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Purchased equipment does not automatically include continuing service-plan coverage.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Local provider sales establish this route alongside manufacturer-direct purchasing.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Local provider sales establish this route alongside manufacturer-direct purchasing.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The provider advertises approximately five hours for combined voice and internet, supporting service-specific Extended classification, not an observed 2025 purchase mix. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The provider advertises approximately five hours for combined voice and internet, supporting service-specific Extended classification, not an observed 2025 purchase mix. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The same proposition advertises xx.xx-hour voice-only protection, supporting Day-Scale mapping without equating duration with a universally larger purchase basket. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The same proposition advertises xx.xx-hour voice-only protection, supporting Day-Scale mapping without equating duration with a universally larger purchase basket. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
4. EnerSys 2026 Proxy Statement and Annual Report
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Direct customer supply is disclosed within a diversified international business; telecom channel proportions are not disclosed.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Direct customer supply is disclosed within a diversified international business; telecom channel proportions are not disclosed.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Distributor supply is disclosed, supporting route occurrence rather than its modeled sales weight.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Distributor supply is disclosed, supporting route occurrence rather than its modeled sales weight.

5. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: Audited 2025 telecom revenue of RMB1,xx.xx declined xx.xx%; telecom purchasing weakness is retained as counterevidence to automatic substitution-led aggregate growth. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Audited 2025 telecom revenue of RMB1,xx.xx declined xx.xx%; telecom purchasing weakness is retained as counterevidence to automatic substitution-led aggregate growth. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: Telecom-specific results are separated from adjacent data-center and power-storage growth when assessing lithium substitution; the filing does not disclose the modeled Global split. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom-specific results are separated from adjacent data-center and power-storage growth when assessing lithium substitution; the filing does not disclose the modeled Global split. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
6. Amara Raja Energy & Mobility - Q2/H1 FY2026 Earnings Presentation, November 6, 2025
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand. ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))
7. IHS Holding Limited - First-Quarter 2026 Financial Statements
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement. ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

8. Ofcom - Mobile RAN Power Resilience: Technical Report and CFI Update, February 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The evaluated xx.xx-minute alternative supplies a subhour commercial-planning anchor, not observed shipments.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The evaluated xx.xx-minute alternative supplies a subhour commercial-planning anchor, not observed shipments.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: One-hour and two-hour alternatives anchor the analytical Intermediate band. Aggregate scenarios include multiple years of operating costs and are not annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: One-hour and two-hour alternatives anchor the analytical Intermediate band. Aggregate scenarios include multiple years of operating costs and are not annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The four-hour alternative anchors the Extended band's lower boundary without establishing a Global minimum or purchasing allocation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The four-hour alternative anchors the Extended band's lower boundary without establishing a Global minimum or purchasing allocation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

9. Ofcom - Your Landline Is Going Digital: What You Need to Know

- Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
- Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Restricted provider-funded eligibility constrains operator-funded premises attribution and forecast adoption.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Restricted provider-funded eligibility constrains operator-funded premises attribution and forecast adoption.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Eligibility is not universal household funding; purchaser proportions remain assumptions.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Eligibility is not universal household funding; purchaser proportions remain assumptions.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Eligibility-limited provider backup and the one-hour minimum for qualifying customers constrain premises demand and anchor the Intermediate band's lower boundary. They do not establish universal adoption. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Eligibility-limited provider backup and the one-hour minimum for qualifying customers constrain premises demand and anchor the Intermediate band's lower boundary. They do not establish universal adoption. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

10. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone
    - Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue. ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
    - Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions. ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: USD45m financing and xx.xx planned site modernizations support an expansion signal, not observed backup-only service revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: USD45m financing and xx.xx planned site modernizations support an expansion signal, not observed backup-only service revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Energy-service activity supports the role; the modeled provider-as-buyer subcontract share is not established.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Energy-service activity supports the role; the modeled provider-as-buyer subcontract share is not established.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: More than xx.xx% weak/off-grid project exposure constrains service-cohort concentration, not the global grid mix.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: More than xx.xx% weak/off-grid project exposure constrains service-cohort concentration, not the global grid mix.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The project confirms disconnected-site commercial demand; its weak/off-grid combined statistic does not separate those categories.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The project confirms disconnected-site commercial demand; its weak/off-grid combined statistic does not separate those categories.
11. Fingrid - How to Participate in the Reserve Markets
    - Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue. ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Reserve-market permissions and participation agreements establish an access constraint; no telecom-battery reserve-income uplift is included.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Applicable owner permission and market agreements are commercial access gates. They constrain forecast mixed-duty adoption without measuring its Global percentage. ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))

12. Cellnex - Integrated Annual Report 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Polish site portfolio supports country-specific network activity.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Polish site portfolio supports country-specific network activity.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Danish site portfolio constrains the small-country footprint bridge.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Danish site portfolio constrains the small-country footprint bridge.
13. PowerSafe SBS Batteries | EnerSys
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Named telecom batteries support the battery-unit offering boundary; allocation weights are assumed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Named telecom batteries support the battery-unit offering boundary; allocation weights are assumed.
14. Vertiv NetSure M Series
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Configured enclosure, power and battery options support broader system classification, not universal bundle inclusion.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Configured enclosure, power and battery options support broader system classification, not universal bundle inclusion.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A marketed outdoor enclosure supports a protection option; global adoption and configuration proportions remain modeled.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A marketed outdoor enclosure supports a protection option; global adoption and configuration proportions remain modeled.

15. Ofcom - Network and Service Resilience Guidance for Communications Providers, June 16, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Core is a distinct, comparatively concentrated function with explicit backup expectations; global spending remains estimated.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Core is a distinct, comparatively concentrated function with explicit backup expectations; global spending remains estimated.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The stated xx.xx-xx.xx-fold site-scale distinction motivates lower-value, more numerous transport purchase equivalents.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The stated xx.xx-xx.xx-fold site-scale distinction motivates lower-value, more numerous transport purchase equivalents.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Peering and non-Internet interconnection are distinct functions; attributable backup purchase values are not disclosed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Peering and non-Internet interconnection are distinct functions; attributable backup purchase values are not disclosed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: June 2026 guidance identifies approximately four hours as good practice for active fixed-access cabinets. This supports a conditional Extended purchasing shift, not completed orders or a Global mandate. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/network-and-service-resilience-guidance-for-communications-providerspdf?v=xx.xx))
16. Technology and Tools | First Responder Network Authority
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Radio access, transport backhaul and core are separate network functions, supporting functional attribution without duplicate facility counting.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Radio access, transport backhaul and core are separate network functions, supporting functional attribution without duplicate facility counting.
17. Mobile Network Hardening Program | Australian Department of Infrastructure
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Completed battery enhancements and broader resilience projects provide a delivered regional demand signal, not a global forecast rate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Completed battery enhancements and broader resilience projects provide a delivered regional demand signal, not a global forecast rate.
18. BT - Digital Voice for Business Service Schedule, May 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Business customers bear backup-power expense, supporting a distinct institutional/business payer route rather than consumer eligibility extrapolation.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Business customers bear backup-power expense, supporting a distinct institutional/business payer route rather than consumer eligibility extrapolation.
19. Los Angeles Metro - Board Report 2024-1128, UPS Battery Replacement
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Completed and additional UPS battery replacements support continuing underground demand; mixed-load project budgets are not telecom-only revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Completed and additional UPS battery replacements support continuing underground demand; mixed-load project budgets are not telecom-only revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The transit authority's purchasing program supports an institutional own-use role, not its global spending proportion.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The transit authority's purchasing program supports an institutional own-use role, not its global spending proportion.

20. ETSI EN 300 019-1-3 V3.1.1 - Stationary Use at Weatherprotected Locations, May 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Weather-protected categories distinguish enclosure from environmental control; the standard does not measure market mix.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Weather-protected categories distinguish enclosure from environmental control; the standard does not measure market mix.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Maintained temperature control is a separate classification premise for the modeled conditional allocation.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Maintained temperature control is a separate classification premise for the modeled conditional allocation.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Enclosed locations without temperature control are distinguished from controlled locations.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Enclosed locations without temperature control are distinguished from controlled locations.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Partial weather protection is recognized separately; sales weights and future adoption remain assumed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Partial weather protection is recognized separately; sales weights and future adoption remain assumed.
21. ETSI EN 300 019-1-4 V3.1.1 - Stationary Use at Non-Weatherprotected Locations, May 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Non-weather-protected locations form a distinct classification regime, not a measured global spending pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Non-weather-protected locations form a distinct classification regime, not a measured global spending pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Sheltered non-weather-protected locations support the named conditional category.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Sheltered non-weather-protected locations support the named conditional category.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Open-air locations are separately recognized; their purchasing mix remains modeled.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Open-air locations are separately recognized; their purchasing mix remains modeled.
22. DC Power Plant / Rectifiers - UPS Rental
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Battery and complete DC-plant rentals establish delivery-category occurrence; global fees and utilization are not disclosed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Battery and complete DC-plant rentals establish delivery-category occurrence; global fees and utilization are not disclosed.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Commercial rental availability is a role premise only; modeled lessor sub-hire procurement remains unverified.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Commercial rental availability is a role premise only; modeled lessor sub-hire procurement remains unverified.

23. Helios Towers - Full Year Results 2025, March 12, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Grid-integration investment supplies a connection-improvement counterforce used conditionally in the forecast.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Grid-integration investment supplies a connection-improvement counterforce used conditionally in the forecast.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Reported xx.xx-hour average daily grid availability supports weak-grid commercial exposure, without a global classification share.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Reported xx.xx-hour average daily grid availability supports weak-grid commercial exposure, without a global classification share.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Grid integration and alternative-power investment qualify assumptions of permanently unchanged disconnected-site exposure.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Grid integration and alternative-power investment qualify assumptions of permanently unchanged disconnected-site exposure.
24. Telecommunications | Aggreko US
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Telecom battery-storage rental for temporary continuity supports delivery occurrence, not the estimated global fee scale.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom battery-storage rental for temporary continuity supports delivery occurrence, not the estimated global fee scale.
25. EnerSys PowerSafe SBS Front Terminal Batteries | Alpine Power Systems
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A named battery distributor supports the intermediary route; its listing is not a global channel-sales observation.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A named battery distributor supports the intermediary route; its listing is not a global channel-sales observation.
26. DC Power Services | Vertiv
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Cross-manufacturer projects and narrower upgrades support integration-prime and supported-replacement routes; numerical route proportions remain assumed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Cross-manufacturer projects and narrower upgrades support integration-prime and supported-replacement routes; numerical route proportions remain assumed.

27. Shuangdeng Group Co., Ltd. - Global Offering Prospectus, August 18, 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The company's own five-month 2025 lead-acid realization of RMB520.xx.xx/kWh constrains the relative-price bridge; syndicated industry claims are excluded. Forecast convergence remains assumed. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The company's own five-month 2025 lead-acid realization of RMB520.xx.xx/kWh constrains the relative-price bridge; syndicated industry claims are excluded. Forecast convergence remains assumed. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Own lithium-ion realization of RMB595.xx.xx/kWh is an input to the Lithium-Based value model, not a Global share or a Lithium-Metal sales observation. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Own lithium-ion realization of RMB595.xx.xx/kWh is an input to the Lithium-Based value model, not a Global share or a Lithium-Metal sales observation. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
28. Amara Raja Crosses 1 GWh Lithium Storage Deployment Powering India's Telecom Networks
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The April xx.xx 2026 disclosure reports approximately xx.xx GWh across xx.xx cumulative telecom lithium sites over four years. This is a commercial adoption scale check, not annual Global revenue or a supplier-share input. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The April xx.xx 2026 disclosure reports approximately xx.xx GWh across xx.xx cumulative telecom lithium sites over four years. This is a commercial adoption scale check, not annual Global revenue or a supplier-share input. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The disclosed deployment identifies lithium-ion commercialization at scale, supporting the subtype's established commercial position without directly measuring its conditional Global share. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The disclosed deployment identifies lithium-ion commercialization at scale, supporting the subtype's established commercial position without directly measuring its conditional Global share. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
29. Central Office Power Systems - EnerSys
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The central-office portfolio identifies Flooded Lead-Acid as a distinct telecom alternative, supporting the legacy-network category mapping but not its purchasing fraction. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The central-office portfolio identifies Flooded Lead-Acid as a distinct telecom alternative, supporting the legacy-network category mapping but not its purchasing fraction. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The portfolio separately identifies Valve-Regulated Lead-Acid, supporting the within-lead construction boundary used by the model. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The portfolio separately identifies Valve-Regulated Lead-Acid, supporting the within-lead construction boundary used by the model. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))

30. PowerSafe OPzV Batteries - EnerSys

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: EnerSys identifies OPzV as Gel and lists telecom applications. This supports commercial subtype mapping, not the assumed Gel/AGM volume or price mix. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-opzv/))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: EnerSys identifies OPzV as Gel and lists telecom applications. This supports commercial subtype mapping, not the assumed Gel/AGM volume or price mix. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-opzv/))

31. Bolloré - 2017 Registration Document

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The official filing identifies LMP professional outage-protection applications including telecom relays. This is a dated commercial boundary input, not evidence of 2025 telecom shipment value. ([bollore.com](https://www.bollore.com/wp-content/uploads/2018/xx.xx/bollore_ddr_2017_gb_bag-xx.xx-juin.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The official filing identifies LMP professional outage-protection applications including telecom relays. This is a dated commercial boundary input, not evidence of 2025 telecom shipment value. ([bollore.com](https://www.bollore.com/wp-content/uploads/2018/xx.xx/bollore_ddr_2017_gb_bag-xx.xx-juin.pdf))

32. Bolloré - Business Report 2025

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The 2025 report establishes continuing Lithium Metal Polymer commercial applications in electricity storage and buses, while omitting separately attributable telecom sales. It constrains the low-access expected-purchase model; no capacity-to-sales conversion is used. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The 2025 report establishes continuing Lithium Metal Polymer commercial applications in electricity storage and buses, while omitting separately attributable telecom sales. It constrains the low-access expected-purchase model; no capacity-to-sales conversion is used. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The report preserves the distinction between LMP and conventional lithium-ion, supporting the exhaustive subtype attribution rule rather than treating polymer packaging as Lithium-Metal. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The report preserves the distinction between LMP and conventional lithium-ion, supporting the exhaustive subtype attribution rule rather than treating polymer packaging as Lithium-Metal. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))

33. AT&T to Replace U-Verse Cabinet Batteries - Fierce Network, January 15, 2008

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The January xx.xx 2008 report corroborates AT&T's replacement of approximately xx.xx Avestor batteries after the supplier's closure. The obsolete stock is therefore not carried into the 2025 or 2032 purchasing numerator. ([fierce-network.com](https://www.fierce-network.com/telecom/at-t-to-replace-u-verse-cabinet-batteries))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The January xx.xx 2008 report corroborates AT&T's replacement of approximately xx.xx Avestor batteries after the supplier's closure. The obsolete stock is therefore not carried into the 2025 or 2032 purchasing numerator. ([fierce-network.com](https://www.fierce-network.com/telecom/at-t-to-replace-u-verse-cabinet-batteries))

34. PowerSafe NiCd Batteries - EnerSys
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: EnerSys identifies Nickel-Cadmium for central offices and outside plant, supporting the modeled legacy telecom cohort but not its installed attachment or replacement spending. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-nicd/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: EnerSys identifies Nickel-Cadmium for central offices and outside plant, supporting the modeled legacy telecom cohort but not its installed attachment or replacement spending. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-nicd/))
35. FDK Ni-MH Battery Is Chosen for the Cellect 600 Product of Alpha Technologies
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The October xx.xx 2015 announcement identifies NiMH in Alpha's Cellect xx.xx small-cell backup proposition. It supports a historical cohort rather than current fulfillment or assumed surviving stock. ([fdk.com](https://www.fdk.com/whatsnew-e/release20151019-e.html))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The October xx.xx 2015 announcement identifies NiMH in Alpha's Cellect xx.xx small-cell backup proposition. It supports a historical cohort rather than current fulfillment or assumed surviving stock. ([fdk.com](https://www.fdk.com/whatsnew-e/release20151019-e.html))
36. Products - Encell Technology
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Encell positions its Fused Iron Nickel-Iron battery for telecom. This supports the commercial category lead, while current purchases and attachment remain modeled. ([encell.com](https://encell.com/products/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Encell positions its Fused Iron Nickel-Iron battery for telecom. This supports the commercial category lead, while current purchases and attachment remain modeled. ([encell.com](https://encell.com/products/))
37. Telecom/5G - ZAF Energy Systems
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: ZAF positions Nickel-Zinc for telecom/5G. Its supplier proposition supports application mapping, not the modeled annual attachment or threefold forecast value multiplier. ([zafsys.com](https://zafsys.com/telecom-5g/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: ZAF positions Nickel-Zinc for telecom/5G. Its supplier proposition supports application mapping, not the modeled annual attachment or threefold forecast value multiplier. ([zafsys.com](https://zafsys.com/telecom-5g/))
38. HORIEN Salt Battery Solutions and Inlyte Energy Announce a Strategic Partnership
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: HORIEN's March xx.xx 2025 statement identifies sodium-metal-chloride telecom backup. Its separate partnership announcement is not counted as delivered telecom sales. ([horien.com](https://horien.com/wp-content/uploads/2025/xx.xx/Press-Release_HORIEN-Inlyte-International-Version.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: HORIEN's March xx.xx 2025 statement identifies sodium-metal-chloride telecom backup. Its separate partnership announcement is not counted as delivered telecom sales. ([horien.com](https://horien.com/wp-content/uploads/2025/xx.xx/Press-Release_HORIEN-Inlyte-International-Version.pdf))
39. Energy Backup - Phinergy
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Phinergy markets Aluminum-Air continuity offerings to telecom operators and tower companies. The source supports category and buyer mapping, not the modeled installed attachment or replacement numerator. ([phinergy.com](https://phinergy.com/solutions/energy-backup/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Phinergy markets Aluminum-Air continuity offerings to telecom operators and tower companies. The source supports category and buyer mapping, not the modeled installed attachment or replacement numerator. ([phinergy.com](https://phinergy.com/solutions/energy-backup/))

40. Australian Flow Batteries - RFB40X Series

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: RFB40X literature identifies telecom among stationary commercial applications. It supports the qualifying project boundary, not delivered projects, revenue or assumed attachment. ([afb.energy](https://www.afb.energy/wp-content/uploads/2025/xx.xx/Australian-Flow-Batteries-RFB40X-Series-2024.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: RFB40X literature identifies telecom among stationary commercial applications. It supports the qualifying project boundary, not delivered projects, revenue or assumed attachment. ([afb.energy](https://www.afb.energy/wp-content/uploads/2025/xx.xx/Australian-Flow-Batteries-RFB40X-Series-2024.pdf))

41. PowerReserve - Verizon Residential Accessories

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Verizon advertises an alkaline-cell voice-backup device at USD39.xx.xx excluding batteries. This supports a qualifying primary-zinc premises route and price comparator, not assumed Global attachment or first-sale realization. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Verizon advertises an alkaline-cell voice-backup device at USD39.xx.xx excluding batteries. This supports a qualifying primary-zinc premises route and price comparator, not assumed Global attachment or first-sale realization. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Advertised voice-only protection reaches xx.xx hours; internet and television protection are excluded. This supports service-specific Day-Scale classification. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Advertised voice-only protection reaches xx.xx hours; internet and television protection are excluded. This supports service-specific Day-Scale classification. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))

42. Alkaline Manganese Dioxide Handbook and Application Manual - Energizer

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The manufacturer's alkaline manganese-dioxide classification supports the zinc-family mapping for qualifying premises backup. It provides no telecom purchasing weight. ([data.energizer.com](https://data.energizer.com/pdfs/alkaline_appman.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The manufacturer's alkaline manganese-dioxide classification supports the zinc-family mapping for qualifying premises backup. It provides no telecom purchasing weight. ([data.energizer.com](https://data.energizer.com/pdfs/alkaline_appman.pdf))

43. ITU-T Work Programme - Aqueous Zinc-Based Battery Systems for Base Station Applications

- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The aqueous-zinc base-station work item is Under study with December 2027 timing. It constrains the forecast commercialization assumption but establishes neither approval nor customer purchases. ([itu.int](https://www.itu.int/itu-t/workprog/wp_item.aspx?isn=xx.xx))

44. ITU-T L.1397 - Battery System with Integrated Control and Monitoring Information Model

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The October 2025 recommendation names lithium-lead, lithium-sodium and sodium-lead combinations. This supports mixed-family classification, not inseparable pricing or Global prevalence. ([itu.int](https://www.itu.int/rec/dologin_pub.asp?id=T-REC-L.xx.xx-xx.xx-I%xx.xx%21PDF-E&lang=e&type=items))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The October 2025 recommendation names lithium-lead, lithium-sodium and sodium-lead combinations. This supports mixed-family classification, not inseparable pricing or Global prevalence. ([itu.int](https://www.itu.int/rec/dologin_pub.asp?id=T-REC-L.xx.xx-xx.xx-I%xx.xx%21PDF-E&lang=e&type=items))

45. ETSI EN 300 132-1 V2.2.1 - ICT Power Supply Interface: Alternating Current
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The ICT standard identifies the protected-load AC interface, supporting output-side attribution rather than classification by chemistry or normal utility input. It supplies no sales mix. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013201v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The ICT standard identifies the protected-load AC interface, supporting output-side attribution rather than classification by chemistry or normal utility input. It supplies no sales mix. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013201v020201p.pdf))
46. ETSI EN 300 132-2 V2.8.1 - ICT Power Supply Interface: Direct Current
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The ICT standard separately identifies the DC protected-equipment interface, supporting the DC-output boundary independently of battery chemistry. It is not a purchasing census. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013202v020801p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The ICT standard separately identifies the DC protected-equipment interface, supporting the DC-output boundary independently of battery chemistry. It is not a purchasing census. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013202v020801p.pdf))
47. Vertiv NetSure Inverter Series - Converged AC and DC Power System
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: NetSure Inverter Series identifies AC and DC loads supported through a common battery bank. This establishes a combined-output proposition, not its modeled purchasing fraction or future adoption. ([vertiv.com](https://www.vertiv.com/en-us/products-catalog/critical-power/dc-power-systems/vertiv-netsure-inverter-series/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: NetSure Inverter Series identifies AC and DC loads supported through a common battery bank. This establishes a combined-output proposition, not its modeled purchasing fraction or future adoption. ([vertiv.com](https://www.vertiv.com/en-us/products-catalog/critical-power/dc-power-systems/vertiv-netsure-inverter-series/))

48. ETSI EN 302 099 V2.2.1 - Powering of Equipment in Access Network
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Local powering uses a colocated source; allocation follows the backed source rather than receiver inventory. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Local powering uses a colocated source; allocation follows the backed source rather than receiver inventory. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Remote-source backup is distinguished from local backup, supporting the parent commercial boundary but not purchasing weights. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Remote-source backup is distinguished from local backup, supporting the parent commercial boundary but not purchasing weights. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Centralized powering originates at a telecommunications center. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Centralized powering originates at a telecommunications center. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Cluster powering uses a source outside the telecommunications center, supporting separation within Remote Powering. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Cluster powering uses a source outside the telecommunications center, supporting separation within Remote Powering. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Reverse powering is customer-origin supply, supporting source-level attribution of the battery-backed provider package. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Reverse powering is customer-origin supply, supporting source-level attribution of the battery-backed provider package. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))

49. Set Up Your Battery Backup - AT&T G.Fast Service with BGW210

    · Evidence informing base-year allocation inputs; displayed values and growth are calculated: The 2021 provider document names a battery-backed package protecting G.fast customer and distribution equipment through reverse power feed. It establishes a dated source-backup proposition, not current Global quantities. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

    · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The 2021 provider document names a battery-backed package protecting G.fast customer and distribution equipment through reverse power feed. It establishes a dated source-backup proposition, not current Global quantities. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

    · Evidence informing base-year allocation inputs; displayed values and growth are calculated: The provider advertises a xx.xx-hour service window for the particular package, supporting Day-Scale mapping without a universal premises-duration inference. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

    · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The provider advertises a xx.xx-hour service window for the particular package, supporting Day-Scale mapping without a universal premises-duration inference. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

50. DNA Tower Offers Battery Capacity in Electricity Reserve Markets with Elisa DES

    · Evidence informing base-year allocation inputs; displayed values and growth are calculated: The June xx.xx 2025 announcement reports DNA Tower batteries connected to Finnish reserve markets while retaining outage continuity. This establishes a specific mixed-duty implementation, not Global attachment or guaranteed returns. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/press-releases/dna-tower-becomes-worlds-first-tower-company-to-offer-battery-capacity-in-electricity-reserve-markets-with-elisa-des))

    · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The June xx.xx 2025 announcement reports DNA Tower batteries connected to Finnish reserve markets while retaining outage continuity. This establishes a specific mixed-duty implementation, not Global attachment or guaranteed returns. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/press-releases/dna-tower-becomes-worlds-first-tower-company-to-offer-battery-capacity-in-electricity-reserve-markets-with-elisa-des))

51. Case Elisa: Virtual Power Plant in the Telecom Industry

    · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The company case reports over 2,000 aggregated sites and approximately xx.xx MWh. This is an installed commercial scale check, not annual purchasing value or Global prevalence. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/customer-stories/elisacase))

20.5. ASEAN

Table 440. ASEAN Telecom Battery Backup System Market, by Country growth contribution, 2025-2032

Category	2025 value (USD Million)	2032 value (USD Million)	Added value (USD Million)	2025 share (%)	2032 share (%)	Change (pp)	Growth share (%)	CAGR (%)
Brunei	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Cambodia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Indonesia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lao People's Democratic Republic	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Malaysia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Myanmar	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Philippines	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Singapore	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Thailand	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Vietnam	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scope total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 441. ASEAN Telecom Battery Backup System Market Size, by Group, 2017-2032 (USD Million)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
Brunei	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Cambodia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Indonesia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lao People's Democratic Republic	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Malaysia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Myanmar	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Philippines	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Singapore	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Thailand	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Vietnam	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 442. ASEAN Telecom Battery Backup System Market Size, by Offering, 2017-2032 (USD Million)

Offering	2023	2024	2025	2026	2027	2032	CAGR (%)
Battery Units and Assemblies	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Complete Backup Systems	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 443. ASEAN Telecom Battery Backup System Market Size, by Battery Technology, 2017-2032 (USD Million)

Battery Technology	2023	2024	2025	2026	2027	2032	CAGR (%)
Aqueous Zinc-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Flow Batteries	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lithium-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Metal-Air	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Multi-Chemistry	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Sodium-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 444. ASEAN Telecom Battery Backup System Market Size, by Lead-Acid, 2017-2032 (USD Million)

Lead-Acid	2023	2024	2025	2026	2027	2032	CAGR (%)
Flooded Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Valve-Regulated Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 445. ASEAN Telecom Battery Backup System Market Size, by Valve-Regulated Lead-Acid, 2017-2032 (USD Million)

Valve-Regulated Lead-Acid	2023	2024	2025	2026	2027	2032	CAGR (%)
Absorbent Glass Mat	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Gel	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 446. ASEAN Telecom Battery Backup System Market Size, by Lithium-Based, 2017-2032 (USD Million)

Lithium-Based	2023	2024	2025	2026	2027	2032	CAGR (%)
Lithium-Ion	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lithium-Metal	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 447. ASEAN Telecom Battery Backup System Market Size, by Nickel-Based, 2017-2032 (USD Million)

Nickel-Based	2023	2024	2025	2026	2027	2032	CAGR (%)
Nickel-Cadmium	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Iron	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Metal Hydride	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Zinc	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 448. ASEAN Telecom Battery Backup System Market Size, by Power Interface, 2017-2032 (USD Million)

Power Interface	2023	2024	2025	2026	2027	2032	CAGR (%)
AC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Combined AC/DC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
DC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 449. ASEAN Telecom Battery Backup System Market Size, by Network Application, 2017-2032 (USD Million)

Network Application	2023	2024	2025	2026	2027	2032	CAGR (%)
Core Networks & Network Control	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Customer-Premises Connectivity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Network Interconnection & Peering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Transport & Backhaul Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Wireless Access Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Wireline Access Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 450. ASEAN Telecom Battery Backup System Market Size, by Buyer Type, 2017-2032 (USD Million)

Buyer Type	2023	2024	2025	2026	2027	2032	CAGR (%)
Business & Institutional Connectivity Owners	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Equipment Leasing & Rental Providers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Household Connectivity Purchasers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Energy-Service Providers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Infrastructure & Tower Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecommunications Network Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 451. ASEAN Telecom Battery Backup System Market Size, by Installation Environment, 2017-2032 (USD Million)

Installation Environment	2023	2024	2025	2026	2027	2032	CAGR (%)
Non-Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Underground Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 452. ASEAN Telecom Battery Backup System Market Size, by Weather-Protected Locations, 2017-2032 (USD Million)

Weather-Protected Locations	2023	2024	2025	2026	2027	2032	CAGR (%)
Enclosed Locations Without Temperature Control	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Partly Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Temperature-Controlled Enclosed Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 453. ASEAN Telecom Battery Backup System Market Size, by Non-Weather-Protected Locations, 2017-2032 (USD Million)

Non-Weather-Protected Locations	2023	2024	2025	2026	2027	2032	CAGR (%)
Open-Air Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Sheltered Non-Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 454. ASEAN Telecom Battery Backup System Market Size, by Powering Architecture, 2017-2032 (USD Million)

Powering Architecture	2023	2024	2025	2026	2027	2032	CAGR (%)
Local Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Remote Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 455. ASEAN Telecom Battery Backup System Market Size, by Remote Powering, 2017-2032 (USD Million)

Remote Powering	2023	2024	2025	2026	2027	2032	CAGR (%)
Centralized Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Cluster Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reverse Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 456. ASEAN Telecom Battery Backup System Market Size, by Commercial Delivery Model, 2017-2032 (USD Million)

Commercial Delivery Model	2023	2024	2025	2026	2027	2032	CAGR (%)
Leased or Rented Equipment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Managed Backup Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Owned Equipment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 457. ASEAN Telecom Battery Backup System Market Size, by Sales Channel, 2017-2032 (USD Million)

Sales Channel	2023	2024	2025	2026	2027	2032	CAGR (%)
Direct Manufacturer Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Distributor and Retailer Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Systems Integrator and Contractor Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Service Provider Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 458. ASEAN Telecom Battery Backup System Market Size, by Grid Availability, 2017-2032 (USD Million)

Grid Availability	2023	2024	2025	2026	2027	2032	CAGR (%)
Off-Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reliable Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Unreliable Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 459. ASEAN Telecom Battery Backup System Market Size, by Backup Duty, 2017-2032 (USD Million)

Backup Duty	2023	2024	2025	2026	2027	2032	CAGR (%)
Backup with Energy Management	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reserve-Only Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 460. ASEAN Telecom Battery Backup System Market Size, by Backup Autonomy, 2017-2032 (USD Million)

Backup Autonomy	2023	2024	2025	2026	2027	2032	CAGR (%)
Day-Scale Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Extended-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Intermediate-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Short-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. China Tower - 2025 Annual Results, March 18, 2026
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The xx.xx.149m-site inventory constrains wireless activity; forecast purchasing remains modeled.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The xx.xx.149m-site inventory constrains wireless activity; forecast purchasing remains modeled.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Replacement/improvement CAPEX fell from RMB6837m to RMB5474m, qualifying automatic replacement-led growth.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Replacement/improvement CAPEX fell from RMB6837m to RMB5474m, qualifying automatic replacement-led growth.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Disclosed tower operations establish a material infrastructure purchasing setting, not a global buyer share.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Disclosed tower operations establish a material infrastructure purchasing setting, not a global buyer share.
2. Broadband Commission - The State of Broadband: Our Digital World, 2025
   - Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))

3. Battery Backup - Meriwether Lewis Electric Cooperative
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Separately available replacement batteries support a battery-only replacement route.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Separately available replacement batteries support a battery-only replacement route.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The USD100-plus-tax device is a retail comparator, not an observed 2025 first-sale realization.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The USD100-plus-tax device is a retail comparator, not an observed 2025 first-sale realization.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Customer purchase and replacement responsibilities support household-funded procurement.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Customer purchase and replacement responsibilities support household-funded procurement.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Purchased equipment does not automatically include continuing service-plan coverage.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Purchased equipment does not automatically include continuing service-plan coverage.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Local provider sales establish this route alongside manufacturer-direct purchasing.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Local provider sales establish this route alongside manufacturer-direct purchasing.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The provider advertises approximately five hours for combined voice and internet, supporting service-specific Extended classification, not an observed 2025 purchase mix. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The provider advertises approximately five hours for combined voice and internet, supporting service-specific Extended classification, not an observed 2025 purchase mix. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The same proposition advertises xx.xx-hour voice-only protection, supporting Day-Scale mapping without equating duration with a universally larger purchase basket. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The same proposition advertises xx.xx-hour voice-only protection, supporting Day-Scale mapping without equating duration with a universally larger purchase basket. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
4. EnerSys 2026 Proxy Statement and Annual Report
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Direct customer supply is disclosed within a diversified international business; telecom channel proportions are not disclosed.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Direct customer supply is disclosed within a diversified international business; telecom channel proportions are not disclosed.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Distributor supply is disclosed, supporting route occurrence rather than its modeled sales weight.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Distributor supply is disclosed, supporting route occurrence rather than its modeled sales weight.

5. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025

   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: Audited 2025 telecom revenue of RMB1,xx.xx declined xx.xx%; telecom purchasing weakness is retained as counterevidence to automatic substitution-led aggregate growth. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Audited 2025 telecom revenue of RMB1,xx.xx declined xx.xx%; telecom purchasing weakness is retained as counterevidence to automatic substitution-led aggregate growth. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: Telecom-specific results are separated from adjacent data-center and power-storage growth when assessing lithium substitution; the filing does not disclose the modeled Global split. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom-specific results are separated from adjacent data-center and power-storage growth when assessing lithium substitution; the filing does not disclose the modeled Global split. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

6. Amara Raja Energy & Mobility - Q2/H1 FY2026 Earnings Presentation, November 6, 2025

   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand. ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))

7. IHS Holding Limited - First-Quarter 2026 Financial Statements

   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement. ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

8. Ofcom - Mobile RAN Power Resilience: Technical Report and CFI Update, February 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The evaluated xx.xx-minute alternative supplies a subhour commercial-planning anchor, not observed shipments.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The evaluated xx.xx-minute alternative supplies a subhour commercial-planning anchor, not observed shipments.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: One-hour and two-hour alternatives anchor the analytical Intermediate band. Aggregate scenarios include multiple years of operating costs and are not annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: One-hour and two-hour alternatives anchor the analytical Intermediate band. Aggregate scenarios include multiple years of operating costs and are not annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The four-hour alternative anchors the Extended band's lower boundary without establishing a Global minimum or purchasing allocation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The four-hour alternative anchors the Extended band's lower boundary without establishing a Global minimum or purchasing allocation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

9. Ofcom - Your Landline Is Going Digital: What You Need to Know

- Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
- Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Restricted provider-funded eligibility constrains operator-funded premises attribution and forecast adoption.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Restricted provider-funded eligibility constrains operator-funded premises attribution and forecast adoption.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Eligibility is not universal household funding; purchaser proportions remain assumptions.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Eligibility is not universal household funding; purchaser proportions remain assumptions.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Eligibility-limited provider backup and the one-hour minimum for qualifying customers constrain premises demand and anchor the Intermediate band's lower boundary. They do not establish universal adoption. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Eligibility-limited provider backup and the one-hour minimum for qualifying customers constrain premises demand and anchor the Intermediate band's lower boundary. They do not establish universal adoption. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

10. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone
    - Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue. ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
    - Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions. ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: USD45m financing and xx.xx planned site modernizations support an expansion signal, not observed backup-only service revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: USD45m financing and xx.xx planned site modernizations support an expansion signal, not observed backup-only service revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Energy-service activity supports the role; the modeled provider-as-buyer subcontract share is not established.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Energy-service activity supports the role; the modeled provider-as-buyer subcontract share is not established.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: More than xx.xx% weak/off-grid project exposure constrains service-cohort concentration, not the global grid mix.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: More than xx.xx% weak/off-grid project exposure constrains service-cohort concentration, not the global grid mix.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The project confirms disconnected-site commercial demand; its weak/off-grid combined statistic does not separate those categories.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The project confirms disconnected-site commercial demand; its weak/off-grid combined statistic does not separate those categories.
11. Fingrid - How to Participate in the Reserve Markets
    - Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue. ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Applicable owner permission and market agreements are commercial access gates. They constrain forecast mixed-duty adoption without measuring its Global percentage. ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))
12. PowerSafe SBS Batteries | EnerSys
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Named telecom batteries support the battery-unit offering boundary; allocation weights are assumed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Named telecom batteries support the battery-unit offering boundary; allocation weights are assumed.

13. Vertiv NetSure M Series
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Configured enclosure, power and battery options support broader system classification, not universal bundle inclusion.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Configured enclosure, power and battery options support broader system classification, not universal bundle inclusion.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A marketed outdoor enclosure supports a protection option; global adoption and configuration proportions remain modeled.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A marketed outdoor enclosure supports a protection option; global adoption and configuration proportions remain modeled.
14. Ofcom - Network and Service Resilience Guidance for Communications Providers, June 16, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Core is a distinct, comparatively concentrated function with explicit backup expectations; global spending remains estimated.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Core is a distinct, comparatively concentrated function with explicit backup expectations; global spending remains estimated.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The stated xx.xx-xx.xx-fold site-scale distinction motivates lower-value, more numerous transport purchase equivalents.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The stated xx.xx-xx.xx-fold site-scale distinction motivates lower-value, more numerous transport purchase equivalents.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Peering and non-Internet interconnection are distinct functions; attributable backup purchase values are not disclosed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Peering and non-Internet interconnection are distinct functions; attributable backup purchase values are not disclosed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: June 2026 guidance identifies approximately four hours as good practice for active fixed-access cabinets. This supports a conditional Extended purchasing shift, not completed orders or a Global mandate. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/network-and-service-resilience-guidance-for-communications-providerspdf?v=xx.xx))
15. Technology and Tools | First Responder Network Authority
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Radio access, transport backhaul and core are separate network functions, supporting functional attribution without duplicate facility counting.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Radio access, transport backhaul and core are separate network functions, supporting functional attribution without duplicate facility counting.
16. Mobile Network Hardening Program | Australian Department of Infrastructure
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Completed battery enhancements and broader resilience projects provide a delivered regional demand signal, not a global forecast rate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Completed battery enhancements and broader resilience projects provide a delivered regional demand signal, not a global forecast rate.
17. BT - Digital Voice for Business Service Schedule, May 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Business customers bear backup-power expense, supporting a distinct institutional/business payer route rather than consumer eligibility extrapolation.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Business customers bear backup-power expense, supporting a distinct institutional/business payer route rather than consumer eligibility extrapolation.

18. Los Angeles Metro - Board Report 2024-1128, UPS Battery Replacement
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Completed and additional UPS battery replacements support continuing underground demand; mixed-load project budgets are not telecom-only revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Completed and additional UPS battery replacements support continuing underground demand; mixed-load project budgets are not telecom-only revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The transit authority's purchasing program supports an institutional own-use role, not its global spending proportion.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The transit authority's purchasing program supports an institutional own-use role, not its global spending proportion.
19. ETSI EN 300 019-1-3 V3.1.1 - Stationary Use at Weatherprotected Locations, May 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Weather-protected categories distinguish enclosure from environmental control; the standard does not measure market mix.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Weather-protected categories distinguish enclosure from environmental control; the standard does not measure market mix.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Maintained temperature control is a separate classification premise for the modeled conditional allocation.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Maintained temperature control is a separate classification premise for the modeled conditional allocation.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Enclosed locations without temperature control are distinguished from controlled locations.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Enclosed locations without temperature control are distinguished from controlled locations.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Partial weather protection is recognized separately; sales weights and future adoption remain assumed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Partial weather protection is recognized separately; sales weights and future adoption remain assumed.
20. ETSI EN 300 019-1-4 V3.1.1 - Stationary Use at Non-Weatherprotected Locations, May 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Non-weather-protected locations form a distinct classification regime, not a measured global spending pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Non-weather-protected locations form a distinct classification regime, not a measured global spending pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Sheltered non-weather-protected locations support the named conditional category.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Sheltered non-weather-protected locations support the named conditional category.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Open-air locations are separately recognized; their purchasing mix remains modeled.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Open-air locations are separately recognized; their purchasing mix remains modeled.

21. DC Power Plant / Rectifiers - UPS Rental
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Battery and complete DC-plant rentals establish delivery-category occurrence; global fees and utilization are not disclosed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Battery and complete DC-plant rentals establish delivery-category occurrence; global fees and utilization are not disclosed.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Commercial rental availability is a role premise only; modeled lessor sub-hire procurement remains unverified.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Commercial rental availability is a role premise only; modeled lessor sub-hire procurement remains unverified.
22. Helios Towers - Full Year Results 2025, March 12, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Grid-integration investment supplies a connection-improvement counterforce used conditionally in the forecast.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Grid-integration investment supplies a connection-improvement counterforce used conditionally in the forecast.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Reported xx.xx-hour average daily grid availability supports weak-grid commercial exposure, without a global classification share.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Reported xx.xx-hour average daily grid availability supports weak-grid commercial exposure, without a global classification share.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Grid integration and alternative-power investment qualify assumptions of permanently unchanged disconnected-site exposure.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Grid integration and alternative-power investment qualify assumptions of permanently unchanged disconnected-site exposure.
23. Telecommunications | Aggreko US
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Telecom battery-storage rental for temporary continuity supports delivery occurrence, not the estimated global fee scale.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom battery-storage rental for temporary continuity supports delivery occurrence, not the estimated global fee scale.
24. EnerSys PowerSafe SBS Front Terminal Batteries | Alpine Power Systems
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A named battery distributor supports the intermediary route; its listing is not a global channel-sales observation.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A named battery distributor supports the intermediary route; its listing is not a global channel-sales observation.
25. DC Power Services | Vertiv
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Cross-manufacturer projects and narrower upgrades support integration-prime and supported-replacement routes; numerical route proportions remain assumed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Cross-manufacturer projects and narrower upgrades support integration-prime and supported-replacement routes; numerical route proportions remain assumed.

26. Shuangdeng Group Co., Ltd. - Global Offering Prospectus, August 18, 2025

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The company's own five-month 2025 lead-acid realization of RMB520.xx.xx/kWh constrains the relative-price bridge; syndicated industry claims are excluded. Forecast convergence remains assumed. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The company's own five-month 2025 lead-acid realization of RMB520.xx.xx/kWh constrains the relative-price bridge; syndicated industry claims are excluded. Forecast convergence remains assumed. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: Own lithium-ion realization of RMB595.xx.xx/kWh is an input to the Lithium-Based value model, not a Global share or a Lithium-Metal sales observation. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Own lithium-ion realization of RMB595.xx.xx/kWh is an input to the Lithium-Based value model, not a Global share or a Lithium-Metal sales observation. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))

27. Amara Raja Crosses 1 GWh Lithium Storage Deployment Powering India's Telecom Networks

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The April xx.xx 2026 disclosure reports approximately xx.xx GWh across xx.xx cumulative telecom lithium sites over four years. This is a commercial adoption scale check, not annual Global revenue or a supplier-share input. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The April xx.xx 2026 disclosure reports approximately xx.xx GWh across xx.xx cumulative telecom lithium sites over four years. This is a commercial adoption scale check, not annual Global revenue or a supplier-share input. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The disclosed deployment identifies lithium-ion commercialization at scale, supporting the subtype's established commercial position without directly measuring its conditional Global share. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The disclosed deployment identifies lithium-ion commercialization at scale, supporting the subtype's established commercial position without directly measuring its conditional Global share. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))

28. Central Office Power Systems - EnerSys

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The central-office portfolio identifies Flooded Lead-Acid as a distinct telecom alternative, supporting the legacy-network category mapping but not its purchasing fraction. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The central-office portfolio identifies Flooded Lead-Acid as a distinct telecom alternative, supporting the legacy-network category mapping but not its purchasing fraction. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The portfolio separately identifies Valve-Regulated Lead-Acid, supporting the within-lead construction boundary used by the model. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The portfolio separately identifies Valve-Regulated Lead-Acid, supporting the within-lead construction boundary used by the model. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))

29. PowerSafe OPzV Batteries - EnerSys

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: EnerSys identifies OPzV as Gel and lists telecom applications. This supports commercial subtype mapping, not the assumed Gel/AGM volume or price mix. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-opzv/))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: EnerSys identifies OPzV as Gel and lists telecom applications. This supports commercial subtype mapping, not the assumed Gel/AGM volume or price mix. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-opzv/))

30. Bolloré - 2017 Registration Document

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The official filing identifies LMP professional outage-protection applications including telecom relays. This is a dated commercial boundary input, not evidence of 2025 telecom shipment value. ([bollore.com](https://www.bollore.com/wp-content/uploads/2018/xx.xx/bollore_ddr_2017_gb_bag-xx.xx-juin.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The official filing identifies LMP professional outage-protection applications including telecom relays. This is a dated commercial boundary input, not evidence of 2025 telecom shipment value. ([bollore.com](https://www.bollore.com/wp-content/uploads/2018/xx.xx/bollore_ddr_2017_gb_bag-xx.xx-juin.pdf))

31. Bolloré - Business Report 2025

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The 2025 report establishes continuing Lithium Metal Polymer commercial applications in electricity storage and buses, while omitting separately attributable telecom sales. It constrains the low-access expected-purchase model; no capacity-to-sales conversion is used. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The 2025 report establishes continuing Lithium Metal Polymer commercial applications in electricity storage and buses, while omitting separately attributable telecom sales. It constrains the low-access expected-purchase model; no capacity-to-sales conversion is used. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The report preserves the distinction between LMP and conventional lithium-ion, supporting the exhaustive subtype attribution rule rather than treating polymer packaging as Lithium-Metal. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The report preserves the distinction between LMP and conventional lithium-ion, supporting the exhaustive subtype attribution rule rather than treating polymer packaging as Lithium-Metal. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))

32. AT&T to Replace U-Verse Cabinet Batteries - Fierce Network, January 15, 2008

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The January xx.xx 2008 report corroborates AT&T's replacement of approximately xx.xx Avestor batteries after the supplier's closure. The obsolete stock is therefore not carried into the 2025 or 2032 purchasing numerator. ([fierce-network.com](https://www.fierce-network.com/telecom/at-t-to-replace-u-verse-cabinet-batteries))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The January xx.xx 2008 report corroborates AT&T's replacement of approximately xx.xx Avestor batteries after the supplier's closure. The obsolete stock is therefore not carried into the 2025 or 2032 purchasing numerator. ([fierce-network.com](https://www.fierce-network.com/telecom/at-t-to-replace-u-verse-cabinet-batteries))

33. PowerSafe NiCd Batteries - EnerSys
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: EnerSys identifies Nickel-Cadmium for central offices and outside plant, supporting the modeled legacy telecom cohort but not its installed attachment or replacement spending. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-nicd/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: EnerSys identifies Nickel-Cadmium for central offices and outside plant, supporting the modeled legacy telecom cohort but not its installed attachment or replacement spending. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-nicd/))
34. FDK Ni-MH Battery Is Chosen for the Cellect 600 Product of Alpha Technologies
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The October xx.xx 2015 announcement identifies NiMH in Alpha's Cellect xx.xx small-cell backup proposition. It supports a historical cohort rather than current fulfillment or assumed surviving stock. ([fdk.com](https://www.fdk.com/whatsnew-e/release20151019-e.html))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The October xx.xx 2015 announcement identifies NiMH in Alpha's Cellect xx.xx small-cell backup proposition. It supports a historical cohort rather than current fulfillment or assumed surviving stock. ([fdk.com](https://www.fdk.com/whatsnew-e/release20151019-e.html))
35. Products - Encell Technology
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Encell positions its Fused Iron Nickel-Iron battery for telecom. This supports the commercial category lead, while current purchases and attachment remain modeled. ([encell.com](https://encell.com/products/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Encell positions its Fused Iron Nickel-Iron battery for telecom. This supports the commercial category lead, while current purchases and attachment remain modeled. ([encell.com](https://encell.com/products/))
36. Telecom/5G - ZAF Energy Systems
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: ZAF positions Nickel-Zinc for telecom/5G. Its supplier proposition supports application mapping, not the modeled annual attachment or threefold forecast value multiplier. ([zafsys.com](https://zafsys.com/telecom-5g/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: ZAF positions Nickel-Zinc for telecom/5G. Its supplier proposition supports application mapping, not the modeled annual attachment or threefold forecast value multiplier. ([zafsys.com](https://zafsys.com/telecom-5g/))
37. HORIEN Salt Battery Solutions and Inlyte Energy Announce a Strategic Partnership
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: HORIEN's March xx.xx 2025 statement identifies sodium-metal-chloride telecom backup. Its separate partnership announcement is not counted as delivered telecom sales. ([horien.com](https://horien.com/wp-content/uploads/2025/xx.xx/Press-Release_HORIEN-Inlyte-International-Version.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: HORIEN's March xx.xx 2025 statement identifies sodium-metal-chloride telecom backup. Its separate partnership announcement is not counted as delivered telecom sales. ([horien.com](https://horien.com/wp-content/uploads/2025/xx.xx/Press-Release_HORIEN-Inlyte-International-Version.pdf))
38. Energy Backup - Phinergy
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Phinergy markets Aluminum-Air continuity offerings to telecom operators and tower companies. The source supports category and buyer mapping, not the modeled installed attachment or replacement numerator. ([phinergy.com](https://phinergy.com/solutions/energy-backup/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Phinergy markets Aluminum-Air continuity offerings to telecom operators and tower companies. The source supports category and buyer mapping, not the modeled installed attachment or replacement numerator. ([phinergy.com](https://phinergy.com/solutions/energy-backup/))

39. Australian Flow Batteries - RFB40X Series

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: RFB40X literature identifies telecom among stationary commercial applications. It supports the qualifying project boundary, not delivered projects, revenue or assumed attachment. ([afb.energy](https://www.afb.energy/wp-content/uploads/2025/xx.xx/Australian-Flow-Batteries-RFB40X-Series-2024.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: RFB40X literature identifies telecom among stationary commercial applications. It supports the qualifying project boundary, not delivered projects, revenue or assumed attachment. ([afb.energy](https://www.afb.energy/wp-content/uploads/2025/xx.xx/Australian-Flow-Batteries-RFB40X-Series-2024.pdf))

40. PowerReserve - Verizon Residential Accessories

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Verizon advertises an alkaline-cell voice-backup device at USD39.xx.xx excluding batteries. This supports a qualifying primary-zinc premises route and price comparator, not assumed Global attachment or first-sale realization. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Verizon advertises an alkaline-cell voice-backup device at USD39.xx.xx excluding batteries. This supports a qualifying primary-zinc premises route and price comparator, not assumed Global attachment or first-sale realization. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Advertised voice-only protection reaches xx.xx hours; internet and television protection are excluded. This supports service-specific Day-Scale classification. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Advertised voice-only protection reaches xx.xx hours; internet and television protection are excluded. This supports service-specific Day-Scale classification. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))

41. Alkaline Manganese Dioxide Handbook and Application Manual - Energizer

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The manufacturer's alkaline manganese-dioxide classification supports the zinc-family mapping for qualifying premises backup. It provides no telecom purchasing weight. ([data.energizer.com](https://data.energizer.com/pdfs/alkaline_appman.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The manufacturer's alkaline manganese-dioxide classification supports the zinc-family mapping for qualifying premises backup. It provides no telecom purchasing weight. ([data.energizer.com](https://data.energizer.com/pdfs/alkaline_appman.pdf))

42. ITU-T Work Programme - Aqueous Zinc-Based Battery Systems for Base Station Applications

- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The aqueous-zinc base-station work item is Under study with December 2027 timing. It constrains the forecast commercialization assumption but establishes neither approval nor customer purchases. ([itu.int](https://www.itu.int/itu-t/workprog/wp_item.aspx?isn=xx.xx))

43. ITU-T L.1397 - Battery System with Integrated Control and Monitoring Information Model

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The October 2025 recommendation names lithium-lead, lithium-sodium and sodium-lead combinations. This supports mixed-family classification, not inseparable pricing or Global prevalence. ([itu.int](https://www.itu.int/rec/dologin_pub.asp?id=T-REC-L.xx.xx-xx.xx-I%xx.xx%21PDF-E&lang=e&type=items))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The October 2025 recommendation names lithium-lead, lithium-sodium and sodium-lead combinations. This supports mixed-family classification, not inseparable pricing or Global prevalence. ([itu.int](https://www.itu.int/rec/dologin_pub.asp?id=T-REC-L.xx.xx-xx.xx-I%xx.xx%21PDF-E&lang=e&type=items))

44. ETSI EN 300 132-1 V2.2.1 - ICT Power Supply Interface: Alternating Current
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The ICT standard identifies the protected-load AC interface, supporting output-side attribution rather than classification by chemistry or normal utility input. It supplies no sales mix. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013201v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The ICT standard identifies the protected-load AC interface, supporting output-side attribution rather than classification by chemistry or normal utility input. It supplies no sales mix. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013201v020201p.pdf))
45. ETSI EN 300 132-2 V2.8.1 - ICT Power Supply Interface: Direct Current
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The ICT standard separately identifies the DC protected-equipment interface, supporting the DC-output boundary independently of battery chemistry. It is not a purchasing census. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013202v020801p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The ICT standard separately identifies the DC protected-equipment interface, supporting the DC-output boundary independently of battery chemistry. It is not a purchasing census. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013202v020801p.pdf))
46. Vertiv NetSure Inverter Series - Converged AC and DC Power System
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: NetSure Inverter Series identifies AC and DC loads supported through a common battery bank. This establishes a combined-output proposition, not its modeled purchasing fraction or future adoption. ([vertiv.com](https://www.vertiv.com/en-us/products-catalog/critical-power/dc-power-systems/vertiv-netsure-inverter-series/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: NetSure Inverter Series identifies AC and DC loads supported through a common battery bank. This establishes a combined-output proposition, not its modeled purchasing fraction or future adoption. ([vertiv.com](https://www.vertiv.com/en-us/products-catalog/critical-power/dc-power-systems/vertiv-netsure-inverter-series/))

47. ETSI EN 302 099 V2.2.1 - Powering of Equipment in Access Network
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Local powering uses a colocated source; allocation follows the backed source rather than receiver inventory. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Local powering uses a colocated source; allocation follows the backed source rather than receiver inventory. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Remote-source backup is distinguished from local backup, supporting the parent commercial boundary but not purchasing weights. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Remote-source backup is distinguished from local backup, supporting the parent commercial boundary but not purchasing weights. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Centralized powering originates at a telecommunications center. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Centralized powering originates at a telecommunications center. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Cluster powering uses a source outside the telecommunications center, supporting separation within Remote Powering. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Cluster powering uses a source outside the telecommunications center, supporting separation within Remote Powering. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Reverse powering is customer-origin supply, supporting source-level attribution of the battery-backed provider package. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Reverse powering is customer-origin supply, supporting source-level attribution of the battery-backed provider package. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))

48. Set Up Your Battery Backup - AT&T G.Fast Service with BGW210

    · Evidence informing base-year allocation inputs; displayed values and growth are calculated: The 2021 provider document names a battery-backed package protecting G.fast customer and distribution equipment through reverse power feed. It establishes a dated source-backup proposition, not current Global quantities. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

    · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The 2021 provider document names a battery-backed package protecting G.fast customer and distribution equipment through reverse power feed. It establishes a dated source-backup proposition, not current Global quantities. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

    · Evidence informing base-year allocation inputs; displayed values and growth are calculated: The provider advertises a xx.xx-hour service window for the particular package, supporting Day-Scale mapping without a universal premises-duration inference. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

    · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The provider advertises a xx.xx-hour service window for the particular package, supporting Day-Scale mapping without a universal premises-duration inference. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

49. DNA Tower Offers Battery Capacity in Electricity Reserve Markets with Elisa DES

    · Evidence informing base-year allocation inputs; displayed values and growth are calculated: The June xx.xx 2025 announcement reports DNA Tower batteries connected to Finnish reserve markets while retaining outage continuity. This establishes a specific mixed-duty implementation, not Global attachment or guaranteed returns. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/press-releases/dna-tower-becomes-worlds-first-tower-company-to-offer-battery-capacity-in-electricity-reserve-markets-with-elisa-des))

    · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The June xx.xx 2025 announcement reports DNA Tower batteries connected to Finnish reserve markets while retaining outage continuity. This establishes a specific mixed-duty implementation, not Global attachment or guaranteed returns. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/press-releases/dna-tower-becomes-worlds-first-tower-company-to-offer-battery-capacity-in-electricity-reserve-markets-with-elisa-des))

50. Case Elisa: Virtual Power Plant in the Telecom Industry

    · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The company case reports over 2,000 aggregated sites and approximately xx.xx MWh. This is an installed commercial scale check, not annual purchasing value or Global prevalence. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/customer-stories/elisacase))

20.6. GCC

Table 461. GCC Telecom Battery Backup System Market, by Country growth contribution, 2025-2032

Category	2025 value (USD Million)	2032 value (USD Million)	Added value (USD Million)	2025 share (%)	2032 share (%)	Change (pp)	Growth share (%)	CAGR (%)
Bahrain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Kuwait	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Oman	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Qatar	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Saudi Arabia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Arab Emirates	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scope total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 462. GCC Telecom Battery Backup System Market Size, by Group, 2017-2032 (USD Million)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
Bahrain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Kuwait	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Oman	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Qatar	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Saudi Arabia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Arab Emirates	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 463. GCC Telecom Battery Backup System Market Size, by Offering, 2017-2032 (USD Million)

Offering	2023	2024	2025	2026	2027	2032	CAGR (%)
Battery Units and Assemblies	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Complete Backup Systems	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 464. GCC Telecom Battery Backup System Market Size, by Battery Technology, 2017-2032 (USD Million)

Battery Technology	2023	2024	2025	2026	2027	2032	CAGR (%)
Aqueous Zinc-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Flow Batteries	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lithium-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Metal-Air	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Multi-Chemistry	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Sodium-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 465. GCC Telecom Battery Backup System Market Size, by Lead-Acid, 2017-2032 (USD Million)

Lead-Acid	2023	2024	2025	2026	2027	2032	CAGR (%)
Flooded Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Valve-Regulated Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 466. GCC Telecom Battery Backup System Market Size, by Valve-Regulated Lead-Acid, 2017-2032 (USD Million)

Valve-Regulated Lead-Acid	2023	2024	2025	2026	2027	2032	CAGR (%)
Absorbent Glass Mat	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Gel	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 467. GCC Telecom Battery Backup System Market Size, by Lithium-Based, 2017-2032 (USD Million)

Lithium-Based	2023	2024	2025	2026	2027	2032	CAGR (%)
Lithium-Ion	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lithium-Metal	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 468. GCC Telecom Battery Backup System Market Size, by Nickel-Based, 2017-2032 (USD Million)

Nickel-Based	2023	2024	2025	2026	2027	2032	CAGR (%)
Nickel-Cadmium	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Iron	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Metal Hydride	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Zinc	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 469. GCC Telecom Battery Backup System Market Size, by Power Interface, 2017-2032 (USD Million)

Power Interface	2023	2024	2025	2026	2027	2032	CAGR (%)
AC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Combined AC/DC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
DC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 470. GCC Telecom Battery Backup System Market Size, by Network Application, 2017-2032 (USD Million)

Network Application	2023	2024	2025	2026	2027	2032	CAGR (%)
Core Networks & Network Control	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Customer-Premises Connectivity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Network Interconnection & Peering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Transport & Backhaul Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Wireless Access Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Wireline Access Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 471. GCC Telecom Battery Backup System Market Size, by Buyer Type, 2017-2032 (USD Million)

Buyer Type	2023	2024	2025	2026	2027	2032	CAGR (%)
Business & Institutional Connectivity Owners	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Equipment Leasing & Rental Providers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Household Connectivity Purchasers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Energy-Service Providers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Infrastructure & Tower Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecommunications Network Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 472. GCC Telecom Battery Backup System Market Size, by Installation Environment, 2017-2032 (USD Million)

Installation Environment	2023	2024	2025	2026	2027	2032	CAGR (%)
Non-Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Underground Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 473. GCC Telecom Battery Backup System Market Size, by Weather-Protected Locations, 2017-2032 (USD Million)

Weather-Protected Locations	2023	2024	2025	2026	2027	2032	CAGR (%)
Enclosed Locations Without Temperature Control	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Partly Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Temperature-Controlled Enclosed Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 474. GCC Telecom Battery Backup System Market Size, by Non-Weather-Protected Locations, 2017-2032 (USD Million)

Non-Weather-Protected Locations	2023	2024	2025	2026	2027	2032	CAGR (%)
Open-Air Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Sheltered Non-Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 475. GCC Telecom Battery Backup System Market Size, by Powering Architecture, 2017-2032 (USD Million)

Powering Architecture	2023	2024	2025	2026	2027	2032	CAGR (%)
Local Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Remote Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 476. GCC Telecom Battery Backup System Market Size, by Remote Powering, 2017-2032 (USD Million)

Remote Powering	2023	2024	2025	2026	2027	2032	CAGR (%)
Centralized Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Cluster Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reverse Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 477. GCC Telecom Battery Backup System Market Size, by Commercial Delivery Model, 2017-2032 (USD Million)

Commercial Delivery Model	2023	2024	2025	2026	2027	2032	CAGR (%)
Leased or Rented Equipment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Managed Backup Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Owned Equipment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 478. GCC Telecom Battery Backup System Market Size, by Sales Channel, 2017-2032 (USD Million)

Sales Channel	2023	2024	2025	2026	2027	2032	CAGR (%)
Direct Manufacturer Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Distributor and Retailer Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Systems Integrator and Contractor Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Service Provider Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 479. GCC Telecom Battery Backup System Market Size, by Grid Availability, 2017-2032 (USD Million)

Grid Availability	2023	2024	2025	2026	2027	2032	CAGR (%)
Off-Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reliable Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Unreliable Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 480. GCC Telecom Battery Backup System Market Size, by Backup Duty, 2017-2032 (USD Million)

Backup Duty	2023	2024	2025	2026	2027	2032	CAGR (%)
Backup with Energy Management	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reserve-Only Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 481. GCC Telecom Battery Backup System Market Size, by Backup Autonomy, 2017-2032 (USD Million)

Backup Autonomy	2023	2024	2025	2026	2027	2032	CAGR (%)
Day-Scale Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Extended-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Intermediate-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Short-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. China Tower - 2025 Annual Results, March 18, 2026
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The xx.xx.149m-site inventory constrains wireless activity; forecast purchasing remains modeled.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The xx.xx.149m-site inventory constrains wireless activity; forecast purchasing remains modeled.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Replacement/improvement CAPEX fell from RMB6837m to RMB5474m, qualifying automatic replacement-led growth.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Replacement/improvement CAPEX fell from RMB6837m to RMB5474m, qualifying automatic replacement-led growth.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Disclosed tower operations establish a material infrastructure purchasing setting, not a global buyer share.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Disclosed tower operations establish a material infrastructure purchasing setting, not a global buyer share.
2. Broadband Commission - The State of Broadband: Our Digital World, 2025
   - Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))

3. Battery Backup - Meriwether Lewis Electric Cooperative
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Separately available replacement batteries support a battery-only replacement route.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Separately available replacement batteries support a battery-only replacement route.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The USD100-plus-tax device is a retail comparator, not an observed 2025 first-sale realization.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The USD100-plus-tax device is a retail comparator, not an observed 2025 first-sale realization.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Customer purchase and replacement responsibilities support household-funded procurement.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Customer purchase and replacement responsibilities support household-funded procurement.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Purchased equipment does not automatically include continuing service-plan coverage.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Purchased equipment does not automatically include continuing service-plan coverage.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Local provider sales establish this route alongside manufacturer-direct purchasing.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Local provider sales establish this route alongside manufacturer-direct purchasing.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The provider advertises approximately five hours for combined voice and internet, supporting service-specific Extended classification, not an observed 2025 purchase mix. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The provider advertises approximately five hours for combined voice and internet, supporting service-specific Extended classification, not an observed 2025 purchase mix. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The same proposition advertises xx.xx-hour voice-only protection, supporting Day-Scale mapping without equating duration with a universally larger purchase basket. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The same proposition advertises xx.xx-hour voice-only protection, supporting Day-Scale mapping without equating duration with a universally larger purchase basket. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
4. EnerSys 2026 Proxy Statement and Annual Report
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Direct customer supply is disclosed within a diversified international business; telecom channel proportions are not disclosed.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Direct customer supply is disclosed within a diversified international business; telecom channel proportions are not disclosed.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Distributor supply is disclosed, supporting route occurrence rather than its modeled sales weight.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Distributor supply is disclosed, supporting route occurrence rather than its modeled sales weight.

5. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Audited 2025 telecom revenue of RMB1,xx.xx declined xx.xx%; telecom purchasing weakness is retained as counterevidence to automatic substitution-led aggregate growth. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Audited 2025 telecom revenue of RMB1,xx.xx declined xx.xx%; telecom purchasing weakness is retained as counterevidence to automatic substitution-led aggregate growth. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Telecom-specific results are separated from adjacent data-center and power-storage growth when assessing lithium substitution; the filing does not disclose the modeled Global split. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom-specific results are separated from adjacent data-center and power-storage growth when assessing lithium substitution; the filing does not disclose the modeled Global split. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
6. Amara Raja Energy & Mobility - Q2/H1 FY2026 Earnings Presentation, November 6, 2025
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand. ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))
7. IHS Holding Limited - First-Quarter 2026 Financial Statements
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement. ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

8. Ofcom - Mobile RAN Power Resilience: Technical Report and CFI Update, February 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The evaluated xx.xx-minute alternative supplies a subhour commercial-planning anchor, not observed shipments.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The evaluated xx.xx-minute alternative supplies a subhour commercial-planning anchor, not observed shipments.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: One-hour and two-hour alternatives anchor the analytical Intermediate band. Aggregate scenarios include multiple years of operating costs and are not annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: One-hour and two-hour alternatives anchor the analytical Intermediate band. Aggregate scenarios include multiple years of operating costs and are not annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The four-hour alternative anchors the Extended band's lower boundary without establishing a Global minimum or purchasing allocation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The four-hour alternative anchors the Extended band's lower boundary without establishing a Global minimum or purchasing allocation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

9. Ofcom - Your Landline Is Going Digital: What You Need to Know

- Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
- Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Restricted provider-funded eligibility constrains operator-funded premises attribution and forecast adoption.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Restricted provider-funded eligibility constrains operator-funded premises attribution and forecast adoption.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Eligibility is not universal household funding; purchaser proportions remain assumptions.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Eligibility is not universal household funding; purchaser proportions remain assumptions.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Eligibility-limited provider backup and the one-hour minimum for qualifying customers constrain premises demand and anchor the Intermediate band's lower boundary. They do not establish universal adoption. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Eligibility-limited provider backup and the one-hour minimum for qualifying customers constrain premises demand and anchor the Intermediate band's lower boundary. They do not establish universal adoption. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

10. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone
    - Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue. ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
    - Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions. ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: USD45m financing and xx.xx planned site modernizations support an expansion signal, not observed backup-only service revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: USD45m financing and xx.xx planned site modernizations support an expansion signal, not observed backup-only service revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Energy-service activity supports the role; the modeled provider-as-buyer subcontract share is not established.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Energy-service activity supports the role; the modeled provider-as-buyer subcontract share is not established.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: More than xx.xx% weak/off-grid project exposure constrains service-cohort concentration, not the global grid mix.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: More than xx.xx% weak/off-grid project exposure constrains service-cohort concentration, not the global grid mix.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The project confirms disconnected-site commercial demand; its weak/off-grid combined statistic does not separate those categories.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The project confirms disconnected-site commercial demand; its weak/off-grid combined statistic does not separate those categories.
11. Fingrid - How to Participate in the Reserve Markets
    - Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue. ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Applicable owner permission and market agreements are commercial access gates. They constrain forecast mixed-duty adoption without measuring its Global percentage. ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))
12. PowerSafe SBS Batteries | EnerSys
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Named telecom batteries support the battery-unit offering boundary; allocation weights are assumed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Named telecom batteries support the battery-unit offering boundary; allocation weights are assumed.

13. Vertiv NetSure M Series
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Configured enclosure, power and battery options support broader system classification, not universal bundle inclusion.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Configured enclosure, power and battery options support broader system classification, not universal bundle inclusion.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A marketed outdoor enclosure supports a protection option; global adoption and configuration proportions remain modeled.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A marketed outdoor enclosure supports a protection option; global adoption and configuration proportions remain modeled.
14. Ofcom - Network and Service Resilience Guidance for Communications Providers, June 16, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Core is a distinct, comparatively concentrated function with explicit backup expectations; global spending remains estimated.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Core is a distinct, comparatively concentrated function with explicit backup expectations; global spending remains estimated.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The stated xx.xx-xx.xx-fold site-scale distinction motivates lower-value, more numerous transport purchase equivalents.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The stated xx.xx-xx.xx-fold site-scale distinction motivates lower-value, more numerous transport purchase equivalents.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Peering and non-Internet interconnection are distinct functions; attributable backup purchase values are not disclosed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Peering and non-Internet interconnection are distinct functions; attributable backup purchase values are not disclosed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: June 2026 guidance identifies approximately four hours as good practice for active fixed-access cabinets. This supports a conditional Extended purchasing shift, not completed orders or a Global mandate. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/network-and-service-resilience-guidance-for-communications-providerspdf?v=xx.xx))
15. Technology and Tools | First Responder Network Authority
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Radio access, transport backhaul and core are separate network functions, supporting functional attribution without duplicate facility counting.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Radio access, transport backhaul and core are separate network functions, supporting functional attribution without duplicate facility counting.
16. Mobile Network Hardening Program | Australian Department of Infrastructure
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Completed battery enhancements and broader resilience projects provide a delivered regional demand signal, not a global forecast rate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Completed battery enhancements and broader resilience projects provide a delivered regional demand signal, not a global forecast rate.
17. BT - Digital Voice for Business Service Schedule, May 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Business customers bear backup-power expense, supporting a distinct institutional/business payer route rather than consumer eligibility extrapolation.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Business customers bear backup-power expense, supporting a distinct institutional/business payer route rather than consumer eligibility extrapolation.

18. Los Angeles Metro - Board Report 2024-1128, UPS Battery Replacement
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Completed and additional UPS battery replacements support continuing underground demand; mixed-load project budgets are not telecom-only revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Completed and additional UPS battery replacements support continuing underground demand; mixed-load project budgets are not telecom-only revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The transit authority's purchasing program supports an institutional own-use role, not its global spending proportion.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The transit authority's purchasing program supports an institutional own-use role, not its global spending proportion.
19. ETSI EN 300 019-1-3 V3.1.1 - Stationary Use at Weatherprotected Locations, May 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Weather-protected categories distinguish enclosure from environmental control; the standard does not measure market mix.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Weather-protected categories distinguish enclosure from environmental control; the standard does not measure market mix.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Maintained temperature control is a separate classification premise for the modeled conditional allocation.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Maintained temperature control is a separate classification premise for the modeled conditional allocation.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Enclosed locations without temperature control are distinguished from controlled locations.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Enclosed locations without temperature control are distinguished from controlled locations.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Partial weather protection is recognized separately; sales weights and future adoption remain assumed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Partial weather protection is recognized separately; sales weights and future adoption remain assumed.
20. ETSI EN 300 019-1-4 V3.1.1 - Stationary Use at Non-Weatherprotected Locations, May 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Non-weather-protected locations form a distinct classification regime, not a measured global spending pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Non-weather-protected locations form a distinct classification regime, not a measured global spending pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Sheltered non-weather-protected locations support the named conditional category.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Sheltered non-weather-protected locations support the named conditional category.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Open-air locations are separately recognized; their purchasing mix remains modeled.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Open-air locations are separately recognized; their purchasing mix remains modeled.

21. DC Power Plant / Rectifiers - UPS Rental
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Battery and complete DC-plant rentals establish delivery-category occurrence; global fees and utilization are not disclosed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Battery and complete DC-plant rentals establish delivery-category occurrence; global fees and utilization are not disclosed.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Commercial rental availability is a role premise only; modeled lessor sub-hire procurement remains unverified.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Commercial rental availability is a role premise only; modeled lessor sub-hire procurement remains unverified.
22. Helios Towers - Full Year Results 2025, March 12, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Grid-integration investment supplies a connection-improvement counterforce used conditionally in the forecast.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Grid-integration investment supplies a connection-improvement counterforce used conditionally in the forecast.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Reported xx.xx-hour average daily grid availability supports weak-grid commercial exposure, without a global classification share.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Reported xx.xx-hour average daily grid availability supports weak-grid commercial exposure, without a global classification share.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Grid integration and alternative-power investment qualify assumptions of permanently unchanged disconnected-site exposure.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Grid integration and alternative-power investment qualify assumptions of permanently unchanged disconnected-site exposure.
23. Telecommunications | Aggreko US
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Telecom battery-storage rental for temporary continuity supports delivery occurrence, not the estimated global fee scale.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom battery-storage rental for temporary continuity supports delivery occurrence, not the estimated global fee scale.
24. EnerSys PowerSafe SBS Front Terminal Batteries | Alpine Power Systems
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A named battery distributor supports the intermediary route; its listing is not a global channel-sales observation.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A named battery distributor supports the intermediary route; its listing is not a global channel-sales observation.
25. DC Power Services | Vertiv
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Cross-manufacturer projects and narrower upgrades support integration-prime and supported-replacement routes; numerical route proportions remain assumed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Cross-manufacturer projects and narrower upgrades support integration-prime and supported-replacement routes; numerical route proportions remain assumed.

26. Shuangdeng Group Co., Ltd. - Global Offering Prospectus, August 18, 2025

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The company's own five-month 2025 lead-acid realization of RMB520.xx.xx/kWh constrains the relative-price bridge; syndicated industry claims are excluded. Forecast convergence remains assumed. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The company's own five-month 2025 lead-acid realization of RMB520.xx.xx/kWh constrains the relative-price bridge; syndicated industry claims are excluded. Forecast convergence remains assumed. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: Own lithium-ion realization of RMB595.xx.xx/kWh is an input to the Lithium-Based value model, not a Global share or a Lithium-Metal sales observation. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Own lithium-ion realization of RMB595.xx.xx/kWh is an input to the Lithium-Based value model, not a Global share or a Lithium-Metal sales observation. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))

27. Amara Raja Crosses 1 GWh Lithium Storage Deployment Powering India's Telecom Networks

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The April xx.xx 2026 disclosure reports approximately xx.xx GWh across xx.xx cumulative telecom lithium sites over four years. This is a commercial adoption scale check, not annual Global revenue or a supplier-share input. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The April xx.xx 2026 disclosure reports approximately xx.xx GWh across xx.xx cumulative telecom lithium sites over four years. This is a commercial adoption scale check, not annual Global revenue or a supplier-share input. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The disclosed deployment identifies lithium-ion commercialization at scale, supporting the subtype's established commercial position without directly measuring its conditional Global share. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The disclosed deployment identifies lithium-ion commercialization at scale, supporting the subtype's established commercial position without directly measuring its conditional Global share. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))

28. Central Office Power Systems - EnerSys

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The central-office portfolio identifies Flooded Lead-Acid as a distinct telecom alternative, supporting the legacy-network category mapping but not its purchasing fraction. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The central-office portfolio identifies Flooded Lead-Acid as a distinct telecom alternative, supporting the legacy-network category mapping but not its purchasing fraction. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The portfolio separately identifies Valve-Regulated Lead-Acid, supporting the within-lead construction boundary used by the model. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The portfolio separately identifies Valve-Regulated Lead-Acid, supporting the within-lead construction boundary used by the model. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))

29. PowerSafe OPzV Batteries - EnerSys

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: EnerSys identifies OPzV as Gel and lists telecom applications. This supports commercial subtype mapping, not the assumed Gel/AGM volume or price mix. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-opzv/))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: EnerSys identifies OPzV as Gel and lists telecom applications. This supports commercial subtype mapping, not the assumed Gel/AGM volume or price mix. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-opzv/))

30. Bolloré - 2017 Registration Document

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The official filing identifies LMP professional outage-protection applications including telecom relays. This is a dated commercial boundary input, not evidence of 2025 telecom shipment value. ([bollore.com](https://www.bollore.com/wp-content/uploads/2018/xx.xx/bollore_ddr_2017_gb_bag-xx.xx-juin.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The official filing identifies LMP professional outage-protection applications including telecom relays. This is a dated commercial boundary input, not evidence of 2025 telecom shipment value. ([bollore.com](https://www.bollore.com/wp-content/uploads/2018/xx.xx/bollore_ddr_2017_gb_bag-xx.xx-juin.pdf))

31. Bolloré - Business Report 2025

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The 2025 report establishes continuing Lithium Metal Polymer commercial applications in electricity storage and buses, while omitting separately attributable telecom sales. It constrains the low-access expected-purchase model; no capacity-to-sales conversion is used. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The 2025 report establishes continuing Lithium Metal Polymer commercial applications in electricity storage and buses, while omitting separately attributable telecom sales. It constrains the low-access expected-purchase model; no capacity-to-sales conversion is used. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The report preserves the distinction between LMP and conventional lithium-ion, supporting the exhaustive subtype attribution rule rather than treating polymer packaging as Lithium-Metal. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The report preserves the distinction between LMP and conventional lithium-ion, supporting the exhaustive subtype attribution rule rather than treating polymer packaging as Lithium-Metal. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))

32. AT&T to Replace U-Verse Cabinet Batteries - Fierce Network, January 15, 2008

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The January xx.xx 2008 report corroborates AT&T's replacement of approximately xx.xx Avestor batteries after the supplier's closure. The obsolete stock is therefore not carried into the 2025 or 2032 purchasing numerator. ([fierce-network.com](https://www.fierce-network.com/telecom/at-t-to-replace-u-verse-cabinet-batteries))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The January xx.xx 2008 report corroborates AT&T's replacement of approximately xx.xx Avestor batteries after the supplier's closure. The obsolete stock is therefore not carried into the 2025 or 2032 purchasing numerator. ([fierce-network.com](https://www.fierce-network.com/telecom/at-t-to-replace-u-verse-cabinet-batteries))

33. PowerSafe NiCd Batteries - EnerSys
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: EnerSys identifies Nickel-Cadmium for central offices and outside plant, supporting the modeled legacy telecom cohort but not its installed attachment or replacement spending. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-nicd/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: EnerSys identifies Nickel-Cadmium for central offices and outside plant, supporting the modeled legacy telecom cohort but not its installed attachment or replacement spending. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-nicd/))
34. FDK Ni-MH Battery Is Chosen for the Cellect 600 Product of Alpha Technologies
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The October xx.xx 2015 announcement identifies NiMH in Alpha's Cellect xx.xx small-cell backup proposition. It supports a historical cohort rather than current fulfillment or assumed surviving stock. ([fdk.com](https://www.fdk.com/whatsnew-e/release20151019-e.html))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The October xx.xx 2015 announcement identifies NiMH in Alpha's Cellect xx.xx small-cell backup proposition. It supports a historical cohort rather than current fulfillment or assumed surviving stock. ([fdk.com](https://www.fdk.com/whatsnew-e/release20151019-e.html))
35. Products - Encell Technology
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Encell positions its Fused Iron Nickel-Iron battery for telecom. This supports the commercial category lead, while current purchases and attachment remain modeled. ([encell.com](https://encell.com/products/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Encell positions its Fused Iron Nickel-Iron battery for telecom. This supports the commercial category lead, while current purchases and attachment remain modeled. ([encell.com](https://encell.com/products/))
36. Telecom/5G - ZAF Energy Systems
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: ZAF positions Nickel-Zinc for telecom/5G. Its supplier proposition supports application mapping, not the modeled annual attachment or threefold forecast value multiplier. ([zafsys.com](https://zafsys.com/telecom-5g/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: ZAF positions Nickel-Zinc for telecom/5G. Its supplier proposition supports application mapping, not the modeled annual attachment or threefold forecast value multiplier. ([zafsys.com](https://zafsys.com/telecom-5g/))
37. HORIEN Salt Battery Solutions and Inlyte Energy Announce a Strategic Partnership
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: HORIEN's March xx.xx 2025 statement identifies sodium-metal-chloride telecom backup. Its separate partnership announcement is not counted as delivered telecom sales. ([horien.com](https://horien.com/wp-content/uploads/2025/xx.xx/Press-Release_HORIEN-Inlyte-International-Version.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: HORIEN's March xx.xx 2025 statement identifies sodium-metal-chloride telecom backup. Its separate partnership announcement is not counted as delivered telecom sales. ([horien.com](https://horien.com/wp-content/uploads/2025/xx.xx/Press-Release_HORIEN-Inlyte-International-Version.pdf))
38. Energy Backup - Phinergy
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Phinergy markets Aluminum-Air continuity offerings to telecom operators and tower companies. The source supports category and buyer mapping, not the modeled installed attachment or replacement numerator. ([phinergy.com](https://phinergy.com/solutions/energy-backup/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Phinergy markets Aluminum-Air continuity offerings to telecom operators and tower companies. The source supports category and buyer mapping, not the modeled installed attachment or replacement numerator. ([phinergy.com](https://phinergy.com/solutions/energy-backup/))

39. Australian Flow Batteries - RFB40X Series

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: RFB40X literature identifies telecom among stationary commercial applications. It supports the qualifying project boundary, not delivered projects, revenue or assumed attachment. ([afb.energy](https://www.afb.energy/wp-content/uploads/2025/xx.xx/Australian-Flow-Batteries-RFB40X-Series-2024.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: RFB40X literature identifies telecom among stationary commercial applications. It supports the qualifying project boundary, not delivered projects, revenue or assumed attachment. ([afb.energy](https://www.afb.energy/wp-content/uploads/2025/xx.xx/Australian-Flow-Batteries-RFB40X-Series-2024.pdf))

40. PowerReserve - Verizon Residential Accessories

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Verizon advertises an alkaline-cell voice-backup device at USD39.xx.xx excluding batteries. This supports a qualifying primary-zinc premises route and price comparator, not assumed Global attachment or first-sale realization. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Verizon advertises an alkaline-cell voice-backup device at USD39.xx.xx excluding batteries. This supports a qualifying primary-zinc premises route and price comparator, not assumed Global attachment or first-sale realization. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Advertised voice-only protection reaches xx.xx hours; internet and television protection are excluded. This supports service-specific Day-Scale classification. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Advertised voice-only protection reaches xx.xx hours; internet and television protection are excluded. This supports service-specific Day-Scale classification. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))

41. Alkaline Manganese Dioxide Handbook and Application Manual - Energizer

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The manufacturer's alkaline manganese-dioxide classification supports the zinc-family mapping for qualifying premises backup. It provides no telecom purchasing weight. ([data.energizer.com](https://data.energizer.com/pdfs/alkaline_appman.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The manufacturer's alkaline manganese-dioxide classification supports the zinc-family mapping for qualifying premises backup. It provides no telecom purchasing weight. ([data.energizer.com](https://data.energizer.com/pdfs/alkaline_appman.pdf))

42. ITU-T Work Programme - Aqueous Zinc-Based Battery Systems for Base Station Applications

- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The aqueous-zinc base-station work item is Under study with December 2027 timing. It constrains the forecast commercialization assumption but establishes neither approval nor customer purchases. ([itu.int](https://www.itu.int/itu-t/workprog/wp_item.aspx?isn=xx.xx))

43. ITU-T L.1397 - Battery System with Integrated Control and Monitoring Information Model

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The October 2025 recommendation names lithium-lead, lithium-sodium and sodium-lead combinations. This supports mixed-family classification, not inseparable pricing or Global prevalence. ([itu.int](https://www.itu.int/rec/dologin_pub.asp?id=T-REC-L.xx.xx-xx.xx-I%xx.xx%21PDF-E&lang=e&type=items))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The October 2025 recommendation names lithium-lead, lithium-sodium and sodium-lead combinations. This supports mixed-family classification, not inseparable pricing or Global prevalence. ([itu.int](https://www.itu.int/rec/dologin_pub.asp?id=T-REC-L.xx.xx-xx.xx-I%xx.xx%21PDF-E&lang=e&type=items))

44. ETSI EN 300 132-1 V2.2.1 - ICT Power Supply Interface: Alternating Current
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The ICT standard identifies the protected-load AC interface, supporting output-side attribution rather than classification by chemistry or normal utility input. It supplies no sales mix. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013201v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The ICT standard identifies the protected-load AC interface, supporting output-side attribution rather than classification by chemistry or normal utility input. It supplies no sales mix. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013201v020201p.pdf))
45. ETSI EN 300 132-2 V2.8.1 - ICT Power Supply Interface: Direct Current
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The ICT standard separately identifies the DC protected-equipment interface, supporting the DC-output boundary independently of battery chemistry. It is not a purchasing census. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013202v020801p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The ICT standard separately identifies the DC protected-equipment interface, supporting the DC-output boundary independently of battery chemistry. It is not a purchasing census. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013202v020801p.pdf))
46. Vertiv NetSure Inverter Series - Converged AC and DC Power System
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: NetSure Inverter Series identifies AC and DC loads supported through a common battery bank. This establishes a combined-output proposition, not its modeled purchasing fraction or future adoption. ([vertiv.com](https://www.vertiv.com/en-us/products-catalog/critical-power/dc-power-systems/vertiv-netsure-inverter-series/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: NetSure Inverter Series identifies AC and DC loads supported through a common battery bank. This establishes a combined-output proposition, not its modeled purchasing fraction or future adoption. ([vertiv.com](https://www.vertiv.com/en-us/products-catalog/critical-power/dc-power-systems/vertiv-netsure-inverter-series/))

47. ETSI EN 302 099 V2.2.1 - Powering of Equipment in Access Network
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Local powering uses a colocated source; allocation follows the backed source rather than receiver inventory. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Local powering uses a colocated source; allocation follows the backed source rather than receiver inventory. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Remote-source backup is distinguished from local backup, supporting the parent commercial boundary but not purchasing weights. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Remote-source backup is distinguished from local backup, supporting the parent commercial boundary but not purchasing weights. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Centralized powering originates at a telecommunications center. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Centralized powering originates at a telecommunications center. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Cluster powering uses a source outside the telecommunications center, supporting separation within Remote Powering. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Cluster powering uses a source outside the telecommunications center, supporting separation within Remote Powering. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Reverse powering is customer-origin supply, supporting source-level attribution of the battery-backed provider package. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Reverse powering is customer-origin supply, supporting source-level attribution of the battery-backed provider package. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))

48. Set Up Your Battery Backup - AT&T G.Fast Service with BGW210

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The 2021 provider document names a battery-backed package protecting G.fast customer and distribution equipment through reverse power feed. It establishes a dated source-backup proposition, not current Global quantities. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The 2021 provider document names a battery-backed package protecting G.fast customer and distribution equipment through reverse power feed. It establishes a dated source-backup proposition, not current Global quantities. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The provider advertises a xx.xx-hour service window for the particular package, supporting Day-Scale mapping without a universal premises-duration inference. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The provider advertises a xx.xx-hour service window for the particular package, supporting Day-Scale mapping without a universal premises-duration inference. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

49. DNA Tower Offers Battery Capacity in Electricity Reserve Markets with Elisa DES

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The June xx.xx 2025 announcement reports DNA Tower batteries connected to Finnish reserve markets while retaining outage continuity. This establishes a specific mixed-duty implementation, not Global attachment or guaranteed returns. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/press-releases/dna-tower-becomes-worlds-first-tower-company-to-offer-battery-capacity-in-electricity-reserve-markets-with-elisa-des))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The June xx.xx 2025 announcement reports DNA Tower batteries connected to Finnish reserve markets while retaining outage continuity. This establishes a specific mixed-duty implementation, not Global attachment or guaranteed returns. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/press-releases/dna-tower-becomes-worlds-first-tower-company-to-offer-battery-capacity-in-electricity-reserve-markets-with-elisa-des))

50. Case Elisa: Virtual Power Plant in the Telecom Industry

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The company case reports over 2,000 aggregated sites and approximately xx.xx MWh. This is an installed commercial scale check, not annual purchasing value or Global prevalence. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/customer-stories/elisacase))

21. Telecom Battery Backup System Market, by Country

[illegible] Equipment suppliers should establish who controls that continuity budget. The rule supports a purchasing rationale, but does not prescribe a battery chemistry or prove that battery replacement resolves every interruption.

Germany requires a local producer-accountability route before battery market entry. Stiftung ear states that producers must register, foreign companies requiring registration need an authorized representative, and producers must participate in a responsibility organization for each applicable category. [illegible]

India makes extended producer responsibility part of the battery supply relationship. CPCB's producer guidance covers registration, identifies importer and manufacturer roles, and links market introduction to recycling or refurbishing obligations. [illegible]

Finland separates reserve-market access from battery ownership and software acquisition. [illegible] Neither route waives eligibility or establishes compatibility with an individual telecom continuity contract.

[illegible] Permit and tax accountability remain separate from equipment suitability and telecom acceptance. A regional hub can consolidate supply relationships, but does not by itself settle onward-market access or the customer's continuing service obligations.

[illegible] Suppliers should distinguish provider-funded fulfillment from broader household connectivity purchases. A suitable alternative means of emergency contact can narrow the battery requirement, and protection of emergency calling does not establish comprehensive broadband continuity.

Figure 36. Global Telecom Battery Backup System Market Size, by Country, 2025 vs 2032 (%)

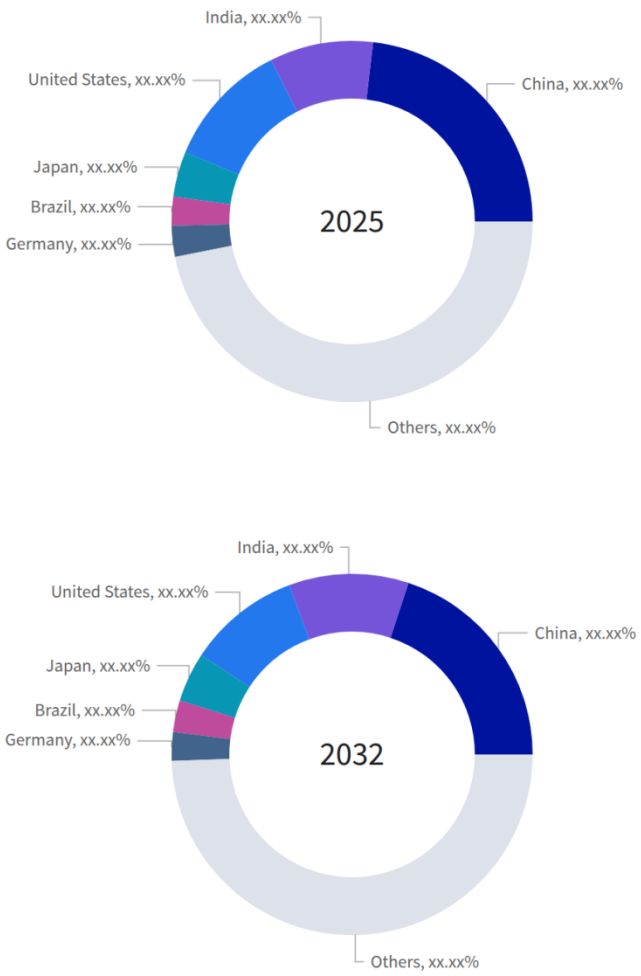

Figure 37. Global Telecom Battery Backup System Market Size, by Country, 2025 vs 2026 vs 2032

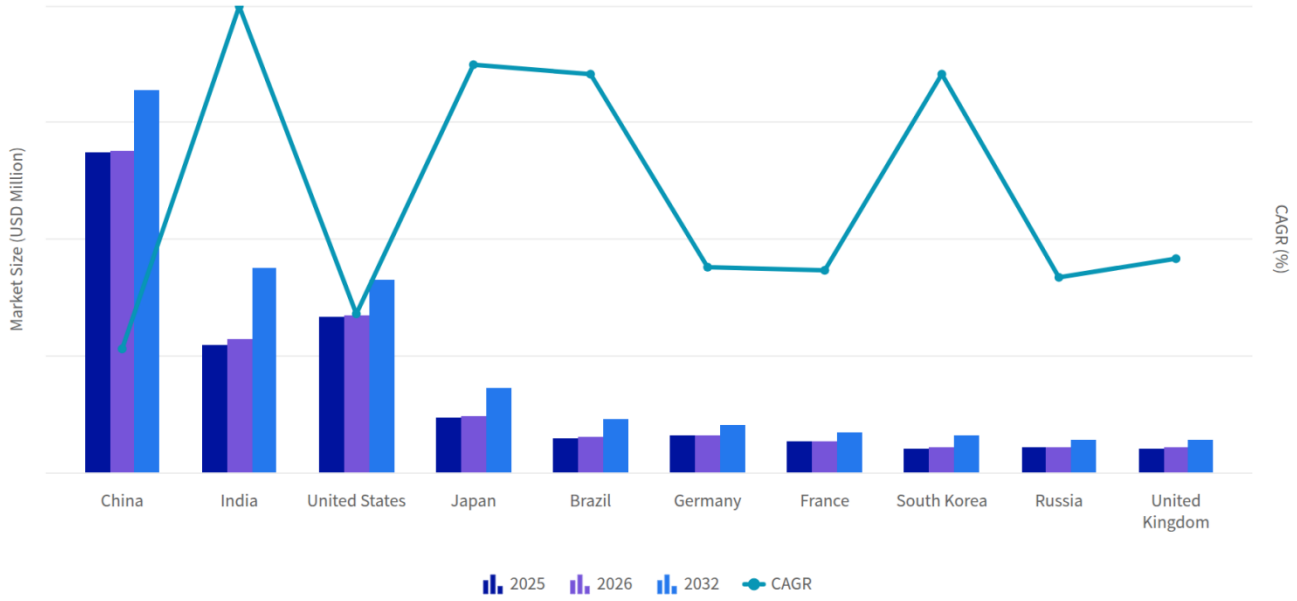

Table 482. Global Telecom Battery Backup System Market, by Country growth contribution, 2025-2032

Category	2025 value (USD Million)	2032 value (USD Million)	Added value (USD Million)	2025 share (%)	2032 share (%)	Change (pp)	Growth share (%)	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Unallocated / remaining scope	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scope total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 483. Global Telecom Battery Backup System Market Size, by Country, 2017-2032 (USD Million)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. How to participate in the reserve markets | Fingrid
   - Fingrid requires applicable owner permission, reserve-product agreements, and settlement arrangements, and permits independent or service-provider-assisted entry.
   - Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue.
   ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))
2. What Obligations Do Battery Producers Have?
   - Stiftung ear describes registration, applicable foreign-producer representation, and participation in a producer responsibility organization for each category.
3. CPCB Guidance for Producers
   - CPCB producer guidance describes registration, importer and manufacturer roles, and recycling or refurbishing obligations associated with market introduction.
4. Import Procedures Overview - Singapore Customs
   - Singapore Customs requires relevant import permits and identifies a local consignee as importer in the described overseas-sale relationship.
5. Commission 111 Contact Code
   - New Zealand requires appropriate no-cost emergency-contact support for qualifying residential landline consumers; the obligation is not a universal free-battery requirement.

6. Regras - Qualidade dos Serviços de Telecomunicações
   - Anatel includes power loss among unplanned interruptions and describes proportional consumer redress; it does not prescribe a battery chemistry.
7. China Tower - 2025 Annual Results, March 18, 2026
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.
8. Broadband Commission - The State of Broadband: Our Digital World, 2025
   - Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))
9. Battery Backup - Meriwether Lewis Electric Cooperative
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
10. EnerSys 2026 Proxy Statement and Annual Report
    - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))
11. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025
    - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom application revenue provides counterevidence to extrapolating broad energy-storage growth into China's backup forecast.
12. Amara Raja Energy & Mobility - Q2/H1 FY2026 Earnings Presentation, November 6, 2025
    - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand. ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))
13. IHS Holding Limited - First-Quarter 2026 Financial Statements
    - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement. ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

14. Ofcom - Mobile RAN Power Resilience: Technical Report and CFI Update, February 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.

15. Ofcom - Your Landline Is Going Digital: What You Need to Know

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool.
([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate.
([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

16. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue.
([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))

· Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions.
([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))

17. China Tower announces 2025 annual results - March 18, 2026

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.

18. American Tower Corporation - Annual Report on Form 10-K for 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
19. Cellnex - Integrated Annual Report 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.
20. Australian Government - Mobile Network Hardening Program
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
21. CPUC Requires Wireless Companies to Better Serve Customers in Emergencies - July 16, 2020
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
22. CRTC - Request for Information on Telecommunications Network Resiliency, May 12, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The information request seeks evidence on possible backup requirements and customer equipment costs; it is not an enacted national procurement program.
23. FCC - Internet Access Services: Status as of December 31, 2024, official state-government-hosted copy
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.

24. OECD - High-capacity broadband networks gain ground across OECD, October 13, 2026
    · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: High mature-market fibre adoption is retained as a saturation counterforce to the purchasing forecast.

21.1. China

Table 484. China Telecom Battery Backup System Market Size, 2017-2032 (USD Million)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
China	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 485. China Telecom Battery Backup System Market Size, by Offering, 2017-2032 (USD Million)

Offering	2023	2024	2025	2026	2027	2032	CAGR (%)
Battery Units and Assemblies	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Complete Backup Systems	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 486. China Telecom Battery Backup System Market Size, by Battery Technology, 2017-2032 (USD Million)

Battery Technology	2023	2024	2025	2026	2027	2032	CAGR (%)
Aqueous Zinc-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Flow Batteries	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lithium-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Metal-Air	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Multi-Chemistry	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Sodium-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 487. China Telecom Battery Backup System Market Size, by Lead-Acid, 2017-2032 (USD Million)

Lead-Acid	2023	2024	2025	2026	2027	2032	CAGR (%)
Flooded Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Valve-Regulated Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 488. China Telecom Battery Backup System Market Size, by Valve-Regulated Lead-Acid, 2017-2032 (USD Million)

Valve-Regulated Lead-Acid	2023	2024	2025	2026	2027	2032	CAGR (%)
Absorbent Glass Mat	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Gel	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 489. China Telecom Battery Backup System Market Size, by Lithium-Based, 2017-2032 (USD Million)

Lithium-Based	2023	2024	2025	2026	2027	2032	CAGR (%)
Lithium-Ion	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lithium-Metal	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 490. China Telecom Battery Backup System Market Size, by Nickel-Based, 2017-2032 (USD Million)

Nickel-Based	2023	2024	2025	2026	2027	2032	CAGR (%)
Nickel-Cadmium	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Iron	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Metal Hydride	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Zinc	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 491. China Telecom Battery Backup System Market Size, by Power Interface, 2017-2032 (USD Million)

Power Interface	2023	2024	2025	2026	2027	2032	CAGR (%)
AC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Combined AC/DC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
DC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 492. China Telecom Battery Backup System Market Size, by Network Application, 2017-2032 (USD Million)

Network Application	2023	2024	2025	2026	2027	2032	CAGR (%)
Core Networks & Network Control	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Customer-Premises Connectivity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Network Interconnection & Peering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Transport & Backhaul Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Wireless Access Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Wireline Access Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 493. China Telecom Battery Backup System Market Size, by Buyer Type, 2017-2032 (USD Million)

Buyer Type	2023	2024	2025	2026	2027	2032	CAGR (%)
Business & Institutional Connectivity Owners	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Equipment Leasing & Rental Providers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Household Connectivity Purchasers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Energy-Service Providers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Infrastructure & Tower Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecommunications Network Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 494. China Telecom Battery Backup System Market Size, by Installation Environment, 2017-2032 (USD Million)

Installation Environment	2023	2024	2025	2026	2027	2032	CAGR (%)
Non-Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Underground Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 495. China Telecom Battery Backup System Market Size, by Weather-Protected Locations, 2017-2032 (USD Million)

Weather-Protected Locations	2023	2024	2025	2026	2027	2032	CAGR (%)
Enclosed Locations Without Temperature Control	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Partly Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Temperature-Controlled Enclosed Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 496. China Telecom Battery Backup System Market Size, by Non-Weather-Protected Locations, 2017-2032 (USD Million)

Non-Weather-Protected Locations	2023	2024	2025	2026	2027	2032	CAGR (%)
Open-Air Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Sheltered Non-Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 497. China Telecom Battery Backup System Market Size, by Powering Architecture, 2017-2032 (USD Million)

Powering Architecture	2023	2024	2025	2026	2027	2032	CAGR (%)
Local Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Remote Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 498. China Telecom Battery Backup System Market Size, by Remote Powering, 2017-2032 (USD Million)

Remote Powering	2023	2024	2025	2026	2027	2032	CAGR (%)
Centralized Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Cluster Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reverse Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 499. China Telecom Battery Backup System Market Size, by Commercial Delivery Model, 2017-2032 (USD Million)

Commercial Delivery Model	2023	2024	2025	2026	2027	2032	CAGR (%)
Leased or Rented Equipment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Managed Backup Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Owned Equipment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 500. China Telecom Battery Backup System Market Size, by Sales Channel, 2017-2032 (USD Million)

Sales Channel	2023	2024	2025	2026	2027	2032	CAGR (%)
Direct Manufacturer Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Distributor and Retailer Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Systems Integrator and Contractor Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Service Provider Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 501. China Telecom Battery Backup System Market Size, by Grid Availability, 2017-2032 (USD Million)

Grid Availability	2023	2024	2025	2026	2027	2032	CAGR (%)
Off-Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reliable Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Unreliable Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 502. China Telecom Battery Backup System Market Size, by Backup Duty, 2017-2032 (USD Million)

Backup Duty	2023	2024	2025	2026	2027	2032	CAGR (%)
Backup with Energy Management	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reserve-Only Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 503. China Telecom Battery Backup System Market Size, by Backup Autonomy, 2017-2032 (USD Million)

Backup Autonomy	2023	2024	2025	2026	2027	2032	CAGR (%)
Day-Scale Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Extended-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Intermediate-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Short-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. China Tower - 2025 Annual Results, March 18, 2026

   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))

   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.

   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Infrastructure expenditure and replacement/improvement restraint constrain the purchasing forecast; broader capital expenditure is not battery-only revenue.

   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: The xx.xx.149m-site inventory constrains wireless activity; forecast purchasing remains modeled.

   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The xx.xx.149m-site inventory constrains wireless activity; forecast purchasing remains modeled.

   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: Replacement/improvement CAPEX fell from RMB6837m to RMB5474m, qualifying automatic replacement-led growth.

   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Replacement/improvement CAPEX fell from RMB6837m to RMB5474m, qualifying automatic replacement-led growth.

   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: Disclosed tower operations establish a material infrastructure purchasing setting, not a global buyer share.

   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Disclosed tower operations establish a material infrastructure purchasing setting, not a global buyer share.

2. Broadband Commission - The State of Broadband: Our Digital World, 2025

   · Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))

3. Battery Backup - Meriwether Lewis Electric Cooperative
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Separately available replacement batteries support a battery-only replacement route.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Separately available replacement batteries support a battery-only replacement route.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The USD100-plus-tax device is a retail comparator, not an observed 2025 first-sale realization.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The USD100-plus-tax device is a retail comparator, not an observed 2025 first-sale realization.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Customer purchase and replacement responsibilities support household-funded procurement.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Customer purchase and replacement responsibilities support household-funded procurement.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Purchased equipment does not automatically include continuing service-plan coverage.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Purchased equipment does not automatically include continuing service-plan coverage.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Local provider sales establish this route alongside manufacturer-direct purchasing.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Local provider sales establish this route alongside manufacturer-direct purchasing.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The provider advertises approximately five hours for combined voice and internet, supporting service-specific Extended classification, not an observed 2025 purchase mix. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The provider advertises approximately five hours for combined voice and internet, supporting service-specific Extended classification, not an observed 2025 purchase mix. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The same proposition advertises xx.xx-hour voice-only protection, supporting Day-Scale mapping without equating duration with a universally larger purchase basket. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The same proposition advertises xx.xx-hour voice-only protection, supporting Day-Scale mapping without equating duration with a universally larger purchase basket. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
4. EnerSys 2026 Proxy Statement and Annual Report
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Direct customer supply is disclosed within a diversified international business; telecom channel proportions are not disclosed.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Direct customer supply is disclosed within a diversified international business; telecom channel proportions are not disclosed.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Distributor supply is disclosed, supporting route occurrence rather than its modeled sales weight.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Distributor supply is disclosed, supporting route occurrence rather than its modeled sales weight.

5. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom application revenue provides counterevidence to extrapolating broad energy-storage growth into China's backup forecast.
   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: Audited 2025 telecom revenue of RMB1,xx.xx declined xx.xx%; telecom purchasing weakness is retained as counterevidence to automatic substitution-led aggregate growth. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Audited 2025 telecom revenue of RMB1,xx.xx declined xx.xx%; telecom purchasing weakness is retained as counterevidence to automatic substitution-led aggregate growth. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: Telecom-specific results are separated from adjacent data-center and power-storage growth when assessing lithium substitution; the filing does not disclose the modeled Global split. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom-specific results are separated from adjacent data-center and power-storage growth when assessing lithium substitution; the filing does not disclose the modeled Global split. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
6. Amara Raja Energy & Mobility - Q2/H1 FY2026 Earnings Presentation, November 6, 2025
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand. ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))
7. IHS Holding Limited - First-Quarter 2026 Financial Statements
   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement. ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

8. Ofcom - Mobile RAN Power Resilience: Technical Report and CFI Update, February 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The evaluated xx.xx-minute alternative supplies a subhour commercial-planning anchor, not observed shipments.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The evaluated xx.xx-minute alternative supplies a subhour commercial-planning anchor, not observed shipments.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: One-hour and two-hour alternatives anchor the analytical Intermediate band. Aggregate scenarios include multiple years of operating costs and are not annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: One-hour and two-hour alternatives anchor the analytical Intermediate band. Aggregate scenarios include multiple years of operating costs and are not annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The four-hour alternative anchors the Extended band's lower boundary without establishing a Global minimum or purchasing allocation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The four-hour alternative anchors the Extended band's lower boundary without establishing a Global minimum or purchasing allocation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

9. Ofcom - Your Landline Is Going Digital: What You Need to Know

- Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
- Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Restricted provider-funded eligibility constrains operator-funded premises attribution and forecast adoption.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Restricted provider-funded eligibility constrains operator-funded premises attribution and forecast adoption.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Eligibility is not universal household funding; purchaser proportions remain assumptions.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Eligibility is not universal household funding; purchaser proportions remain assumptions.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Eligibility-limited provider backup and the one-hour minimum for qualifying customers constrain premises demand and anchor the Intermediate band's lower boundary. They do not establish universal adoption. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Eligibility-limited provider backup and the one-hour minimum for qualifying customers constrain premises demand and anchor the Intermediate band's lower boundary. They do not establish universal adoption. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

10. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone
    - Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue. ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
    - Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions. ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: USD45m financing and xx.xx planned site modernizations support an expansion signal, not observed backup-only service revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: USD45m financing and xx.xx planned site modernizations support an expansion signal, not observed backup-only service revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Energy-service activity supports the role; the modeled provider-as-buyer subcontract share is not established.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Energy-service activity supports the role; the modeled provider-as-buyer subcontract share is not established.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: More than xx.xx% weak/off-grid project exposure constrains service-cohort concentration, not the global grid mix.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: More than xx.xx% weak/off-grid project exposure constrains service-cohort concentration, not the global grid mix.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The project confirms disconnected-site commercial demand; its weak/off-grid combined statistic does not separate those categories.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The project confirms disconnected-site commercial demand; its weak/off-grid combined statistic does not separate those categories.
11. Fingrid - How to Participate in the Reserve Markets
    - Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue. ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Applicable owner permission and market agreements are commercial access gates. They constrain forecast mixed-duty adoption without measuring its Global percentage. ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))
12. China Tower announces 2025 annual results - March 18, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: China Tower reports xx.xx tower sites at year-end 2025, an installed-stock input rather than annual battery sales.

13. PowerSafe SBS Batteries | EnerSys
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Named telecom batteries support the battery-unit offering boundary; allocation weights are assumed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Named telecom batteries support the battery-unit offering boundary; allocation weights are assumed.
14. Vertiv NetSure M Series
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Configured enclosure, power and battery options support broader system classification, not universal bundle inclusion.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Configured enclosure, power and battery options support broader system classification, not universal bundle inclusion.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A marketed outdoor enclosure supports a protection option; global adoption and configuration proportions remain modeled.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A marketed outdoor enclosure supports a protection option; global adoption and configuration proportions remain modeled.
15. Ofcom - Network and Service Resilience Guidance for Communications Providers, June 16, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Core is a distinct, comparatively concentrated function with explicit backup expectations; global spending remains estimated.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Core is a distinct, comparatively concentrated function with explicit backup expectations; global spending remains estimated.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The stated xx.xx-xx.xx-fold site-scale distinction motivates lower-value, more numerous transport purchase equivalents.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The stated xx.xx-xx.xx-fold site-scale distinction motivates lower-value, more numerous transport purchase equivalents.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Peering and non-Internet interconnection are distinct functions; attributable backup purchase values are not disclosed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Peering and non-Internet interconnection are distinct functions; attributable backup purchase values are not disclosed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: June 2026 guidance identifies approximately four hours as good practice for active fixed-access cabinets. This supports a conditional Extended purchasing shift, not completed orders or a Global mandate. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/network-and-service-resilience-guidance-for-communications-providerspdf?v=xx.xx))
16. Technology and Tools | First Responder Network Authority
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Radio access, transport backhaul and core are separate network functions, supporting functional attribution without duplicate facility counting.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Radio access, transport backhaul and core are separate network functions, supporting functional attribution without duplicate facility counting.
17. Mobile Network Hardening Program | Australian Department of Infrastructure
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Completed battery enhancements and broader resilience projects provide a delivered regional demand signal, not a global forecast rate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Completed battery enhancements and broader resilience projects provide a delivered regional demand signal, not a global forecast rate.

18. BT - Digital Voice for Business Service Schedule, May 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Business customers bear backup-power expense, supporting a distinct institutional/business payer route rather than consumer eligibility extrapolation.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Business customers bear backup-power expense, supporting a distinct institutional/business payer route rather than consumer eligibility extrapolation.
19. Los Angeles Metro - Board Report 2024-1128, UPS Battery Replacement
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Completed and additional UPS battery replacements support continuing underground demand; mixed-load project budgets are not telecom-only revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Completed and additional UPS battery replacements support continuing underground demand; mixed-load project budgets are not telecom-only revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The transit authority's purchasing program supports an institutional own-use role, not its global spending proportion.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The transit authority's purchasing program supports an institutional own-use role, not its global spending proportion.
20. ETSI EN 300 019-1-3 V3.1.1 - Stationary Use at Weatherprotected Locations, May 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Weather-protected categories distinguish enclosure from environmental control; the standard does not measure market mix.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Weather-protected categories distinguish enclosure from environmental control; the standard does not measure market mix.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Maintained temperature control is a separate classification premise for the modeled conditional allocation.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Maintained temperature control is a separate classification premise for the modeled conditional allocation.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Enclosed locations without temperature control are distinguished from controlled locations.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Enclosed locations without temperature control are distinguished from controlled locations.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Partial weather protection is recognized separately; sales weights and future adoption remain assumed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Partial weather protection is recognized separately; sales weights and future adoption remain assumed.
21. ETSI EN 300 019-1-4 V3.1.1 - Stationary Use at Non-Weatherprotected Locations, May 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Non-weather-protected locations form a distinct classification regime, not a measured global spending pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Non-weather-protected locations form a distinct classification regime, not a measured global spending pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Sheltered non-weather-protected locations support the named conditional category.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Sheltered non-weather-protected locations support the named conditional category.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Open-air locations are separately recognized; their purchasing mix remains modeled.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Open-air locations are separately recognized; their purchasing mix remains modeled.

22. DC Power Plant / Rectifiers - UPS Rental
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Battery and complete DC-plant rentals establish delivery-category occurrence; global fees and utilization are not disclosed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Battery and complete DC-plant rentals establish delivery-category occurrence; global fees and utilization are not disclosed.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Commercial rental availability is a role premise only; modeled lessor sub-hire procurement remains unverified.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Commercial rental availability is a role premise only; modeled lessor sub-hire procurement remains unverified.
23. Helios Towers - Full Year Results 2025, March 12, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Grid-integration investment supplies a connection-improvement counterforce used conditionally in the forecast.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Grid-integration investment supplies a connection-improvement counterforce used conditionally in the forecast.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Reported xx.xx-hour average daily grid availability supports weak-grid commercial exposure, without a global classification share.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Reported xx.xx-hour average daily grid availability supports weak-grid commercial exposure, without a global classification share.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Grid integration and alternative-power investment qualify assumptions of permanently unchanged disconnected-site exposure.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Grid integration and alternative-power investment qualify assumptions of permanently unchanged disconnected-site exposure.
24. Telecommunications | Aggreko US
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Telecom battery-storage rental for temporary continuity supports delivery occurrence, not the estimated global fee scale.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom battery-storage rental for temporary continuity supports delivery occurrence, not the estimated global fee scale.
25. EnerSys PowerSafe SBS Front Terminal Batteries | Alpine Power Systems
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A named battery distributor supports the intermediary route; its listing is not a global channel-sales observation.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A named battery distributor supports the intermediary route; its listing is not a global channel-sales observation.
26. DC Power Services | Vertiv
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Cross-manufacturer projects and narrower upgrades support integration-prime and supported-replacement routes; numerical route proportions remain assumed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Cross-manufacturer projects and narrower upgrades support integration-prime and supported-replacement routes; numerical route proportions remain assumed.

27. Shuangdeng Group Co., Ltd. - Global Offering Prospectus, August 18, 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The company's own five-month 2025 lead-acid realization of RMB520.xx.xx/kWh constrains the relative-price bridge; syndicated industry claims are excluded. Forecast convergence remains assumed. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The company's own five-month 2025 lead-acid realization of RMB520.xx.xx/kWh constrains the relative-price bridge; syndicated industry claims are excluded. Forecast convergence remains assumed. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Own lithium-ion realization of RMB595.xx.xx/kWh is an input to the Lithium-Based value model, not a Global share or a Lithium-Metal sales observation. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Own lithium-ion realization of RMB595.xx.xx/kWh is an input to the Lithium-Based value model, not a Global share or a Lithium-Metal sales observation. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
28. Amara Raja Crosses 1 GWh Lithium Storage Deployment Powering India's Telecom Networks
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The April xx.xx 2026 disclosure reports approximately xx.xx GWh across xx.xx cumulative telecom lithium sites over four years. This is a commercial adoption scale check, not annual Global revenue or a supplier-share input. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The April xx.xx 2026 disclosure reports approximately xx.xx GWh across xx.xx cumulative telecom lithium sites over four years. This is a commercial adoption scale check, not annual Global revenue or a supplier-share input. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The disclosed deployment identifies lithium-ion commercialization at scale, supporting the subtype's established commercial position without directly measuring its conditional Global share. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The disclosed deployment identifies lithium-ion commercialization at scale, supporting the subtype's established commercial position without directly measuring its conditional Global share. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
29. Central Office Power Systems - EnerSys
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The central-office portfolio identifies Flooded Lead-Acid as a distinct telecom alternative, supporting the legacy-network category mapping but not its purchasing fraction. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The central-office portfolio identifies Flooded Lead-Acid as a distinct telecom alternative, supporting the legacy-network category mapping but not its purchasing fraction. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The portfolio separately identifies Valve-Regulated Lead-Acid, supporting the within-lead construction boundary used by the model. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The portfolio separately identifies Valve-Regulated Lead-Acid, supporting the within-lead construction boundary used by the model. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))

30. PowerSafe OPzV Batteries - EnerSys

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: EnerSys identifies OPzV as Gel and lists telecom applications. This supports commercial subtype mapping, not the assumed Gel/AGM volume or price mix. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-opzv/))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: EnerSys identifies OPzV as Gel and lists telecom applications. This supports commercial subtype mapping, not the assumed Gel/AGM volume or price mix. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-opzv/))

31. Bolloré - 2017 Registration Document

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The official filing identifies LMP professional outage-protection applications including telecom relays. This is a dated commercial boundary input, not evidence of 2025 telecom shipment value. ([bollore.com](https://www.bollore.com/wp-content/uploads/2018/xx.xx/bollore_ddr_2017_gb_bag-xx.xx-juin.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The official filing identifies LMP professional outage-protection applications including telecom relays. This is a dated commercial boundary input, not evidence of 2025 telecom shipment value. ([bollore.com](https://www.bollore.com/wp-content/uploads/2018/xx.xx/bollore_ddr_2017_gb_bag-xx.xx-juin.pdf))

32. Bolloré - Business Report 2025

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The 2025 report establishes continuing Lithium Metal Polymer commercial applications in electricity storage and buses, while omitting separately attributable telecom sales. It constrains the low-access expected-purchase model; no capacity-to-sales conversion is used. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The 2025 report establishes continuing Lithium Metal Polymer commercial applications in electricity storage and buses, while omitting separately attributable telecom sales. It constrains the low-access expected-purchase model; no capacity-to-sales conversion is used. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The report preserves the distinction between LMP and conventional lithium-ion, supporting the exhaustive subtype attribution rule rather than treating polymer packaging as Lithium-Metal. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The report preserves the distinction between LMP and conventional lithium-ion, supporting the exhaustive subtype attribution rule rather than treating polymer packaging as Lithium-Metal. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))

33. AT&T to Replace U-Verse Cabinet Batteries - Fierce Network, January 15, 2008

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The January xx.xx 2008 report corroborates AT&T's replacement of approximately xx.xx Avestor batteries after the supplier's closure. The obsolete stock is therefore not carried into the 2025 or 2032 purchasing numerator. ([fierce-network.com](https://www.fierce-network.com/telecom/at-t-to-replace-u-verse-cabinet-batteries))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The January xx.xx 2008 report corroborates AT&T's replacement of approximately xx.xx Avestor batteries after the supplier's closure. The obsolete stock is therefore not carried into the 2025 or 2032 purchasing numerator. ([fierce-network.com](https://www.fierce-network.com/telecom/at-t-to-replace-u-verse-cabinet-batteries))

34. PowerSafe NiCd Batteries - EnerSys
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: EnerSys identifies Nickel-Cadmium for central offices and outside plant, supporting the modeled legacy telecom cohort but not its installed attachment or replacement spending. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-nicd/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: EnerSys identifies Nickel-Cadmium for central offices and outside plant, supporting the modeled legacy telecom cohort but not its installed attachment or replacement spending. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-nicd/))
35. FDK Ni-MH Battery Is Chosen for the Cellect 600 Product of Alpha Technologies
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The October xx.xx 2015 announcement identifies NiMH in Alpha's Cellect xx.xx small-cell backup proposition. It supports a historical cohort rather than current fulfillment or assumed surviving stock. ([fdk.com](https://www.fdk.com/whatsnew-e/release20151019-e.html))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The October xx.xx 2015 announcement identifies NiMH in Alpha's Cellect xx.xx small-cell backup proposition. It supports a historical cohort rather than current fulfillment or assumed surviving stock. ([fdk.com](https://www.fdk.com/whatsnew-e/release20151019-e.html))
36. Products - Encell Technology
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Encell positions its Fused Iron Nickel-Iron battery for telecom. This supports the commercial category lead, while current purchases and attachment remain modeled. ([encell.com](https://encell.com/products/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Encell positions its Fused Iron Nickel-Iron battery for telecom. This supports the commercial category lead, while current purchases and attachment remain modeled. ([encell.com](https://encell.com/products/))
37. Telecom/5G - ZAF Energy Systems
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: ZAF positions Nickel-Zinc for telecom/5G. Its supplier proposition supports application mapping, not the modeled annual attachment or threefold forecast value multiplier. ([zafsys.com](https://zafsys.com/telecom-5g/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: ZAF positions Nickel-Zinc for telecom/5G. Its supplier proposition supports application mapping, not the modeled annual attachment or threefold forecast value multiplier. ([zafsys.com](https://zafsys.com/telecom-5g/))
38. HORIEN Salt Battery Solutions and Inlyte Energy Announce a Strategic Partnership
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: HORIEN's March xx.xx 2025 statement identifies sodium-metal-chloride telecom backup. Its separate partnership announcement is not counted as delivered telecom sales. ([horien.com](https://horien.com/wp-content/uploads/2025/xx.xx/Press-Release_HORIEN-Inlyte-International-Version.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: HORIEN's March xx.xx 2025 statement identifies sodium-metal-chloride telecom backup. Its separate partnership announcement is not counted as delivered telecom sales. ([horien.com](https://horien.com/wp-content/uploads/2025/xx.xx/Press-Release_HORIEN-Inlyte-International-Version.pdf))
39. Energy Backup - Phinergy
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Phinergy markets Aluminum-Air continuity offerings to telecom operators and tower companies. The source supports category and buyer mapping, not the modeled installed attachment or replacement numerator. ([phinergy.com](https://phinergy.com/solutions/energy-backup/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Phinergy markets Aluminum-Air continuity offerings to telecom operators and tower companies. The source supports category and buyer mapping, not the modeled installed attachment or replacement numerator. ([phinergy.com](https://phinergy.com/solutions/energy-backup/))

40. Australian Flow Batteries - RFB40X Series

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: RFB40X literature identifies telecom among stationary commercial applications. It supports the qualifying project boundary, not delivered projects, revenue or assumed attachment. ([afb.energy](https://www.afb.energy/wp-content/uploads/2025/xx.xx/Australian-Flow-Batteries-RFB40X-Series-2024.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: RFB40X literature identifies telecom among stationary commercial applications. It supports the qualifying project boundary, not delivered projects, revenue or assumed attachment. ([afb.energy](https://www.afb.energy/wp-content/uploads/2025/xx.xx/Australian-Flow-Batteries-RFB40X-Series-2024.pdf))

41. PowerReserve - Verizon Residential Accessories

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Verizon advertises an alkaline-cell voice-backup device at USD39.xx.xx excluding batteries. This supports a qualifying primary-zinc premises route and price comparator, not assumed Global attachment or first-sale realization. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Verizon advertises an alkaline-cell voice-backup device at USD39.xx.xx excluding batteries. This supports a qualifying primary-zinc premises route and price comparator, not assumed Global attachment or first-sale realization. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Advertised voice-only protection reaches xx.xx hours; internet and television protection are excluded. This supports service-specific Day-Scale classification. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Advertised voice-only protection reaches xx.xx hours; internet and television protection are excluded. This supports service-specific Day-Scale classification. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))

42. Alkaline Manganese Dioxide Handbook and Application Manual - Energizer

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The manufacturer's alkaline manganese-dioxide classification supports the zinc-family mapping for qualifying premises backup. It provides no telecom purchasing weight. ([data.energizer.com](https://data.energizer.com/pdfs/alkaline_appman.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The manufacturer's alkaline manganese-dioxide classification supports the zinc-family mapping for qualifying premises backup. It provides no telecom purchasing weight. ([data.energizer.com](https://data.energizer.com/pdfs/alkaline_appman.pdf))

43. ITU-T Work Programme - Aqueous Zinc-Based Battery Systems for Base Station Applications

- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The aqueous-zinc base-station work item is Under study with December 2027 timing. It constrains the forecast commercialization assumption but establishes neither approval nor customer purchases. ([itu.int](https://www.itu.int/itu-t/workprog/wp_item.aspx?isn=xx.xx))

44. ITU-T L.1397 - Battery System with Integrated Control and Monitoring Information Model

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The October 2025 recommendation names lithium-lead, lithium-sodium and sodium-lead combinations. This supports mixed-family classification, not inseparable pricing or Global prevalence. ([itu.int](https://www.itu.int/rec/dologin_pub.asp?id=T-REC-L.xx.xx-xx.xx-I%xx.xx%21PDF-E&lang=e&type=items))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The October 2025 recommendation names lithium-lead, lithium-sodium and sodium-lead combinations. This supports mixed-family classification, not inseparable pricing or Global prevalence. ([itu.int](https://www.itu.int/rec/dologin_pub.asp?id=T-REC-L.xx.xx-xx.xx-I%xx.xx%21PDF-E&lang=e&type=items))

45. ETSI EN 300 132-1 V2.2.1 - ICT Power Supply Interface: Alternating Current
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The ICT standard identifies the protected-load AC interface, supporting output-side attribution rather than classification by chemistry or normal utility input. It supplies no sales mix. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013201v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The ICT standard identifies the protected-load AC interface, supporting output-side attribution rather than classification by chemistry or normal utility input. It supplies no sales mix. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013201v020201p.pdf))
46. ETSI EN 300 132-2 V2.8.1 - ICT Power Supply Interface: Direct Current
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The ICT standard separately identifies the DC protected-equipment interface, supporting the DC-output boundary independently of battery chemistry. It is not a purchasing census. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013202v020801p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The ICT standard separately identifies the DC protected-equipment interface, supporting the DC-output boundary independently of battery chemistry. It is not a purchasing census. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013202v020801p.pdf))
47. Vertiv NetSure Inverter Series - Converged AC and DC Power System
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: NetSure Inverter Series identifies AC and DC loads supported through a common battery bank. This establishes a combined-output proposition, not its modeled purchasing fraction or future adoption. ([vertiv.com](https://www.vertiv.com/en-us/products-catalog/critical-power/dc-power-systems/vertiv-netsure-inverter-series/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: NetSure Inverter Series identifies AC and DC loads supported through a common battery bank. This establishes a combined-output proposition, not its modeled purchasing fraction or future adoption. ([vertiv.com](https://www.vertiv.com/en-us/products-catalog/critical-power/dc-power-systems/vertiv-netsure-inverter-series/))

48. ETSI EN 302 099 V2.2.1 - Powering of Equipment in Access Network
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Local powering uses a colocated source; allocation follows the backed source rather than receiver inventory. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Local powering uses a colocated source; allocation follows the backed source rather than receiver inventory. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Remote-source backup is distinguished from local backup, supporting the parent commercial boundary but not purchasing weights. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Remote-source backup is distinguished from local backup, supporting the parent commercial boundary but not purchasing weights. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Centralized powering originates at a telecommunications center. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Centralized powering originates at a telecommunications center. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Cluster powering uses a source outside the telecommunications center, supporting separation within Remote Powering. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Cluster powering uses a source outside the telecommunications center, supporting separation within Remote Powering. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Reverse powering is customer-origin supply, supporting source-level attribution of the battery-backed provider package. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Reverse powering is customer-origin supply, supporting source-level attribution of the battery-backed provider package. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))

49. Set Up Your Battery Backup - AT&T G.Fast Service with BGW210

    · Evidence informing base-year allocation inputs; displayed values and growth are calculated: The 2021 provider document names a battery-backed package protecting G.fast customer and distribution equipment through reverse power feed. It establishes a dated source-backup proposition, not current Global quantities. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

    · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The 2021 provider document names a battery-backed package protecting G.fast customer and distribution equipment through reverse power feed. It establishes a dated source-backup proposition, not current Global quantities. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

    · Evidence informing base-year allocation inputs; displayed values and growth are calculated: The provider advertises a xx.xx-hour service window for the particular package, supporting Day-Scale mapping without a universal premises-duration inference. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

    · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The provider advertises a xx.xx-hour service window for the particular package, supporting Day-Scale mapping without a universal premises-duration inference. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

50. DNA Tower Offers Battery Capacity in Electricity Reserve Markets with Elisa DES

    · Evidence informing base-year allocation inputs; displayed values and growth are calculated: The June xx.xx 2025 announcement reports DNA Tower batteries connected to Finnish reserve markets while retaining outage continuity. This establishes a specific mixed-duty implementation, not Global attachment or guaranteed returns. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/press-releases/dna-tower-becomes-worlds-first-tower-company-to-offer-battery-capacity-in-electricity-reserve-markets-with-elisa-des))

    · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The June xx.xx 2025 announcement reports DNA Tower batteries connected to Finnish reserve markets while retaining outage continuity. This establishes a specific mixed-duty implementation, not Global attachment or guaranteed returns. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/press-releases/dna-tower-becomes-worlds-first-tower-company-to-offer-battery-capacity-in-electricity-reserve-markets-with-elisa-des))

51. Case Elisa: Virtual Power Plant in the Telecom Industry

    · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The company case reports over 2,000 aggregated sites and approximately xx.xx MWh. This is an installed commercial scale check, not annual purchasing value or Global prevalence. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/customer-stories/elisacase))

21.2. United States

Table 504. United States Telecom Battery Backup System Market Size, 2017-2032 (USD Million)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
United States	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 505. United States Telecom Battery Backup System Market Size, by Offering, 2017-2032 (USD Million)

Offering	2023	2024	2025	2026	2027	2032	CAGR (%)
Battery Units and Assemblies	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Complete Backup Systems	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 506. United States Telecom Battery Backup System Market Size, by Battery Technology, 2017-2032 (USD Million)

Battery Technology	2023	2024	2025	2026	2027	2032	CAGR (%)
Aqueous Zinc-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Flow Batteries	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lithium-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Metal-Air	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Multi-Chemistry	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Sodium-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 507. United States Telecom Battery Backup System Market Size, by Lead-Acid, 2017-2032 (USD Million)

Lead-Acid	2023	2024	2025	2026	2027	2032	CAGR (%)
Flooded Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Valve-Regulated Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 508. United States Telecom Battery Backup System Market Size, by Valve-Regulated Lead-Acid, 2017-2032 (USD Million)

Valve-Regulated Lead-Acid	2023	2024	2025	2026	2027	2032	CAGR (%)
Absorbent Glass Mat	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Gel	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 509. United States Telecom Battery Backup System Market Size, by Lithium-Based, 2017-2032 (USD Million)

Lithium-Based	2023	2024	2025	2026	2027	2032	CAGR (%)
Lithium-Ion	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lithium-Metal	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 510. United States Telecom Battery Backup System Market Size, by Nickel-Based, 2017-2032 (USD Million)

Nickel-Based	2023	2024	2025	2026	2027	2032	CAGR (%)
Nickel-Cadmium	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Iron	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Metal Hydride	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Zinc	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 511. United States Telecom Battery Backup System Market Size, by Power Interface, 2017-2032 (USD Million)

Power Interface	2023	2024	2025	2026	2027	2032	CAGR (%)
AC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Combined AC/DC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
DC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 512. United States Telecom Battery Backup System Market Size, by Network Application, 2017-2032 (USD Million)

Network Application	2023	2024	2025	2026	2027	2032	CAGR (%)
Core Networks & Network Control	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Customer-Premises Connectivity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Network Interconnection & Peering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Transport & Backhaul Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Wireless Access Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Wireline Access Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 513. United States Telecom Battery Backup System Market Size, by Buyer Type, 2017-2032 (USD Million)

Buyer Type	2023	2024	2025	2026	2027	2032	CAGR (%)
Business & Institutional Connectivity Owners	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Equipment Leasing & Rental Providers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Household Connectivity Purchasers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Energy-Service Providers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Infrastructure & Tower Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecommunications Network Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 514. United States Telecom Battery Backup System Market Size, by Installation Environment, 2017-2032 (USD Million)

Installation Environment	2023	2024	2025	2026	2027	2032	CAGR (%)
Non-Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Underground Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 515. United States Telecom Battery Backup System Market Size, by Weather-Protected Locations, 2017-2032 (USD Million)

Weather-Protected Locations	2023	2024	2025	2026	2027	2032	CAGR (%)
Enclosed Locations Without Temperature Control	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Partly Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Temperature-Controlled Enclosed Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 516. United States Telecom Battery Backup System Market Size, by Non-Weather-Protected Locations, 2017-2032 (USD Million)

Non-Weather-Protected Locations	2023	2024	2025	2026	2027	2032	CAGR (%)
Open-Air Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Sheltered Non-Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 517. United States Telecom Battery Backup System Market Size, by Powering Architecture, 2017-2032 (USD Million)

Powering Architecture	2023	2024	2025	2026	2027	2032	CAGR (%)
Local Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Remote Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 518. United States Telecom Battery Backup System Market Size, by Remote Powering, 2017-2032 (USD Million)

Remote Powering	2023	2024	2025	2026	2027	2032	CAGR (%)
Centralized Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Cluster Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reverse Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 519. United States Telecom Battery Backup System Market Size, by Commercial Delivery Model, 2017-2032 (USD Million)

Commercial Delivery Model	2023	2024	2025	2026	2027	2032	CAGR (%)
Leased or Rented Equipment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Managed Backup Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Owned Equipment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 520. United States Telecom Battery Backup System Market Size, by Sales Channel, 2017-2032 (USD Million)

Sales Channel	2023	2024	2025	2026	2027	2032	CAGR (%)
Direct Manufacturer Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Distributor and Retailer Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Systems Integrator and Contractor Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Service Provider Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 521. United States Telecom Battery Backup System Market Size, by Grid Availability, 2017-2032 (USD Million)

Grid Availability	2023	2024	2025	2026	2027	2032	CAGR (%)
Off-Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reliable Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Unreliable Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 522. United States Telecom Battery Backup System Market Size, by Backup Duty, 2017-2032 (USD Million)

Backup Duty	2023	2024	2025	2026	2027	2032	CAGR (%)
Backup with Energy Management	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reserve-Only Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 523. United States Telecom Battery Backup System Market Size, by Backup Autonomy, 2017-2032 (USD Million)

Backup Autonomy	2023	2024	2025	2026	2027	2032	CAGR (%)
Day-Scale Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Extended-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Intermediate-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Short-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. China Tower - 2025 Annual Results, March 18, 2026
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The xx.xx.149m-site inventory constrains wireless activity; forecast purchasing remains modeled.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The xx.xx.149m-site inventory constrains wireless activity; forecast purchasing remains modeled.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Replacement/improvement CAPEX fell from RMB6837m to RMB5474m, qualifying automatic replacement-led growth.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Replacement/improvement CAPEX fell from RMB6837m to RMB5474m, qualifying automatic replacement-led growth.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Disclosed tower operations establish a material infrastructure purchasing setting, not a global buyer share.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Disclosed tower operations establish a material infrastructure purchasing setting, not a global buyer share.
2. Broadband Commission - The State of Broadband: Our Digital World, 2025
   - Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))

3. Battery Backup - Meriwether Lewis Electric Cooperative
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Separately available replacement batteries support a battery-only replacement route.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Separately available replacement batteries support a battery-only replacement route.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The USD100-plus-tax device is a retail comparator, not an observed 2025 first-sale realization.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The USD100-plus-tax device is a retail comparator, not an observed 2025 first-sale realization.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Customer purchase and replacement responsibilities support household-funded procurement.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Customer purchase and replacement responsibilities support household-funded procurement.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Purchased equipment does not automatically include continuing service-plan coverage.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Purchased equipment does not automatically include continuing service-plan coverage.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Local provider sales establish this route alongside manufacturer-direct purchasing.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Local provider sales establish this route alongside manufacturer-direct purchasing.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The provider advertises approximately five hours for combined voice and internet, supporting service-specific Extended classification, not an observed 2025 purchase mix. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The provider advertises approximately five hours for combined voice and internet, supporting service-specific Extended classification, not an observed 2025 purchase mix. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The same proposition advertises xx.xx-hour voice-only protection, supporting Day-Scale mapping without equating duration with a universally larger purchase basket. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The same proposition advertises xx.xx-hour voice-only protection, supporting Day-Scale mapping without equating duration with a universally larger purchase basket. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
4. EnerSys 2026 Proxy Statement and Annual Report
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Direct customer supply is disclosed within a diversified international business; telecom channel proportions are not disclosed.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Direct customer supply is disclosed within a diversified international business; telecom channel proportions are not disclosed.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Distributor supply is disclosed, supporting route occurrence rather than its modeled sales weight.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Distributor supply is disclosed, supporting route occurrence rather than its modeled sales weight.

5. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025

   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: Audited 2025 telecom revenue of RMB1,xx.xx declined xx.xx%; telecom purchasing weakness is retained as counterevidence to automatic substitution-led aggregate growth. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Audited 2025 telecom revenue of RMB1,xx.xx declined xx.xx%; telecom purchasing weakness is retained as counterevidence to automatic substitution-led aggregate growth. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: Telecom-specific results are separated from adjacent data-center and power-storage growth when assessing lithium substitution; the filing does not disclose the modeled Global split. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom-specific results are separated from adjacent data-center and power-storage growth when assessing lithium substitution; the filing does not disclose the modeled Global split. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

6. Amara Raja Energy & Mobility - Q2/H1 FY2026 Earnings Presentation, November 6, 2025

   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand. ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))

7. IHS Holding Limited - First-Quarter 2026 Financial Statements

   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement. ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

8. Ofcom - Mobile RAN Power Resilience: Technical Report and CFI Update, February 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The evaluated xx.xx-minute alternative supplies a subhour commercial-planning anchor, not observed shipments.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The evaluated xx.xx-minute alternative supplies a subhour commercial-planning anchor, not observed shipments.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: One-hour and two-hour alternatives anchor the analytical Intermediate band. Aggregate scenarios include multiple years of operating costs and are not annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: One-hour and two-hour alternatives anchor the analytical Intermediate band. Aggregate scenarios include multiple years of operating costs and are not annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The four-hour alternative anchors the Extended band's lower boundary without establishing a Global minimum or purchasing allocation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The four-hour alternative anchors the Extended band's lower boundary without establishing a Global minimum or purchasing allocation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

9. Ofcom - Your Landline Is Going Digital: What You Need to Know

- Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
- Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Restricted provider-funded eligibility constrains operator-funded premises attribution and forecast adoption.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Restricted provider-funded eligibility constrains operator-funded premises attribution and forecast adoption.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Eligibility is not universal household funding; purchaser proportions remain assumptions.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Eligibility is not universal household funding; purchaser proportions remain assumptions.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Eligibility-limited provider backup and the one-hour minimum for qualifying customers constrain premises demand and anchor the Intermediate band's lower boundary. They do not establish universal adoption. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Eligibility-limited provider backup and the one-hour minimum for qualifying customers constrain premises demand and anchor the Intermediate band's lower boundary. They do not establish universal adoption. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

10. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone
    - Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue. ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
    - Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions. ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: USD45m financing and xx.xx planned site modernizations support an expansion signal, not observed backup-only service revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: USD45m financing and xx.xx planned site modernizations support an expansion signal, not observed backup-only service revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Energy-service activity supports the role; the modeled provider-as-buyer subcontract share is not established.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Energy-service activity supports the role; the modeled provider-as-buyer subcontract share is not established.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: More than xx.xx% weak/off-grid project exposure constrains service-cohort concentration, not the global grid mix.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: More than xx.xx% weak/off-grid project exposure constrains service-cohort concentration, not the global grid mix.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The project confirms disconnected-site commercial demand; its weak/off-grid combined statistic does not separate those categories.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The project confirms disconnected-site commercial demand; its weak/off-grid combined statistic does not separate those categories.
11. Fingrid - How to Participate in the Reserve Markets
    - Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue. ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Applicable owner permission and market agreements are commercial access gates. They constrain forecast mixed-duty adoption without measuring its Global percentage. ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))
12. American Tower Corporation - Annual Report on Form 10-K for 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: US owned/operated towers are a disclosed company footprint, not a verified national inventory.

13. CPUC Requires Wireless Companies to Better Serve Customers in Emergencies - July 16, 2020
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A location-specific backup obligation supports a compliance purchasing context, not a nationwide battery-only spending percentage.
14. FCC - Internet Access Services: Status as of December 31, 2024, official state-government-hosted copy
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: National residential/business and fixed/mobile connections constrain the US customer perimeter, but not state equipment-purchasing attribution.
15. PowerSafe SBS Batteries | EnerSys
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Named telecom batteries support the battery-unit offering boundary; allocation weights are assumed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Named telecom batteries support the battery-unit offering boundary; allocation weights are assumed.
16. Vertiv NetSure M Series
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Configured enclosure, power and battery options support broader system classification, not universal bundle inclusion.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Configured enclosure, power and battery options support broader system classification, not universal bundle inclusion.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A marketed outdoor enclosure supports a protection option; global adoption and configuration proportions remain modeled.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A marketed outdoor enclosure supports a protection option; global adoption and configuration proportions remain modeled.
17. Ofcom - Network and Service Resilience Guidance for Communications Providers, June 16, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Core is a distinct, comparatively concentrated function with explicit backup expectations; global spending remains estimated.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Core is a distinct, comparatively concentrated function with explicit backup expectations; global spending remains estimated.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The stated xx.xx-xx.xx-fold site-scale distinction motivates lower-value, more numerous transport purchase equivalents.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The stated xx.xx-xx.xx-fold site-scale distinction motivates lower-value, more numerous transport purchase equivalents.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Peering and non-Internet interconnection are distinct functions; attributable backup purchase values are not disclosed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Peering and non-Internet interconnection are distinct functions; attributable backup purchase values are not disclosed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: June 2026 guidance identifies approximately four hours as good practice for active fixed-access cabinets. This supports a conditional Extended purchasing shift, not completed orders or a Global mandate. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/network-and-service-resilience-guidance-for-communications-providerspdf?v=xx.xx))

18. Technology and Tools | First Responder Network Authority
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Radio access, transport backhaul and core are separate network functions, supporting functional attribution without duplicate facility counting.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Radio access, transport backhaul and core are separate network functions, supporting functional attribution without duplicate facility counting.
19. Mobile Network Hardening Program | Australian Department of Infrastructure
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Completed battery enhancements and broader resilience projects provide a delivered regional demand signal, not a global forecast rate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Completed battery enhancements and broader resilience projects provide a delivered regional demand signal, not a global forecast rate.
20. BT - Digital Voice for Business Service Schedule, May 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Business customers bear backup-power expense, supporting a distinct institutional/business payer route rather than consumer eligibility extrapolation.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Business customers bear backup-power expense, supporting a distinct institutional/business payer route rather than consumer eligibility extrapolation.
21. Los Angeles Metro - Board Report 2024-1128, UPS Battery Replacement
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Completed and additional UPS battery replacements support continuing underground demand; mixed-load project budgets are not telecom-only revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Completed and additional UPS battery replacements support continuing underground demand; mixed-load project budgets are not telecom-only revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The transit authority's purchasing program supports an institutional own-use role, not its global spending proportion.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The transit authority's purchasing program supports an institutional own-use role, not its global spending proportion.
22. ETSI EN 300 019-1-3 V3.1.1 - Stationary Use at Weatherprotected Locations, May 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Weather-protected categories distinguish enclosure from environmental control; the standard does not measure market mix.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Weather-protected categories distinguish enclosure from environmental control; the standard does not measure market mix.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Maintained temperature control is a separate classification premise for the modeled conditional allocation.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Maintained temperature control is a separate classification premise for the modeled conditional allocation.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Enclosed locations without temperature control are distinguished from controlled locations.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Enclosed locations without temperature control are distinguished from controlled locations.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Partial weather protection is recognized separately; sales weights and future adoption remain assumed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Partial weather protection is recognized separately; sales weights and future adoption remain assumed.

23. ETSI EN 300 019-1-4 V3.1.1 - Stationary Use at Non-Weatherprotected Locations, May 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Non-weather-protected locations form a distinct classification regime, not a measured global spending pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Non-weather-protected locations form a distinct classification regime, not a measured global spending pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Sheltered non-weather-protected locations support the named conditional category.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Sheltered non-weather-protected locations support the named conditional category.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Open-air locations are separately recognized; their purchasing mix remains modeled.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Open-air locations are separately recognized; their purchasing mix remains modeled.
24. DC Power Plant / Rectifiers - UPS Rental
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Battery and complete DC-plant rentals establish delivery-category occurrence; global fees and utilization are not disclosed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Battery and complete DC-plant rentals establish delivery-category occurrence; global fees and utilization are not disclosed.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Commercial rental availability is a role premise only; modeled lessor sub-hire procurement remains unverified.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Commercial rental availability is a role premise only; modeled lessor sub-hire procurement remains unverified.
25. Helios Towers - Full Year Results 2025, March 12, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Grid-integration investment supplies a connection-improvement counterforce used conditionally in the forecast.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Grid-integration investment supplies a connection-improvement counterforce used conditionally in the forecast.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Reported xx.xx-hour average daily grid availability supports weak-grid commercial exposure, without a global classification share.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Reported xx.xx-hour average daily grid availability supports weak-grid commercial exposure, without a global classification share.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Grid integration and alternative-power investment qualify assumptions of permanently unchanged disconnected-site exposure.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Grid integration and alternative-power investment qualify assumptions of permanently unchanged disconnected-site exposure.
26. Telecommunications | Aggreko US
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Telecom battery-storage rental for temporary continuity supports delivery occurrence, not the estimated global fee scale.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom battery-storage rental for temporary continuity supports delivery occurrence, not the estimated global fee scale.
27. EnerSys PowerSafe SBS Front Terminal Batteries | Alpine Power Systems
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A named battery distributor supports the intermediary route; its listing is not a global channel-sales observation.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A named battery distributor supports the intermediary route; its listing is not a global channel-sales observation.

28. DC Power Services | Vertiv

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Cross-manufacturer projects and narrower upgrades support integration-prime and supported-replacement routes; numerical route proportions remain assumed.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Cross-manufacturer projects and narrower upgrades support integration-prime and supported-replacement routes; numerical route proportions remain assumed.

29. Shuangdeng Group Co., Ltd. - Global Offering Prospectus, August 18, 2025

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The company's own five-month 2025 lead-acid realization of RMB520.xx.xx/kWh constrains the relative-price bridge; syndicated industry claims are excluded. Forecast convergence remains assumed. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The company's own five-month 2025 lead-acid realization of RMB520.xx.xx/kWh constrains the relative-price bridge; syndicated industry claims are excluded. Forecast convergence remains assumed. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Own lithium-ion realization of RMB595.xx.xx/kWh is an input to the Lithium-Based value model, not a Global share or a Lithium-Metal sales observation. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Own lithium-ion realization of RMB595.xx.xx/kWh is an input to the Lithium-Based value model, not a Global share or a Lithium-Metal sales observation. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))

30. Amara Raja Crosses 1 GWh Lithium Storage Deployment Powering India's Telecom Networks

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The April xx.xx 2026 disclosure reports approximately xx.xx GWh across xx.xx cumulative telecom lithium sites over four years. This is a commercial adoption scale check, not annual Global revenue or a supplier-share input. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The April xx.xx 2026 disclosure reports approximately xx.xx GWh across xx.xx cumulative telecom lithium sites over four years. This is a commercial adoption scale check, not annual Global revenue or a supplier-share input. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The disclosed deployment identifies lithium-ion commercialization at scale, supporting the subtype's established commercial position without directly measuring its conditional Global share. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The disclosed deployment identifies lithium-ion commercialization at scale, supporting the subtype's established commercial position without directly measuring its conditional Global share. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))

31. Central Office Power Systems - EnerSys

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The central-office portfolio identifies Flooded Lead-Acid as a distinct telecom alternative, supporting the legacy-network category mapping but not its purchasing fraction. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The central-office portfolio identifies Flooded Lead-Acid as a distinct telecom alternative, supporting the legacy-network category mapping but not its purchasing fraction. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The portfolio separately identifies Valve-Regulated Lead-Acid, supporting the within-lead construction boundary used by the model. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The portfolio separately identifies Valve-Regulated Lead-Acid, supporting the within-lead construction boundary used by the model. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))

32. PowerSafe OPzV Batteries - EnerSys

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: EnerSys identifies OPzV as Gel and lists telecom applications. This supports commercial subtype mapping, not the assumed Gel/AGM volume or price mix. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-opzv/))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: EnerSys identifies OPzV as Gel and lists telecom applications. This supports commercial subtype mapping, not the assumed Gel/AGM volume or price mix. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-opzv/))

33. Bolloré - 2017 Registration Document

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The official filing identifies LMP professional outage-protection applications including telecom relays. This is a dated commercial boundary input, not evidence of 2025 telecom shipment value. ([bollore.com](https://www.bollore.com/wp-content/uploads/2018/xx.xx/bollore_ddr_2017_gb_bag-xx.xx-juin.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The official filing identifies LMP professional outage-protection applications including telecom relays. This is a dated commercial boundary input, not evidence of 2025 telecom shipment value. ([bollore.com](https://www.bollore.com/wp-content/uploads/2018/xx.xx/bollore_ddr_2017_gb_bag-xx.xx-juin.pdf))

34. Bolloré - Business Report 2025

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The 2025 report establishes continuing Lithium Metal Polymer commercial applications in electricity storage and buses, while omitting separately attributable telecom sales. It constrains the low-access expected-purchase model; no capacity-to-sales conversion is used. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The 2025 report establishes continuing Lithium Metal Polymer commercial applications in electricity storage and buses, while omitting separately attributable telecom sales. It constrains the low-access expected-purchase model; no capacity-to-sales conversion is used. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The report preserves the distinction between LMP and conventional lithium-ion, supporting the exhaustive subtype attribution rule rather than treating polymer packaging as Lithium-Metal. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The report preserves the distinction between LMP and conventional lithium-ion, supporting the exhaustive subtype attribution rule rather than treating polymer packaging as Lithium-Metal. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))

35. AT&T to Replace U-Verse Cabinet Batteries - Fierce Network, January 15, 2008

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The January xx.xx 2008 report corroborates AT&T's replacement of approximately xx.xx Avestor batteries after the supplier's closure. The obsolete stock is therefore not carried into the 2025 or 2032 purchasing numerator. ([fierce-network.com](https://www.fierce-network.com/telecom/at-t-to-replace-u-verse-cabinet-batteries))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The January xx.xx 2008 report corroborates AT&T's replacement of approximately xx.xx Avestor batteries after the supplier's closure. The obsolete stock is therefore not carried into the 2025 or 2032 purchasing numerator. ([fierce-network.com](https://www.fierce-network.com/telecom/at-t-to-replace-u-verse-cabinet-batteries))

36. PowerSafe NiCd Batteries - EnerSys

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: EnerSys identifies Nickel-Cadmium for central offices and outside plant, supporting the modeled legacy telecom cohort but not its installed attachment or replacement spending. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-nicd/))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: EnerSys identifies Nickel-Cadmium for central offices and outside plant, supporting the modeled legacy telecom cohort but not its installed attachment or replacement spending. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-nicd/))

37. FDK Ni-MH Battery Is Chosen for the Cellect 600 Product of Alpha Technologies

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The October xx.xx 2015 announcement identifies NiMH in Alpha's Cellect xx.xx small-cell backup proposition. It supports a historical cohort rather than current fulfillment or assumed surviving stock. ([fdk.com](https://www.fdk.com/whatsnew-e/release20151019-e.html))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The October xx.xx 2015 announcement identifies NiMH in Alpha's Cellect xx.xx small-cell backup proposition. It supports a historical cohort rather than current fulfillment or assumed surviving stock. ([fdk.com](https://www.fdk.com/whatsnew-e/release20151019-e.html))

38. Products - Encell Technology
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Encell positions its Fused Iron Nickel-Iron battery for telecom. This supports the commercial category lead, while current purchases and attachment remain modeled. ([encell.com](https://encell.com/products/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Encell positions its Fused Iron Nickel-Iron battery for telecom. This supports the commercial category lead, while current purchases and attachment remain modeled. ([encell.com](https://encell.com/products/))
39. Telecom/5G - ZAF Energy Systems
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: ZAF positions Nickel-Zinc for telecom/5G. Its supplier proposition supports application mapping, not the modeled annual attachment or threefold forecast value multiplier. ([zafsys.com](https://zafsys.com/telecom-5g/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: ZAF positions Nickel-Zinc for telecom/5G. Its supplier proposition supports application mapping, not the modeled annual attachment or threefold forecast value multiplier. ([zafsys.com](https://zafsys.com/telecom-5g/))
40. HORIEN Salt Battery Solutions and Inlyte Energy Announce a Strategic Partnership
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: HORIEN's March xx.xx 2025 statement identifies sodium-metal-chloride telecom backup. Its separate partnership announcement is not counted as delivered telecom sales. ([horien.com](https://horien.com/wp-content/uploads/2025/xx.xx/Press-Release_HORIEN-Inlyte-International-Version.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: HORIEN's March xx.xx 2025 statement identifies sodium-metal-chloride telecom backup. Its separate partnership announcement is not counted as delivered telecom sales. ([horien.com](https://horien.com/wp-content/uploads/2025/xx.xx/Press-Release_HORIEN-Inlyte-International-Version.pdf))
41. Energy Backup - Phinergy
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Phinergy markets Aluminum-Air continuity offerings to telecom operators and tower companies. The source supports category and buyer mapping, not the modeled installed attachment or replacement numerator. ([phinergy.com](https://phinergy.com/solutions/energy-backup/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Phinergy markets Aluminum-Air continuity offerings to telecom operators and tower companies. The source supports category and buyer mapping, not the modeled installed attachment or replacement numerator. ([phinergy.com](https://phinergy.com/solutions/energy-backup/))
42. Australian Flow Batteries - RFB40X Series
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: RFB40X literature identifies telecom among stationary commercial applications. It supports the qualifying project boundary, not delivered projects, revenue or assumed attachment. ([afb.energy](https://www.afb.energy/wp-content/uploads/2025/xx.xx/Australian-Flow-Batteries-RFB40X-Series-2024.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: RFB40X literature identifies telecom among stationary commercial applications. It supports the qualifying project boundary, not delivered projects, revenue or assumed attachment. ([afb.energy](https://www.afb.energy/wp-content/uploads/2025/xx.xx/Australian-Flow-Batteries-RFB40X-Series-2024.pdf))

43. PowerReserve - Verizon Residential Accessories
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Verizon advertises an alkaline-cell voice-backup device at USD39.xx.xx excluding batteries. This supports a qualifying primary-zinc premises route and price comparator, not assumed Global attachment or first-sale realization. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Verizon advertises an alkaline-cell voice-backup device at USD39.xx.xx excluding batteries. This supports a qualifying primary-zinc premises route and price comparator, not assumed Global attachment or first-sale realization. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Advertised voice-only protection reaches xx.xx hours; internet and television protection are excluded. This supports service-specific Day-Scale classification. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Advertised voice-only protection reaches xx.xx hours; internet and television protection are excluded. This supports service-specific Day-Scale classification. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
44. Alkaline Manganese Dioxide Handbook and Application Manual - Energizer
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The manufacturer's alkaline manganese-dioxide classification supports the zinc-family mapping for qualifying premises backup. It provides no telecom purchasing weight. ([data.energizer.com](https://data.energizer.com/pdfs/alkaline_appman.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The manufacturer's alkaline manganese-dioxide classification supports the zinc-family mapping for qualifying premises backup. It provides no telecom purchasing weight. ([data.energizer.com](https://data.energizer.com/pdfs/alkaline_appman.pdf))
45. ITU-T Work Programme - Aqueous Zinc-Based Battery Systems for Base Station Applications
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The aqueous-zinc base-station work item is Under study with December 2027 timing. It constrains the forecast commercialization assumption but establishes neither approval nor customer purchases. ([itu.int](https://www.itu.int/itu-t/workprog/wp_item.aspx?isn=xx.xx))
46. ITU-T L.1397 - Battery System with Integrated Control and Monitoring Information Model
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The October 2025 recommendation names lithium-lead, lithium-sodium and sodium-lead combinations. This supports mixed-family classification, not inseparable pricing or Global prevalence. ([itu.int](https://www.itu.int/rec/dologin_pub.asp?id=T-REC-L.xx.xx-xx.xx-I%xx.xx%21PDF-E&lang=e&type=items))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The October 2025 recommendation names lithium-lead, lithium-sodium and sodium-lead combinations. This supports mixed-family classification, not inseparable pricing or Global prevalence. ([itu.int](https://www.itu.int/rec/dologin_pub.asp?id=T-REC-L.xx.xx-xx.xx-I%xx.xx%21PDF-E&lang=e&type=items))
47. ETSI EN 300 132-1 V2.2.1 - ICT Power Supply Interface: Alternating Current
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The ICT standard identifies the protected-load AC interface, supporting output-side attribution rather than classification by chemistry or normal utility input. It supplies no sales mix. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013201v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The ICT standard identifies the protected-load AC interface, supporting output-side attribution rather than classification by chemistry or normal utility input. It supplies no sales mix. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013201v020201p.pdf))

48. ETSI EN 300 132-2 V2.8.1 - ICT Power Supply Interface: Direct Current
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The ICT standard separately identifies the DC protected-equipment interface, supporting the DC-output boundary independently of battery chemistry. It is not a purchasing census. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013202v020801p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The ICT standard separately identifies the DC protected-equipment interface, supporting the DC-output boundary independently of battery chemistry. It is not a purchasing census. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013202v020801p.pdf))
49. Vertiv NetSure Inverter Series - Converged AC and DC Power System
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: NetSure Inverter Series identifies AC and DC loads supported through a common battery bank. This establishes a combined-output proposition, not its modeled purchasing fraction or future adoption. ([vertiv.com](https://www.vertiv.com/en-us/products-catalog/critical-power/dc-power-systems/vertiv-netsure-inverter-series/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: NetSure Inverter Series identifies AC and DC loads supported through a common battery bank. This establishes a combined-output proposition, not its modeled purchasing fraction or future adoption. ([vertiv.com](https://www.vertiv.com/en-us/products-catalog/critical-power/dc-power-systems/vertiv-netsure-inverter-series/))

50. ETSI EN 302 099 V2.2.1 - Powering of Equipment in Access Network
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Local powering uses a colocated source; allocation follows the backed source rather than receiver inventory. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Local powering uses a colocated source; allocation follows the backed source rather than receiver inventory. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Remote-source backup is distinguished from local backup, supporting the parent commercial boundary but not purchasing weights. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Remote-source backup is distinguished from local backup, supporting the parent commercial boundary but not purchasing weights. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Centralized powering originates at a telecommunications center. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Centralized powering originates at a telecommunications center. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Cluster powering uses a source outside the telecommunications center, supporting separation within Remote Powering. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Cluster powering uses a source outside the telecommunications center, supporting separation within Remote Powering. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Reverse powering is customer-origin supply, supporting source-level attribution of the battery-backed provider package. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Reverse powering is customer-origin supply, supporting source-level attribution of the battery-backed provider package. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))

51. Set Up Your Battery Backup - AT&T G.Fast Service with BGW210

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The 2021 provider document names a battery-backed package protecting G.fast customer and distribution equipment through reverse power feed. It establishes a dated source-backup proposition, not current Global quantities. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The 2021 provider document names a battery-backed package protecting G.fast customer and distribution equipment through reverse power feed. It establishes a dated source-backup proposition, not current Global quantities. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The provider advertises a xx.xx-hour service window for the particular package, supporting Day-Scale mapping without a universal premises-duration inference. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The provider advertises a xx.xx-hour service window for the particular package, supporting Day-Scale mapping without a universal premises-duration inference. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

52. DNA Tower Offers Battery Capacity in Electricity Reserve Markets with Elisa DES

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The June xx.xx 2025 announcement reports DNA Tower batteries connected to Finnish reserve markets while retaining outage continuity. This establishes a specific mixed-duty implementation, not Global attachment or guaranteed returns. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/press-releases/dna-tower-becomes-worlds-first-tower-company-to-offer-battery-capacity-in-electricity-reserve-markets-with-elisa-des))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The June xx.xx 2025 announcement reports DNA Tower batteries connected to Finnish reserve markets while retaining outage continuity. This establishes a specific mixed-duty implementation, not Global attachment or guaranteed returns. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/press-releases/dna-tower-becomes-worlds-first-tower-company-to-offer-battery-capacity-in-electricity-reserve-markets-with-elisa-des))

53. Case Elisa: Virtual Power Plant in the Telecom Industry

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The company case reports over 2,000 aggregated sites and approximately xx.xx MWh. This is an installed commercial scale check, not annual purchasing value or Global prevalence. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/customer-stories/elisacase))

21.3. India

Table 524. India Telecom Battery Backup System Market Size, 2017-2032 (USD Million)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
India	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 525. India Telecom Battery Backup System Market Size, by Offering, 2017-2032 (USD Million)

Offering	2023	2024	2025	2026	2027	2032	CAGR (%)
Battery Units and Assemblies	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Complete Backup Systems	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 526. India Telecom Battery Backup System Market Size, by Battery Technology, 2017-2032 (USD Million)

Battery Technology	2023	2024	2025	2026	2027	2032	CAGR (%)
Aqueous Zinc-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Flow Batteries	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lithium-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Metal-Air	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Multi-Chemistry	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Sodium-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 527. India Telecom Battery Backup System Market Size, by Lead-Acid, 2017-2032 (USD Million)

Lead-Acid	2023	2024	2025	2026	2027	2032	CAGR (%)
Flooded Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Valve-Regulated Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 528. India Telecom Battery Backup System Market Size, by Valve-Regulated Lead-Acid, 2017-2032 (USD Million)

Valve-Regulated Lead-Acid	2023	2024	2025	2026	2027	2032	CAGR (%)
Absorbent Glass Mat	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Gel	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 529. India Telecom Battery Backup System Market Size, by Lithium-Based, 2017-2032 (USD Million)

Lithium-Based	2023	2024	2025	2026	2027	2032	CAGR (%)
Lithium-Ion	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lithium-Metal	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 530. India Telecom Battery Backup System Market Size, by Nickel-Based, 2017-2032 (USD Million)

Nickel-Based	2023	2024	2025	2026	2027	2032	CAGR (%)
Nickel-Cadmium	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Iron	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Metal Hydride	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Zinc	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 531. India Telecom Battery Backup System Market Size, by Power Interface, 2017-2032 (USD Million)

Power Interface	2023	2024	2025	2026	2027	2032	CAGR (%)
AC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Combined AC/DC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
DC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 532. India Telecom Battery Backup System Market Size, by Network Application, 2017-2032 (USD Million)

Network Application	2023	2024	2025	2026	2027	2032	CAGR (%)
Core Networks & Network Control	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Customer-Premises Connectivity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Network Interconnection & Peering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Transport & Backhaul Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Wireless Access Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Wireline Access Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 533. India Telecom Battery Backup System Market Size, by Buyer Type, 2017-2032 (USD Million)

Buyer Type	2023	2024	2025	2026	2027	2032	CAGR (%)
Business & Institutional Connectivity Owners	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Equipment Leasing & Rental Providers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Household Connectivity Purchasers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Energy-Service Providers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Infrastructure & Tower Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecommunications Network Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 534. India Telecom Battery Backup System Market Size, by Installation Environment, 2017-2032 (USD Million)

Installation Environment	2023	2024	2025	2026	2027	2032	CAGR (%)
Non-Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Underground Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 535. India Telecom Battery Backup System Market Size, by Weather-Protected Locations, 2017-2032 (USD Million)

Weather-Protected Locations	2023	2024	2025	2026	2027	2032	CAGR (%)
Enclosed Locations Without Temperature Control	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Partly Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Temperature-Controlled Enclosed Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 536. India Telecom Battery Backup System Market Size, by Non-Weather-Protected Locations, 2017-2032 (USD Million)

Non-Weather-Protected Locations	2023	2024	2025	2026	2027	2032	CAGR (%)
Open-Air Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Sheltered Non-Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 537. India Telecom Battery Backup System Market Size, by Powering Architecture, 2017-2032 (USD Million)

Powering Architecture	2023	2024	2025	2026	2027	2032	CAGR (%)
Local Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Remote Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 538. India Telecom Battery Backup System Market Size, by Remote Powering, 2017-2032 (USD Million)

Remote Powering	2023	2024	2025	2026	2027	2032	CAGR (%)
Centralized Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Cluster Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reverse Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 539. India Telecom Battery Backup System Market Size, by Commercial Delivery Model, 2017-2032 (USD Million)

Commercial Delivery Model	2023	2024	2025	2026	2027	2032	CAGR (%)
Leased or Rented Equipment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Managed Backup Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Owned Equipment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 540. India Telecom Battery Backup System Market Size, by Sales Channel, 2017-2032 (USD Million)

Sales Channel	2023	2024	2025	2026	2027	2032	CAGR (%)
Direct Manufacturer Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Distributor and Retailer Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Systems Integrator and Contractor Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Service Provider Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 541. India Telecom Battery Backup System Market Size, by Grid Availability, 2017-2032 (USD Million)

Grid Availability	2023	2024	2025	2026	2027	2032	CAGR (%)
Off-Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reliable Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Unreliable Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 542. India Telecom Battery Backup System Market Size, by Backup Duty, 2017-2032 (USD Million)

Backup Duty	2023	2024	2025	2026	2027	2032	CAGR (%)
Backup with Energy Management	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reserve-Only Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 543. India Telecom Battery Backup System Market Size, by Backup Autonomy, 2017-2032 (USD Million)

Backup Autonomy	2023	2024	2025	2026	2027	2032	CAGR (%)
Day-Scale Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Extended-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Intermediate-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Short-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. China Tower - 2025 Annual Results, March 18, 2026
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The xx.xx.149m-site inventory constrains wireless activity; forecast purchasing remains modeled.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The xx.xx.149m-site inventory constrains wireless activity; forecast purchasing remains modeled.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Replacement/improvement CAPEX fell from RMB6837m to RMB5474m, qualifying automatic replacement-led growth.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Replacement/improvement CAPEX fell from RMB6837m to RMB5474m, qualifying automatic replacement-led growth.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Disclosed tower operations establish a material infrastructure purchasing setting, not a global buyer share.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Disclosed tower operations establish a material infrastructure purchasing setting, not a global buyer share.
2. Broadband Commission - The State of Broadband: Our Digital World, 2025
   - Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))

3. Battery Backup - Meriwether Lewis Electric Cooperative
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Separately available replacement batteries support a battery-only replacement route.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Separately available replacement batteries support a battery-only replacement route.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The USD100-plus-tax device is a retail comparator, not an observed 2025 first-sale realization.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The USD100-plus-tax device is a retail comparator, not an observed 2025 first-sale realization.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Customer purchase and replacement responsibilities support household-funded procurement.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Customer purchase and replacement responsibilities support household-funded procurement.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Purchased equipment does not automatically include continuing service-plan coverage.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Purchased equipment does not automatically include continuing service-plan coverage.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Local provider sales establish this route alongside manufacturer-direct purchasing.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Local provider sales establish this route alongside manufacturer-direct purchasing.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The provider advertises approximately five hours for combined voice and internet, supporting service-specific Extended classification, not an observed 2025 purchase mix. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The provider advertises approximately five hours for combined voice and internet, supporting service-specific Extended classification, not an observed 2025 purchase mix. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The same proposition advertises xx.xx-hour voice-only protection, supporting Day-Scale mapping without equating duration with a universally larger purchase basket. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The same proposition advertises xx.xx-hour voice-only protection, supporting Day-Scale mapping without equating duration with a universally larger purchase basket. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
4. EnerSys 2026 Proxy Statement and Annual Report
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Direct customer supply is disclosed within a diversified international business; telecom channel proportions are not disclosed.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Direct customer supply is disclosed within a diversified international business; telecom channel proportions are not disclosed.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Distributor supply is disclosed, supporting route occurrence rather than its modeled sales weight.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Distributor supply is disclosed, supporting route occurrence rather than its modeled sales weight.

5. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025

   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: Audited 2025 telecom revenue of RMB1,xx.xx declined xx.xx%; telecom purchasing weakness is retained as counterevidence to automatic substitution-led aggregate growth. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Audited 2025 telecom revenue of RMB1,xx.xx declined xx.xx%; telecom purchasing weakness is retained as counterevidence to automatic substitution-led aggregate growth. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

   · Evidence informing base-year allocation inputs; displayed values and growth are calculated: Telecom-specific results are separated from adjacent data-center and power-storage growth when assessing lithium substitution; the filing does not disclose the modeled Global split. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

   · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom-specific results are separated from adjacent data-center and power-storage growth when assessing lithium substitution; the filing does not disclose the modeled Global split. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

6. Amara Raja Energy & Mobility - Q2/H1 FY2026 Earnings Presentation, November 6, 2025

   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand. ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))

7. IHS Holding Limited - First-Quarter 2026 Financial Statements

   · Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement. ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

8. Ofcom - Mobile RAN Power Resilience: Technical Report and CFI Update, February 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The evaluated xx.xx-minute alternative supplies a subhour commercial-planning anchor, not observed shipments.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The evaluated xx.xx-minute alternative supplies a subhour commercial-planning anchor, not observed shipments.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: One-hour and two-hour alternatives anchor the analytical Intermediate band. Aggregate scenarios include multiple years of operating costs and are not annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: One-hour and two-hour alternatives anchor the analytical Intermediate band. Aggregate scenarios include multiple years of operating costs and are not annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The four-hour alternative anchors the Extended band's lower boundary without establishing a Global minimum or purchasing allocation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The four-hour alternative anchors the Extended band's lower boundary without establishing a Global minimum or purchasing allocation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

9. Ofcom - Your Landline Is Going Digital: What You Need to Know

- Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
- Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Restricted provider-funded eligibility constrains operator-funded premises attribution and forecast adoption.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Restricted provider-funded eligibility constrains operator-funded premises attribution and forecast adoption.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Eligibility is not universal household funding; purchaser proportions remain assumptions.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Eligibility is not universal household funding; purchaser proportions remain assumptions.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Eligibility-limited provider backup and the one-hour minimum for qualifying customers constrain premises demand and anchor the Intermediate band's lower boundary. They do not establish universal adoption. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Eligibility-limited provider backup and the one-hour minimum for qualifying customers constrain premises demand and anchor the Intermediate band's lower boundary. They do not establish universal adoption. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

10. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone
    - Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue. ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
    - Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions. ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: USD45m financing and xx.xx planned site modernizations support an expansion signal, not observed backup-only service revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: USD45m financing and xx.xx planned site modernizations support an expansion signal, not observed backup-only service revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Energy-service activity supports the role; the modeled provider-as-buyer subcontract share is not established.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Energy-service activity supports the role; the modeled provider-as-buyer subcontract share is not established.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: More than xx.xx% weak/off-grid project exposure constrains service-cohort concentration, not the global grid mix.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: More than xx.xx% weak/off-grid project exposure constrains service-cohort concentration, not the global grid mix.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The project confirms disconnected-site commercial demand; its weak/off-grid combined statistic does not separate those categories.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The project confirms disconnected-site commercial demand; its weak/off-grid combined statistic does not separate those categories.
11. Fingrid - How to Participate in the Reserve Markets
    - Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue. ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Applicable owner permission and market agreements are commercial access gates. They constrain forecast mixed-duty adoption without measuring its Global percentage. ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))
12. PowerSafe SBS Batteries | EnerSys
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Named telecom batteries support the battery-unit offering boundary; allocation weights are assumed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Named telecom batteries support the battery-unit offering boundary; allocation weights are assumed.

13. Vertiv NetSure M Series
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Configured enclosure, power and battery options support broader system classification, not universal bundle inclusion.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Configured enclosure, power and battery options support broader system classification, not universal bundle inclusion.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A marketed outdoor enclosure supports a protection option; global adoption and configuration proportions remain modeled.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A marketed outdoor enclosure supports a protection option; global adoption and configuration proportions remain modeled.
14. Ofcom - Network and Service Resilience Guidance for Communications Providers, June 16, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Core is a distinct, comparatively concentrated function with explicit backup expectations; global spending remains estimated.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Core is a distinct, comparatively concentrated function with explicit backup expectations; global spending remains estimated.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The stated xx.xx-xx.xx-fold site-scale distinction motivates lower-value, more numerous transport purchase equivalents.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The stated xx.xx-xx.xx-fold site-scale distinction motivates lower-value, more numerous transport purchase equivalents.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Peering and non-Internet interconnection are distinct functions; attributable backup purchase values are not disclosed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Peering and non-Internet interconnection are distinct functions; attributable backup purchase values are not disclosed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: June 2026 guidance identifies approximately four hours as good practice for active fixed-access cabinets. This supports a conditional Extended purchasing shift, not completed orders or a Global mandate. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/network-and-service-resilience-guidance-for-communications-providerspdf?v=xx.xx))
15. Technology and Tools | First Responder Network Authority
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Radio access, transport backhaul and core are separate network functions, supporting functional attribution without duplicate facility counting.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Radio access, transport backhaul and core are separate network functions, supporting functional attribution without duplicate facility counting.
16. Mobile Network Hardening Program | Australian Department of Infrastructure
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Completed battery enhancements and broader resilience projects provide a delivered regional demand signal, not a global forecast rate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Completed battery enhancements and broader resilience projects provide a delivered regional demand signal, not a global forecast rate.
17. BT - Digital Voice for Business Service Schedule, May 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Business customers bear backup-power expense, supporting a distinct institutional/business payer route rather than consumer eligibility extrapolation.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Business customers bear backup-power expense, supporting a distinct institutional/business payer route rather than consumer eligibility extrapolation.

18. Los Angeles Metro - Board Report 2024-1128, UPS Battery Replacement
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Completed and additional UPS battery replacements support continuing underground demand; mixed-load project budgets are not telecom-only revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Completed and additional UPS battery replacements support continuing underground demand; mixed-load project budgets are not telecom-only revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The transit authority's purchasing program supports an institutional own-use role, not its global spending proportion.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The transit authority's purchasing program supports an institutional own-use role, not its global spending proportion.
19. ETSI EN 300 019-1-3 V3.1.1 - Stationary Use at Weatherprotected Locations, May 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Weather-protected categories distinguish enclosure from environmental control; the standard does not measure market mix.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Weather-protected categories distinguish enclosure from environmental control; the standard does not measure market mix.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Maintained temperature control is a separate classification premise for the modeled conditional allocation.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Maintained temperature control is a separate classification premise for the modeled conditional allocation.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Enclosed locations without temperature control are distinguished from controlled locations.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Enclosed locations without temperature control are distinguished from controlled locations.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Partial weather protection is recognized separately; sales weights and future adoption remain assumed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Partial weather protection is recognized separately; sales weights and future adoption remain assumed.
20. ETSI EN 300 019-1-4 V3.1.1 - Stationary Use at Non-Weatherprotected Locations, May 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Non-weather-protected locations form a distinct classification regime, not a measured global spending pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Non-weather-protected locations form a distinct classification regime, not a measured global spending pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Sheltered non-weather-protected locations support the named conditional category.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Sheltered non-weather-protected locations support the named conditional category.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Open-air locations are separately recognized; their purchasing mix remains modeled.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Open-air locations are separately recognized; their purchasing mix remains modeled.

21. DC Power Plant / Rectifiers - UPS Rental
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Battery and complete DC-plant rentals establish delivery-category occurrence; global fees and utilization are not disclosed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Battery and complete DC-plant rentals establish delivery-category occurrence; global fees and utilization are not disclosed.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Commercial rental availability is a role premise only; modeled lessor sub-hire procurement remains unverified.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Commercial rental availability is a role premise only; modeled lessor sub-hire procurement remains unverified.
22. Helios Towers - Full Year Results 2025, March 12, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Grid-integration investment supplies a connection-improvement counterforce used conditionally in the forecast.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Grid-integration investment supplies a connection-improvement counterforce used conditionally in the forecast.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Reported xx.xx-hour average daily grid availability supports weak-grid commercial exposure, without a global classification share.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Reported xx.xx-hour average daily grid availability supports weak-grid commercial exposure, without a global classification share.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Grid integration and alternative-power investment qualify assumptions of permanently unchanged disconnected-site exposure.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Grid integration and alternative-power investment qualify assumptions of permanently unchanged disconnected-site exposure.
23. Telecommunications | Aggreko US
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Telecom battery-storage rental for temporary continuity supports delivery occurrence, not the estimated global fee scale.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom battery-storage rental for temporary continuity supports delivery occurrence, not the estimated global fee scale.
24. EnerSys PowerSafe SBS Front Terminal Batteries | Alpine Power Systems
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A named battery distributor supports the intermediary route; its listing is not a global channel-sales observation.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A named battery distributor supports the intermediary route; its listing is not a global channel-sales observation.
25. DC Power Services | Vertiv
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Cross-manufacturer projects and narrower upgrades support integration-prime and supported-replacement routes; numerical route proportions remain assumed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Cross-manufacturer projects and narrower upgrades support integration-prime and supported-replacement routes; numerical route proportions remain assumed.

26. Shuangdeng Group Co., Ltd. - Global Offering Prospectus, August 18, 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The company's own five-month 2025 lead-acid realization of RMB520.xx.xx/kWh constrains the relative-price bridge; syndicated industry claims are excluded. Forecast convergence remains assumed. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The company's own five-month 2025 lead-acid realization of RMB520.xx.xx/kWh constrains the relative-price bridge; syndicated industry claims are excluded. Forecast convergence remains assumed. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Own lithium-ion realization of RMB595.xx.xx/kWh is an input to the Lithium-Based value model, not a Global share or a Lithium-Metal sales observation. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Own lithium-ion realization of RMB595.xx.xx/kWh is an input to the Lithium-Based value model, not a Global share or a Lithium-Metal sales observation. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
27. Amara Raja Crosses 1 GWh Lithium Storage Deployment Powering India's Telecom Networks
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The April xx.xx 2026 disclosure reports approximately xx.xx GWh across xx.xx cumulative telecom lithium sites over four years. This is a commercial adoption scale check, not annual Global revenue or a supplier-share input. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The April xx.xx 2026 disclosure reports approximately xx.xx GWh across xx.xx cumulative telecom lithium sites over four years. This is a commercial adoption scale check, not annual Global revenue or a supplier-share input. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The disclosed deployment identifies lithium-ion commercialization at scale, supporting the subtype's established commercial position without directly measuring its conditional Global share. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The disclosed deployment identifies lithium-ion commercialization at scale, supporting the subtype's established commercial position without directly measuring its conditional Global share. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
28. Central Office Power Systems - EnerSys
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The central-office portfolio identifies Flooded Lead-Acid as a distinct telecom alternative, supporting the legacy-network category mapping but not its purchasing fraction. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The central-office portfolio identifies Flooded Lead-Acid as a distinct telecom alternative, supporting the legacy-network category mapping but not its purchasing fraction. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The portfolio separately identifies Valve-Regulated Lead-Acid, supporting the within-lead construction boundary used by the model. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The portfolio separately identifies Valve-Regulated Lead-Acid, supporting the within-lead construction boundary used by the model. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))

29. PowerSafe OPzV Batteries - EnerSys
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: EnerSys identifies OPzV as Gel and lists telecom applications. This supports commercial subtype mapping, not the assumed Gel/AGM volume or price mix. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-opzv/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: EnerSys identifies OPzV as Gel and lists telecom applications. This supports commercial subtype mapping, not the assumed Gel/AGM volume or price mix. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-opzv/))
30. Bolloré - 2017 Registration Document
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The official filing identifies LMP professional outage-protection applications including telecom relays. This is a dated commercial boundary input, not evidence of 2025 telecom shipment value. ([bollore.com](https://www.bollore.com/wp-content/uploads/2018/xx.xx/bollore_ddr_2017_gb_bag-xx.xx-juin.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The official filing identifies LMP professional outage-protection applications including telecom relays. This is a dated commercial boundary input, not evidence of 2025 telecom shipment value. ([bollore.com](https://www.bollore.com/wp-content/uploads/2018/xx.xx/bollore_ddr_2017_gb_bag-xx.xx-juin.pdf))
31. Bolloré - Business Report 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The 2025 report establishes continuing Lithium Metal Polymer commercial applications in electricity storage and buses, while omitting separately attributable telecom sales. It constrains the low-access expected-purchase model; no capacity-to-sales conversion is used. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The 2025 report establishes continuing Lithium Metal Polymer commercial applications in electricity storage and buses, while omitting separately attributable telecom sales. It constrains the low-access expected-purchase model; no capacity-to-sales conversion is used. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The report preserves the distinction between LMP and conventional lithium-ion, supporting the exhaustive subtype attribution rule rather than treating polymer packaging as Lithium-Metal. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The report preserves the distinction between LMP and conventional lithium-ion, supporting the exhaustive subtype attribution rule rather than treating polymer packaging as Lithium-Metal. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))
32. AT&T to Replace U-Verse Cabinet Batteries - Fierce Network, January 15, 2008
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The January xx.xx 2008 report corroborates AT&T's replacement of approximately xx.xx Avestor batteries after the supplier's closure. The obsolete stock is therefore not carried into the 2025 or 2032 purchasing numerator. ([fierce-network.com](https://www.fierce-network.com/telecom/at-t-to-replace-u-verse-cabinet-batteries))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The January xx.xx 2008 report corroborates AT&T's replacement of approximately xx.xx Avestor batteries after the supplier's closure. The obsolete stock is therefore not carried into the 2025 or 2032 purchasing numerator. ([fierce-network.com](https://www.fierce-network.com/telecom/at-t-to-replace-u-verse-cabinet-batteries))

33. PowerSafe NiCd Batteries - EnerSys
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: EnerSys identifies Nickel-Cadmium for central offices and outside plant, supporting the modeled legacy telecom cohort but not its installed attachment or replacement spending. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-nicd/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: EnerSys identifies Nickel-Cadmium for central offices and outside plant, supporting the modeled legacy telecom cohort but not its installed attachment or replacement spending. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-nicd/))
34. FDK Ni-MH Battery Is Chosen for the Cellect 600 Product of Alpha Technologies
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The October xx.xx 2015 announcement identifies NiMH in Alpha's Cellect xx.xx small-cell backup proposition. It supports a historical cohort rather than current fulfillment or assumed surviving stock. ([fdk.com](https://www.fdk.com/whatsnew-e/release20151019-e.html))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The October xx.xx 2015 announcement identifies NiMH in Alpha's Cellect xx.xx small-cell backup proposition. It supports a historical cohort rather than current fulfillment or assumed surviving stock. ([fdk.com](https://www.fdk.com/whatsnew-e/release20151019-e.html))
35. Products - Encell Technology
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Encell positions its Fused Iron Nickel-Iron battery for telecom. This supports the commercial category lead, while current purchases and attachment remain modeled. ([encell.com](https://encell.com/products/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Encell positions its Fused Iron Nickel-Iron battery for telecom. This supports the commercial category lead, while current purchases and attachment remain modeled. ([encell.com](https://encell.com/products/))
36. Telecom/5G - ZAF Energy Systems
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: ZAF positions Nickel-Zinc for telecom/5G. Its supplier proposition supports application mapping, not the modeled annual attachment or threefold forecast value multiplier. ([zafsys.com](https://zafsys.com/telecom-5g/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: ZAF positions Nickel-Zinc for telecom/5G. Its supplier proposition supports application mapping, not the modeled annual attachment or threefold forecast value multiplier. ([zafsys.com](https://zafsys.com/telecom-5g/))
37. HORIEN Salt Battery Solutions and Inlyte Energy Announce a Strategic Partnership
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: HORIEN's March xx.xx 2025 statement identifies sodium-metal-chloride telecom backup. Its separate partnership announcement is not counted as delivered telecom sales. ([horien.com](https://horien.com/wp-content/uploads/2025/xx.xx/Press-Release_HORIEN-Inlyte-International-Version.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: HORIEN's March xx.xx 2025 statement identifies sodium-metal-chloride telecom backup. Its separate partnership announcement is not counted as delivered telecom sales. ([horien.com](https://horien.com/wp-content/uploads/2025/xx.xx/Press-Release_HORIEN-Inlyte-International-Version.pdf))
38. Energy Backup - Phinergy
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Phinergy markets Aluminum-Air continuity offerings to telecom operators and tower companies. The source supports category and buyer mapping, not the modeled installed attachment or replacement numerator. ([phinergy.com](https://phinergy.com/solutions/energy-backup/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Phinergy markets Aluminum-Air continuity offerings to telecom operators and tower companies. The source supports category and buyer mapping, not the modeled installed attachment or replacement numerator. ([phinergy.com](https://phinergy.com/solutions/energy-backup/))

39. Australian Flow Batteries - RFB40X Series

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: RFB40X literature identifies telecom among stationary commercial applications. It supports the qualifying project boundary, not delivered projects, revenue or assumed attachment. ([afb.energy](https://www.afb.energy/wp-content/uploads/2025/xx.xx/Australian-Flow-Batteries-RFB40X-Series-2024.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: RFB40X literature identifies telecom among stationary commercial applications. It supports the qualifying project boundary, not delivered projects, revenue or assumed attachment. ([afb.energy](https://www.afb.energy/wp-content/uploads/2025/xx.xx/Australian-Flow-Batteries-RFB40X-Series-2024.pdf))

40. PowerReserve - Verizon Residential Accessories

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Verizon advertises an alkaline-cell voice-backup device at USD39.xx.xx excluding batteries. This supports a qualifying primary-zinc premises route and price comparator, not assumed Global attachment or first-sale realization. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Verizon advertises an alkaline-cell voice-backup device at USD39.xx.xx excluding batteries. This supports a qualifying primary-zinc premises route and price comparator, not assumed Global attachment or first-sale realization. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Advertised voice-only protection reaches xx.xx hours; internet and television protection are excluded. This supports service-specific Day-Scale classification. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Advertised voice-only protection reaches xx.xx hours; internet and television protection are excluded. This supports service-specific Day-Scale classification. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))

41. Alkaline Manganese Dioxide Handbook and Application Manual - Energizer

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The manufacturer's alkaline manganese-dioxide classification supports the zinc-family mapping for qualifying premises backup. It provides no telecom purchasing weight. ([data.energizer.com](https://data.energizer.com/pdfs/alkaline_appman.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The manufacturer's alkaline manganese-dioxide classification supports the zinc-family mapping for qualifying premises backup. It provides no telecom purchasing weight. ([data.energizer.com](https://data.energizer.com/pdfs/alkaline_appman.pdf))

42. ITU-T Work Programme - Aqueous Zinc-Based Battery Systems for Base Station Applications

- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The aqueous-zinc base-station work item is Under study with December 2027 timing. It constrains the forecast commercialization assumption but establishes neither approval nor customer purchases. ([itu.int](https://www.itu.int/itu-t/workprog/wp_item.aspx?isn=xx.xx))

43. ITU-T L.1397 - Battery System with Integrated Control and Monitoring Information Model

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The October 2025 recommendation names lithium-lead, lithium-sodium and sodium-lead combinations. This supports mixed-family classification, not inseparable pricing or Global prevalence. ([itu.int](https://www.itu.int/rec/dologin_pub.asp?id=T-REC-L.xx.xx-xx.xx-I%xx.xx%21PDF-E&lang=e&type=items))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The October 2025 recommendation names lithium-lead, lithium-sodium and sodium-lead combinations. This supports mixed-family classification, not inseparable pricing or Global prevalence. ([itu.int](https://www.itu.int/rec/dologin_pub.asp?id=T-REC-L.xx.xx-xx.xx-I%xx.xx%21PDF-E&lang=e&type=items))

44. ETSI EN 300 132-1 V2.2.1 - ICT Power Supply Interface: Alternating Current
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The ICT standard identifies the protected-load AC interface, supporting output-side attribution rather than classification by chemistry or normal utility input. It supplies no sales mix. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013201v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The ICT standard identifies the protected-load AC interface, supporting output-side attribution rather than classification by chemistry or normal utility input. It supplies no sales mix. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013201v020201p.pdf))
45. ETSI EN 300 132-2 V2.8.1 - ICT Power Supply Interface: Direct Current
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The ICT standard separately identifies the DC protected-equipment interface, supporting the DC-output boundary independently of battery chemistry. It is not a purchasing census. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013202v020801p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The ICT standard separately identifies the DC protected-equipment interface, supporting the DC-output boundary independently of battery chemistry. It is not a purchasing census. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013202v020801p.pdf))
46. Vertiv NetSure Inverter Series - Converged AC and DC Power System
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: NetSure Inverter Series identifies AC and DC loads supported through a common battery bank. This establishes a combined-output proposition, not its modeled purchasing fraction or future adoption. ([vertiv.com](https://www.vertiv.com/en-us/products-catalog/critical-power/dc-power-systems/vertiv-netsure-inverter-series/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: NetSure Inverter Series identifies AC and DC loads supported through a common battery bank. This establishes a combined-output proposition, not its modeled purchasing fraction or future adoption. ([vertiv.com](https://www.vertiv.com/en-us/products-catalog/critical-power/dc-power-systems/vertiv-netsure-inverter-series/))

47. ETSI EN 302 099 V2.2.1 - Powering of Equipment in Access Network
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Local powering uses a colocated source; allocation follows the backed source rather than receiver inventory. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Local powering uses a colocated source; allocation follows the backed source rather than receiver inventory. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Remote-source backup is distinguished from local backup, supporting the parent commercial boundary but not purchasing weights. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Remote-source backup is distinguished from local backup, supporting the parent commercial boundary but not purchasing weights. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Centralized powering originates at a telecommunications center. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Centralized powering originates at a telecommunications center. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Cluster powering uses a source outside the telecommunications center, supporting separation within Remote Powering. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Cluster powering uses a source outside the telecommunications center, supporting separation within Remote Powering. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Reverse powering is customer-origin supply, supporting source-level attribution of the battery-backed provider package. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Reverse powering is customer-origin supply, supporting source-level attribution of the battery-backed provider package. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))

48. Set Up Your Battery Backup - AT&T G.Fast Service with BGW210
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The 2021 provider document names a battery-backed package protecting G.fast customer and distribution equipment through reverse power feed. It establishes a dated source-backup proposition, not current Global quantities. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The 2021 provider document names a battery-backed package protecting G.fast customer and distribution equipment through reverse power feed. It establishes a dated source-backup proposition, not current Global quantities. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The provider advertises a xx.xx-hour service window for the particular package, supporting Day-Scale mapping without a universal premises-duration inference. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The provider advertises a xx.xx-hour service window for the particular package, supporting Day-Scale mapping without a universal premises-duration inference. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))
49. DNA Tower Offers Battery Capacity in Electricity Reserve Markets with Elisa DES
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The June xx.xx 2025 announcement reports DNA Tower batteries connected to Finnish reserve markets while retaining outage continuity. This establishes a specific mixed-duty implementation, not Global attachment or guaranteed returns. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/press-releases/dna-tower-becomes-worlds-first-tower-company-to-offer-battery-capacity-in-electricity-reserve-markets-with-elisa-des))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The June xx.xx 2025 announcement reports DNA Tower batteries connected to Finnish reserve markets while retaining outage continuity. This establishes a specific mixed-duty implementation, not Global attachment or guaranteed returns. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/press-releases/dna-tower-becomes-worlds-first-tower-company-to-offer-battery-capacity-in-electricity-reserve-markets-with-elisa-des))
50. Case Elisa: Virtual Power Plant in the Telecom Industry
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The company case reports over 2,000 aggregated sites and approximately xx.xx MWh. This is an installed commercial scale check, not annual purchasing value or Global prevalence. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/customer-stories/elisacase))

21.4. Japan

Table 544. Japan Telecom Battery Backup System Market Size, 2017-2032 (USD Million)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Japan	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 545. Japan Telecom Battery Backup System Market Size, by Offering, 2017-2032 (USD Million)

Offering	2023	2024	2025	2026	2027	2032	CAGR (%)
Battery Units and Assemblies	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Complete Backup Systems	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 546. Japan Telecom Battery Backup System Market Size, by Battery Technology, 2017-2032 (USD Million)

Battery Technology	2023	2024	2025	2026	2027	2032	CAGR (%)
Aqueous Zinc-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Flow Batteries	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lithium-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Metal-Air	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Multi-Chemistry	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Sodium-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 547. Japan Telecom Battery Backup System Market Size, by Lead-Acid, 2017-2032 (USD Million)

Lead-Acid	2023	2024	2025	2026	2027	2032	CAGR (%)
Flooded Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Valve-Regulated Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 548. Japan Telecom Battery Backup System Market Size, by Valve-Regulated Lead-Acid, 2017-2032 (USD Million)

Valve-Regulated Lead-Acid	2023	2024	2025	2026	2027	2032	CAGR (%)
Absorbent Glass Mat	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Gel	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 549. Japan Telecom Battery Backup System Market Size, by Lithium-Based, 2017-2032 (USD Million)

Lithium-Based	2023	2024	2025	2026	2027	2032	CAGR (%)
Lithium-Ion	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lithium-Metal	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 550. Japan Telecom Battery Backup System Market Size, by Nickel-Based, 2017-2032 (USD Million)

Nickel-Based	2023	2024	2025	2026	2027	2032	CAGR (%)
Nickel-Cadmium	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Iron	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Metal Hydride	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Zinc	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 551. Japan Telecom Battery Backup System Market Size, by Power Interface, 2017-2032 (USD Million)

Power Interface	2023	2024	2025	2026	2027	2032	CAGR (%)
AC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Combined AC/DC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
DC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 552. Japan Telecom Battery Backup System Market Size, by Network Application, 2017-2032 (USD Million)

Network Application	2023	2024	2025	2026	2027	2032	CAGR (%)
Core Networks & Network Control	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Customer-Premises Connectivity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Network Interconnection & Peering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Transport & Backhaul Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Wireless Access Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Wireline Access Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 553. Japan Telecom Battery Backup System Market Size, by Buyer Type, 2017-2032 (USD Million)

Buyer Type	2023	2024	2025	2026	2027	2032	CAGR (%)
Business & Institutional Connectivity Owners	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Equipment Leasing & Rental Providers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Household Connectivity Purchasers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Energy-Service Providers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Infrastructure & Tower Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecommunications Network Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 554. Japan Telecom Battery Backup System Market Size, by Installation Environment, 2017-2032 (USD Million)

Installation Environment	2023	2024	2025	2026	2027	2032	CAGR (%)
Non-Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Underground Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 555. Japan Telecom Battery Backup System Market Size, by Weather-Protected Locations, 2017-2032 (USD Million)

Weather-Protected Locations	2023	2024	2025	2026	2027	2032	CAGR (%)
Enclosed Locations Without Temperature Control	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Partly Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Temperature-Controlled Enclosed Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 556. Japan Telecom Battery Backup System Market Size, by Non-Weather-Protected Locations, 2017-2032 (USD Million)

Non-Weather-Protected Locations	2023	2024	2025	2026	2027	2032	CAGR (%)
Open-Air Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Sheltered Non-Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 557. Japan Telecom Battery Backup System Market Size, by Powering Architecture, 2017-2032 (USD Million)

Powering Architecture	2023	2024	2025	2026	2027	2032	CAGR (%)
Local Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Remote Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 558. Japan Telecom Battery Backup System Market Size, by Remote Powering, 2017-2032 (USD Million)

Remote Powering	2023	2024	2025	2026	2027	2032	CAGR (%)
Centralized Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Cluster Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reverse Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 559. Japan Telecom Battery Backup System Market Size, by Commercial Delivery Model, 2017-2032 (USD Million)

Commercial Delivery Model	2023	2024	2025	2026	2027	2032	CAGR (%)
Leased or Rented Equipment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Managed Backup Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Owned Equipment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 560. Japan Telecom Battery Backup System Market Size, by Sales Channel, 2017-2032 (USD Million)

Sales Channel	2023	2024	2025	2026	2027	2032	CAGR (%)
Direct Manufacturer Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Distributor and Retailer Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Systems Integrator and Contractor Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Service Provider Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 561. Japan Telecom Battery Backup System Market Size, by Grid Availability, 2017-2032 (USD Million)

Grid Availability	2023	2024	2025	2026	2027	2032	CAGR (%)
Off-Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reliable Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Unreliable Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 562. Japan Telecom Battery Backup System Market Size, by Backup Duty, 2017-2032 (USD Million)

Backup Duty	2023	2024	2025	2026	2027	2032	CAGR (%)
Backup with Energy Management	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reserve-Only Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 563. Japan Telecom Battery Backup System Market Size, by Backup Autonomy, 2017-2032 (USD Million)

Backup Autonomy	2023	2024	2025	2026	2027	2032	CAGR (%)
Day-Scale Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Extended-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Intermediate-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Short-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. China Tower - 2025 Annual Results, March 18, 2026
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The xx.xx.149m-site inventory constrains wireless activity; forecast purchasing remains modeled.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The xx.xx.149m-site inventory constrains wireless activity; forecast purchasing remains modeled.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Replacement/improvement CAPEX fell from RMB6837m to RMB5474m, qualifying automatic replacement-led growth.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Replacement/improvement CAPEX fell from RMB6837m to RMB5474m, qualifying automatic replacement-led growth.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Disclosed tower operations establish a material infrastructure purchasing setting, not a global buyer share.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Disclosed tower operations establish a material infrastructure purchasing setting, not a global buyer share.
2. Broadband Commission - The State of Broadband: Our Digital World, 2025
   - Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))

3. Battery Backup - Meriwether Lewis Electric Cooperative
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Separately available replacement batteries support a battery-only replacement route.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Separately available replacement batteries support a battery-only replacement route.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The USD100-plus-tax device is a retail comparator, not an observed 2025 first-sale realization.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The USD100-plus-tax device is a retail comparator, not an observed 2025 first-sale realization.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Customer purchase and replacement responsibilities support household-funded procurement.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Customer purchase and replacement responsibilities support household-funded procurement.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Purchased equipment does not automatically include continuing service-plan coverage.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Purchased equipment does not automatically include continuing service-plan coverage.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Local provider sales establish this route alongside manufacturer-direct purchasing.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Local provider sales establish this route alongside manufacturer-direct purchasing.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The provider advertises approximately five hours for combined voice and internet, supporting service-specific Extended classification, not an observed 2025 purchase mix. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The provider advertises approximately five hours for combined voice and internet, supporting service-specific Extended classification, not an observed 2025 purchase mix. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The same proposition advertises xx.xx-hour voice-only protection, supporting Day-Scale mapping without equating duration with a universally larger purchase basket. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The same proposition advertises xx.xx-hour voice-only protection, supporting Day-Scale mapping without equating duration with a universally larger purchase basket. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
4. EnerSys 2026 Proxy Statement and Annual Report
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Direct customer supply is disclosed within a diversified international business; telecom channel proportions are not disclosed.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Direct customer supply is disclosed within a diversified international business; telecom channel proportions are not disclosed.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Distributor supply is disclosed, supporting route occurrence rather than its modeled sales weight.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Distributor supply is disclosed, supporting route occurrence rather than its modeled sales weight.

5. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: Audited 2025 telecom revenue of RMB1,xx.xx declined xx.xx%; telecom purchasing weakness is retained as counterevidence to automatic substitution-led aggregate growth. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Audited 2025 telecom revenue of RMB1,xx.xx declined xx.xx%; telecom purchasing weakness is retained as counterevidence to automatic substitution-led aggregate growth. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: Telecom-specific results are separated from adjacent data-center and power-storage growth when assessing lithium substitution; the filing does not disclose the modeled Global split. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom-specific results are separated from adjacent data-center and power-storage growth when assessing lithium substitution; the filing does not disclose the modeled Global split. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

6. Amara Raja Energy & Mobility - Q2/H1 FY2026 Earnings Presentation, November 6, 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand. ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))

7. IHS Holding Limited - First-Quarter 2026 Financial Statements

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement. ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

8. Ofcom - Mobile RAN Power Resilience: Technical Report and CFI Update, February 2025

- Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))
- Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The evaluated xx.xx-minute alternative supplies a subhour commercial-planning anchor, not observed shipments. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The evaluated xx.xx-minute alternative supplies a subhour commercial-planning anchor, not observed shipments. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: One-hour and two-hour alternatives anchor the analytical Intermediate band. Aggregate scenarios include multiple years of operating costs and are not annual battery revenue. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: One-hour and two-hour alternatives anchor the analytical Intermediate band. Aggregate scenarios include multiple years of operating costs and are not annual battery revenue. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The four-hour alternative anchors the Extended band's lower boundary without establishing a Global minimum or purchasing allocation. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The four-hour alternative anchors the Extended band's lower boundary without establishing a Global minimum or purchasing allocation. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

9. Ofcom - Your Landline Is Going Digital: What You Need to Know

- Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
- Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Restricted provider-funded eligibility constrains operator-funded premises attribution and forecast adoption.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Restricted provider-funded eligibility constrains operator-funded premises attribution and forecast adoption.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Eligibility is not universal household funding; purchaser proportions remain assumptions.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Eligibility is not universal household funding; purchaser proportions remain assumptions.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Eligibility-limited provider backup and the one-hour minimum for qualifying customers constrain premises demand and anchor the Intermediate band's lower boundary. They do not establish universal adoption. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Eligibility-limited provider backup and the one-hour minimum for qualifying customers constrain premises demand and anchor the Intermediate band's lower boundary. They do not establish universal adoption. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

10. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone
    - Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue. ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
    - Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions. ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: USD45m financing and xx.xx planned site modernizations support an expansion signal, not observed backup-only service revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: USD45m financing and xx.xx planned site modernizations support an expansion signal, not observed backup-only service revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Energy-service activity supports the role; the modeled provider-as-buyer subcontract share is not established.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Energy-service activity supports the role; the modeled provider-as-buyer subcontract share is not established.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: More than xx.xx% weak/off-grid project exposure constrains service-cohort concentration, not the global grid mix.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: More than xx.xx% weak/off-grid project exposure constrains service-cohort concentration, not the global grid mix.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The project confirms disconnected-site commercial demand; its weak/off-grid combined statistic does not separate those categories.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The project confirms disconnected-site commercial demand; its weak/off-grid combined statistic does not separate those categories.
11. Fingrid - How to Participate in the Reserve Markets
    - Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue. ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Applicable owner permission and market agreements are commercial access gates. They constrain forecast mixed-duty adoption without measuring its Global percentage. ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))
12. PowerSafe SBS Batteries | EnerSys
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Named telecom batteries support the battery-unit offering boundary; allocation weights are assumed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Named telecom batteries support the battery-unit offering boundary; allocation weights are assumed.

13. Vertiv NetSure M Series
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Configured enclosure, power and battery options support broader system classification, not universal bundle inclusion.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Configured enclosure, power and battery options support broader system classification, not universal bundle inclusion.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A marketed outdoor enclosure supports a protection option; global adoption and configuration proportions remain modeled.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A marketed outdoor enclosure supports a protection option; global adoption and configuration proportions remain modeled.
14. Ofcom - Network and Service Resilience Guidance for Communications Providers, June 16, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Core is a distinct, comparatively concentrated function with explicit backup expectations; global spending remains estimated.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Core is a distinct, comparatively concentrated function with explicit backup expectations; global spending remains estimated.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The stated xx.xx-xx.xx-fold site-scale distinction motivates lower-value, more numerous transport purchase equivalents.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The stated xx.xx-xx.xx-fold site-scale distinction motivates lower-value, more numerous transport purchase equivalents.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Peering and non-Internet interconnection are distinct functions; attributable backup purchase values are not disclosed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Peering and non-Internet interconnection are distinct functions; attributable backup purchase values are not disclosed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: June 2026 guidance identifies approximately four hours as good practice for active fixed-access cabinets. This supports a conditional Extended purchasing shift, not completed orders or a Global mandate. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/network-and-service-resilience-guidance-for-communications-providerspdf?v=xx.xx))
15. Technology and Tools | First Responder Network Authority
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Radio access, transport backhaul and core are separate network functions, supporting functional attribution without duplicate facility counting.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Radio access, transport backhaul and core are separate network functions, supporting functional attribution without duplicate facility counting.
16. Mobile Network Hardening Program | Australian Department of Infrastructure
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Completed battery enhancements and broader resilience projects provide a delivered regional demand signal, not a global forecast rate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Completed battery enhancements and broader resilience projects provide a delivered regional demand signal, not a global forecast rate.
17. BT - Digital Voice for Business Service Schedule, May 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Business customers bear backup-power expense, supporting a distinct institutional/business payer route rather than consumer eligibility extrapolation.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Business customers bear backup-power expense, supporting a distinct institutional/business payer route rather than consumer eligibility extrapolation.

18. Los Angeles Metro - Board Report 2024-1128, UPS Battery Replacement
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Completed and additional UPS battery replacements support continuing underground demand; mixed-load project budgets are not telecom-only revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Completed and additional UPS battery replacements support continuing underground demand; mixed-load project budgets are not telecom-only revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The transit authority's purchasing program supports an institutional own-use role, not its global spending proportion.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The transit authority's purchasing program supports an institutional own-use role, not its global spending proportion.
19. ETSI EN 300 019-1-3 V3.1.1 - Stationary Use at Weatherprotected Locations, May 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Weather-protected categories distinguish enclosure from environmental control; the standard does not measure market mix.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Weather-protected categories distinguish enclosure from environmental control; the standard does not measure market mix.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Maintained temperature control is a separate classification premise for the modeled conditional allocation.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Maintained temperature control is a separate classification premise for the modeled conditional allocation.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Enclosed locations without temperature control are distinguished from controlled locations.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Enclosed locations without temperature control are distinguished from controlled locations.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Partial weather protection is recognized separately; sales weights and future adoption remain assumed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Partial weather protection is recognized separately; sales weights and future adoption remain assumed.
20. ETSI EN 300 019-1-4 V3.1.1 - Stationary Use at Non-Weatherprotected Locations, May 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Non-weather-protected locations form a distinct classification regime, not a measured global spending pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Non-weather-protected locations form a distinct classification regime, not a measured global spending pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Sheltered non-weather-protected locations support the named conditional category.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Sheltered non-weather-protected locations support the named conditional category.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Open-air locations are separately recognized; their purchasing mix remains modeled.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Open-air locations are separately recognized; their purchasing mix remains modeled.

21. DC Power Plant / Rectifiers - UPS Rental
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Battery and complete DC-plant rentals establish delivery-category occurrence; global fees and utilization are not disclosed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Battery and complete DC-plant rentals establish delivery-category occurrence; global fees and utilization are not disclosed.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Commercial rental availability is a role premise only; modeled lessor sub-hire procurement remains unverified.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Commercial rental availability is a role premise only; modeled lessor sub-hire procurement remains unverified.
22. Helios Towers - Full Year Results 2025, March 12, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Grid-integration investment supplies a connection-improvement counterforce used conditionally in the forecast.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Grid-integration investment supplies a connection-improvement counterforce used conditionally in the forecast.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Reported xx.xx-hour average daily grid availability supports weak-grid commercial exposure, without a global classification share.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Reported xx.xx-hour average daily grid availability supports weak-grid commercial exposure, without a global classification share.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Grid integration and alternative-power investment qualify assumptions of permanently unchanged disconnected-site exposure.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Grid integration and alternative-power investment qualify assumptions of permanently unchanged disconnected-site exposure.
23. Telecommunications | Aggreko US
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Telecom battery-storage rental for temporary continuity supports delivery occurrence, not the estimated global fee scale.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom battery-storage rental for temporary continuity supports delivery occurrence, not the estimated global fee scale.
24. EnerSys PowerSafe SBS Front Terminal Batteries | Alpine Power Systems
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A named battery distributor supports the intermediary route; its listing is not a global channel-sales observation.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A named battery distributor supports the intermediary route; its listing is not a global channel-sales observation.
25. DC Power Services | Vertiv
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Cross-manufacturer projects and narrower upgrades support integration-prime and supported-replacement routes; numerical route proportions remain assumed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Cross-manufacturer projects and narrower upgrades support integration-prime and supported-replacement routes; numerical route proportions remain assumed.

26. Shuangdeng Group Co., Ltd. - Global Offering Prospectus, August 18, 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The company's own five-month 2025 lead-acid realization of RMB520.xx.xx/kWh constrains the relative-price bridge; syndicated industry claims are excluded. Forecast convergence remains assumed. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The company's own five-month 2025 lead-acid realization of RMB520.xx.xx/kWh constrains the relative-price bridge; syndicated industry claims are excluded. Forecast convergence remains assumed. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Own lithium-ion realization of RMB595.xx.xx/kWh is an input to the Lithium-Based value model, not a Global share or a Lithium-Metal sales observation. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Own lithium-ion realization of RMB595.xx.xx/kWh is an input to the Lithium-Based value model, not a Global share or a Lithium-Metal sales observation. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
27. Amara Raja Crosses 1 GWh Lithium Storage Deployment Powering India's Telecom Networks
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The April xx.xx 2026 disclosure reports approximately xx.xx GWh across xx.xx cumulative telecom lithium sites over four years. This is a commercial adoption scale check, not annual Global revenue or a supplier-share input. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The April xx.xx 2026 disclosure reports approximately xx.xx GWh across xx.xx cumulative telecom lithium sites over four years. This is a commercial adoption scale check, not annual Global revenue or a supplier-share input. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The disclosed deployment identifies lithium-ion commercialization at scale, supporting the subtype's established commercial position without directly measuring its conditional Global share. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The disclosed deployment identifies lithium-ion commercialization at scale, supporting the subtype's established commercial position without directly measuring its conditional Global share. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
28. Central Office Power Systems - EnerSys
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The central-office portfolio identifies Flooded Lead-Acid as a distinct telecom alternative, supporting the legacy-network category mapping but not its purchasing fraction. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The central-office portfolio identifies Flooded Lead-Acid as a distinct telecom alternative, supporting the legacy-network category mapping but not its purchasing fraction. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The portfolio separately identifies Valve-Regulated Lead-Acid, supporting the within-lead construction boundary used by the model. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The portfolio separately identifies Valve-Regulated Lead-Acid, supporting the within-lead construction boundary used by the model. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))

29. PowerSafe OPzV Batteries - EnerSys

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: EnerSys identifies OPzV as Gel and lists telecom applications. This supports commercial subtype mapping, not the assumed Gel/AGM volume or price mix. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-opzv/))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: EnerSys identifies OPzV as Gel and lists telecom applications. This supports commercial subtype mapping, not the assumed Gel/AGM volume or price mix. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-opzv/))

30. Bolloré - 2017 Registration Document

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The official filing identifies LMP professional outage-protection applications including telecom relays. This is a dated commercial boundary input, not evidence of 2025 telecom shipment value. ([bollore.com](https://www.bollore.com/wp-content/uploads/2018/xx.xx/bollore_ddr_2017_gb_bag-xx.xx-juin.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The official filing identifies LMP professional outage-protection applications including telecom relays. This is a dated commercial boundary input, not evidence of 2025 telecom shipment value. ([bollore.com](https://www.bollore.com/wp-content/uploads/2018/xx.xx/bollore_ddr_2017_gb_bag-xx.xx-juin.pdf))

31. Bolloré - Business Report 2025

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The 2025 report establishes continuing Lithium Metal Polymer commercial applications in electricity storage and buses, while omitting separately attributable telecom sales. It constrains the low-access expected-purchase model; no capacity-to-sales conversion is used. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The 2025 report establishes continuing Lithium Metal Polymer commercial applications in electricity storage and buses, while omitting separately attributable telecom sales. It constrains the low-access expected-purchase model; no capacity-to-sales conversion is used. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The report preserves the distinction between LMP and conventional lithium-ion, supporting the exhaustive subtype attribution rule rather than treating polymer packaging as Lithium-Metal. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The report preserves the distinction between LMP and conventional lithium-ion, supporting the exhaustive subtype attribution rule rather than treating polymer packaging as Lithium-Metal. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))

32. AT&T to Replace U-Verse Cabinet Batteries - Fierce Network, January 15, 2008

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The January xx.xx 2008 report corroborates AT&T's replacement of approximately xx.xx Avestor batteries after the supplier's closure. The obsolete stock is therefore not carried into the 2025 or 2032 purchasing numerator. ([fierce-network.com](https://www.fierce-network.com/telecom/at-t-to-replace-u-verse-cabinet-batteries))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The January xx.xx 2008 report corroborates AT&T's replacement of approximately xx.xx Avestor batteries after the supplier's closure. The obsolete stock is therefore not carried into the 2025 or 2032 purchasing numerator. ([fierce-network.com](https://www.fierce-network.com/telecom/at-t-to-replace-u-verse-cabinet-batteries))

33. PowerSafe NiCd Batteries - EnerSys
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: EnerSys identifies Nickel-Cadmium for central offices and outside plant, supporting the modeled legacy telecom cohort but not its installed attachment or replacement spending. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-nicd/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: EnerSys identifies Nickel-Cadmium for central offices and outside plant, supporting the modeled legacy telecom cohort but not its installed attachment or replacement spending. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-nicd/))
34. FDK Ni-MH Battery Is Chosen for the Cellect 600 Product of Alpha Technologies
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The October xx.xx 2015 announcement identifies NiMH in Alpha's Cellect xx.xx small-cell backup proposition. It supports a historical cohort rather than current fulfillment or assumed surviving stock. ([fdk.com](https://www.fdk.com/whatsnew-e/release20151019-e.html))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The October xx.xx 2015 announcement identifies NiMH in Alpha's Cellect xx.xx small-cell backup proposition. It supports a historical cohort rather than current fulfillment or assumed surviving stock. ([fdk.com](https://www.fdk.com/whatsnew-e/release20151019-e.html))
35. Products - Encell Technology
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Encell positions its Fused Iron Nickel-Iron battery for telecom. This supports the commercial category lead, while current purchases and attachment remain modeled. ([encell.com](https://encell.com/products/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Encell positions its Fused Iron Nickel-Iron battery for telecom. This supports the commercial category lead, while current purchases and attachment remain modeled. ([encell.com](https://encell.com/products/))
36. Telecom/5G - ZAF Energy Systems
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: ZAF positions Nickel-Zinc for telecom/5G. Its supplier proposition supports application mapping, not the modeled annual attachment or threefold forecast value multiplier. ([zafsys.com](https://zafsys.com/telecom-5g/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: ZAF positions Nickel-Zinc for telecom/5G. Its supplier proposition supports application mapping, not the modeled annual attachment or threefold forecast value multiplier. ([zafsys.com](https://zafsys.com/telecom-5g/))
37. HORIEN Salt Battery Solutions and Inlyte Energy Announce a Strategic Partnership
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: HORIEN's March xx.xx 2025 statement identifies sodium-metal-chloride telecom backup. Its separate partnership announcement is not counted as delivered telecom sales. ([horien.com](https://horien.com/wp-content/uploads/2025/xx.xx/Press-Release_HORIEN-Inlyte-International-Version.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: HORIEN's March xx.xx 2025 statement identifies sodium-metal-chloride telecom backup. Its separate partnership announcement is not counted as delivered telecom sales. ([horien.com](https://horien.com/wp-content/uploads/2025/xx.xx/Press-Release_HORIEN-Inlyte-International-Version.pdf))
38. Energy Backup - Phinergy
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Phinergy markets Aluminum-Air continuity offerings to telecom operators and tower companies. The source supports category and buyer mapping, not the modeled installed attachment or replacement numerator. ([phinergy.com](https://phinergy.com/solutions/energy-backup/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Phinergy markets Aluminum-Air continuity offerings to telecom operators and tower companies. The source supports category and buyer mapping, not the modeled installed attachment or replacement numerator. ([phinergy.com](https://phinergy.com/solutions/energy-backup/))

39. Australian Flow Batteries - RFB40X Series

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: RFB40X literature identifies telecom among stationary commercial applications. It supports the qualifying project boundary, not delivered projects, revenue or assumed attachment. ([afb.energy](https://www.afb.energy/wp-content/uploads/2025/xx.xx/Australian-Flow-Batteries-RFB40X-Series-2024.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: RFB40X literature identifies telecom among stationary commercial applications. It supports the qualifying project boundary, not delivered projects, revenue or assumed attachment. ([afb.energy](https://www.afb.energy/wp-content/uploads/2025/xx.xx/Australian-Flow-Batteries-RFB40X-Series-2024.pdf))

40. PowerReserve - Verizon Residential Accessories

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Verizon advertises an alkaline-cell voice-backup device at USD39.xx.xx excluding batteries. This supports a qualifying primary-zinc premises route and price comparator, not assumed Global attachment or first-sale realization. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Verizon advertises an alkaline-cell voice-backup device at USD39.xx.xx excluding batteries. This supports a qualifying primary-zinc premises route and price comparator, not assumed Global attachment or first-sale realization. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Advertised voice-only protection reaches xx.xx hours; internet and television protection are excluded. This supports service-specific Day-Scale classification. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Advertised voice-only protection reaches xx.xx hours; internet and television protection are excluded. This supports service-specific Day-Scale classification. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))

41. Alkaline Manganese Dioxide Handbook and Application Manual - Energizer

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The manufacturer's alkaline manganese-dioxide classification supports the zinc-family mapping for qualifying premises backup. It provides no telecom purchasing weight. ([data.energizer.com](https://data.energizer.com/pdfs/alkaline_appman.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The manufacturer's alkaline manganese-dioxide classification supports the zinc-family mapping for qualifying premises backup. It provides no telecom purchasing weight. ([data.energizer.com](https://data.energizer.com/pdfs/alkaline_appman.pdf))

42. ITU-T Work Programme - Aqueous Zinc-Based Battery Systems for Base Station Applications

- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The aqueous-zinc base-station work item is Under study with December 2027 timing. It constrains the forecast commercialization assumption but establishes neither approval nor customer purchases. ([itu.int](https://www.itu.int/itu-t/workprog/wp_item.aspx?isn=xx.xx))

43. ITU-T L.1397 - Battery System with Integrated Control and Monitoring Information Model

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The October 2025 recommendation names lithium-lead, lithium-sodium and sodium-lead combinations. This supports mixed-family classification, not inseparable pricing or Global prevalence. ([itu.int](https://www.itu.int/rec/dologin_pub.asp?id=T-REC-L.xx.xx-xx.xx-I%xx.xx%21PDF-E&lang=e&type=items))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The October 2025 recommendation names lithium-lead, lithium-sodium and sodium-lead combinations. This supports mixed-family classification, not inseparable pricing or Global prevalence. ([itu.int](https://www.itu.int/rec/dologin_pub.asp?id=T-REC-L.xx.xx-xx.xx-I%xx.xx%21PDF-E&lang=e&type=items))

44. ETSI EN 300 132-1 V2.2.1 - ICT Power Supply Interface: Alternating Current
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The ICT standard identifies the protected-load AC interface, supporting output-side attribution rather than classification by chemistry or normal utility input. It supplies no sales mix. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013201v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The ICT standard identifies the protected-load AC interface, supporting output-side attribution rather than classification by chemistry or normal utility input. It supplies no sales mix. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013201v020201p.pdf))
45. ETSI EN 300 132-2 V2.8.1 - ICT Power Supply Interface: Direct Current
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The ICT standard separately identifies the DC protected-equipment interface, supporting the DC-output boundary independently of battery chemistry. It is not a purchasing census. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013202v020801p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The ICT standard separately identifies the DC protected-equipment interface, supporting the DC-output boundary independently of battery chemistry. It is not a purchasing census. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013202v020801p.pdf))
46. Vertiv NetSure Inverter Series - Converged AC and DC Power System
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: NetSure Inverter Series identifies AC and DC loads supported through a common battery bank. This establishes a combined-output proposition, not its modeled purchasing fraction or future adoption. ([vertiv.com](https://www.vertiv.com/en-us/products-catalog/critical-power/dc-power-systems/vertiv-netsure-inverter-series/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: NetSure Inverter Series identifies AC and DC loads supported through a common battery bank. This establishes a combined-output proposition, not its modeled purchasing fraction or future adoption. ([vertiv.com](https://www.vertiv.com/en-us/products-catalog/critical-power/dc-power-systems/vertiv-netsure-inverter-series/))

47. ETSI EN 302 099 V2.2.1 - Powering of Equipment in Access Network
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Local powering uses a colocated source; allocation follows the backed source rather than receiver inventory. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Local powering uses a colocated source; allocation follows the backed source rather than receiver inventory. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Remote-source backup is distinguished from local backup, supporting the parent commercial boundary but not purchasing weights. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Remote-source backup is distinguished from local backup, supporting the parent commercial boundary but not purchasing weights. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Centralized powering originates at a telecommunications center. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Centralized powering originates at a telecommunications center. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Cluster powering uses a source outside the telecommunications center, supporting separation within Remote Powering. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Cluster powering uses a source outside the telecommunications center, supporting separation within Remote Powering. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Reverse powering is customer-origin supply, supporting source-level attribution of the battery-backed provider package. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Reverse powering is customer-origin supply, supporting source-level attribution of the battery-backed provider package. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))

48. Set Up Your Battery Backup - AT&T G.Fast Service with BGW210
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The 2021 provider document names a battery-backed package protecting G.fast customer and distribution equipment through reverse power feed. It establishes a dated source-backup proposition, not current Global quantities. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The 2021 provider document names a battery-backed package protecting G.fast customer and distribution equipment through reverse power feed. It establishes a dated source-backup proposition, not current Global quantities. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The provider advertises a xx.xx-hour service window for the particular package, supporting Day-Scale mapping without a universal premises-duration inference. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The provider advertises a xx.xx-hour service window for the particular package, supporting Day-Scale mapping without a universal premises-duration inference. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))
49. DNA Tower Offers Battery Capacity in Electricity Reserve Markets with Elisa DES
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The June xx.xx 2025 announcement reports DNA Tower batteries connected to Finnish reserve markets while retaining outage continuity. This establishes a specific mixed-duty implementation, not Global attachment or guaranteed returns. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/press-releases/dna-tower-becomes-worlds-first-tower-company-to-offer-battery-capacity-in-electricity-reserve-markets-with-elisa-des))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The June xx.xx 2025 announcement reports DNA Tower batteries connected to Finnish reserve markets while retaining outage continuity. This establishes a specific mixed-duty implementation, not Global attachment or guaranteed returns. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/press-releases/dna-tower-becomes-worlds-first-tower-company-to-offer-battery-capacity-in-electricity-reserve-markets-with-elisa-des))
50. Case Elisa: Virtual Power Plant in the Telecom Industry
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The company case reports over 2,000 aggregated sites and approximately xx.xx MWh. This is an installed commercial scale check, not annual purchasing value or Global prevalence. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/customer-stories/elisacase))

21.5. Germany

Table 564. Germany Telecom Battery Backup System Market Size, 2017-2032 (USD Million)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Germany	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 565. Germany Telecom Battery Backup System Market Size, by Offering, 2017-2032 (USD Million)

Offering	2023	2024	2025	2026	2027	2032	CAGR (%)
Battery Units and Assemblies	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Complete Backup Systems	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 566. Germany Telecom Battery Backup System Market Size, by Battery Technology, 2017-2032 (USD Million)

Battery Technology	2023	2024	2025	2026	2027	2032	CAGR (%)
Aqueous Zinc-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Flow Batteries	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lithium-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Metal-Air	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Multi-Chemistry	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Sodium-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 567. Germany Telecom Battery Backup System Market Size, by Lead-Acid, 2017-2032 (USD Million)

Lead-Acid	2023	2024	2025	2026	2027	2032	CAGR (%)
Flooded Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Valve-Regulated Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 568. Germany Telecom Battery Backup System Market Size, by Valve-Regulated Lead-Acid, 2017-2032 (USD Million)

Valve-Regulated Lead-Acid	2023	2024	2025	2026	2027	2032	CAGR (%)
Absorbent Glass Mat	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Gel	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 569. Germany Telecom Battery Backup System Market Size, by Lithium-Based, 2017-2032 (USD Million)

Lithium-Based	2023	2024	2025	2026	2027	2032	CAGR (%)
Lithium-Ion	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lithium-Metal	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 570. Germany Telecom Battery Backup System Market Size, by Nickel-Based, 2017-2032 (USD Million)

Nickel-Based	2023	2024	2025	2026	2027	2032	CAGR (%)
Nickel-Cadmium	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Iron	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Metal Hydride	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Zinc	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 571. Germany Telecom Battery Backup System Market Size, by Power Interface, 2017-2032 (USD Million)

Power Interface	2023	2024	2025	2026	2027	2032	CAGR (%)
AC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Combined AC/DC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
DC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 572. Germany Telecom Battery Backup System Market Size, by Network Application, 2017-2032 (USD Million)

Network Application	2023	2024	2025	2026	2027	2032	CAGR (%)
Core Networks & Network Control	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Customer-Premises Connectivity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Network Interconnection & Peering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Transport & Backhaul Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Wireless Access Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Wireline Access Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 573. Germany Telecom Battery Backup System Market Size, by Buyer Type, 2017-2032 (USD Million)

Buyer Type	2023	2024	2025	2026	2027	2032	CAGR (%)
Business & Institutional Connectivity Owners	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Equipment Leasing & Rental Providers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Household Connectivity Purchasers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Energy-Service Providers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Infrastructure & Tower Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecommunications Network Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 574. Germany Telecom Battery Backup System Market Size, by Installation Environment, 2017-2032 (USD Million)

Installation Environment	2023	2024	2025	2026	2027	2032	CAGR (%)
Non-Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Underground Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 575. Germany Telecom Battery Backup System Market Size, by Weather-Protected Locations, 2017-2032 (USD Million)

Weather-Protected Locations	2023	2024	2025	2026	2027	2032	CAGR (%)
Enclosed Locations Without Temperature Control	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Partly Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Temperature-Controlled Enclosed Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 576. Germany Telecom Battery Backup System Market Size, by Non-Weather-Protected Locations, 2017-2032 (USD Million)

Non-Weather-Protected Locations	2023	2024	2025	2026	2027	2032	CAGR (%)
Open-Air Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Sheltered Non-Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 577. Germany Telecom Battery Backup System Market Size, by Powering Architecture, 2017-2032 (USD Million)

Powering Architecture	2023	2024	2025	2026	2027	2032	CAGR (%)
Local Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Remote Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 578. Germany Telecom Battery Backup System Market Size, by Remote Powering, 2017-2032 (USD Million)

Remote Powering	2023	2024	2025	2026	2027	2032	CAGR (%)
Centralized Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Cluster Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reverse Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 579. Germany Telecom Battery Backup System Market Size, by Commercial Delivery Model, 2017-2032 (USD Million)

Commercial Delivery Model	2023	2024	2025	2026	2027	2032	CAGR (%)
Leased or Rented Equipment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Managed Backup Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Owned Equipment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 580. Germany Telecom Battery Backup System Market Size, by Sales Channel, 2017-2032 (USD Million)

Sales Channel	2023	2024	2025	2026	2027	2032	CAGR (%)
Direct Manufacturer Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Distributor and Retailer Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Systems Integrator and Contractor Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Service Provider Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 581. Germany Telecom Battery Backup System Market Size, by Grid Availability, 2017-2032 (USD Million)

Grid Availability	2023	2024	2025	2026	2027	2032	CAGR (%)
Off-Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reliable Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Unreliable Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 582. Germany Telecom Battery Backup System Market Size, by Backup Duty, 2017-2032 (USD Million)

Backup Duty	2023	2024	2025	2026	2027	2032	CAGR (%)
Backup with Energy Management	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reserve-Only Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 583. Germany Telecom Battery Backup System Market Size, by Backup Autonomy, 2017-2032 (USD Million)

Backup Autonomy	2023	2024	2025	2026	2027	2032	CAGR (%)
Day-Scale Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Extended-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Intermediate-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Short-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. China Tower - 2025 Annual Results, March 18, 2026
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The xx.xx.149m-site inventory constrains wireless activity; forecast purchasing remains modeled.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The xx.xx.149m-site inventory constrains wireless activity; forecast purchasing remains modeled.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Replacement/improvement CAPEX fell from RMB6837m to RMB5474m, qualifying automatic replacement-led growth.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Replacement/improvement CAPEX fell from RMB6837m to RMB5474m, qualifying automatic replacement-led growth.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Disclosed tower operations establish a material infrastructure purchasing setting, not a global buyer share.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Disclosed tower operations establish a material infrastructure purchasing setting, not a global buyer share.
2. Broadband Commission - The State of Broadband: Our Digital World, 2025
   - Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))

3. Battery Backup - Meriwether Lewis Electric Cooperative
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Separately available replacement batteries support a battery-only replacement route.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Separately available replacement batteries support a battery-only replacement route.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The USD100-plus-tax device is a retail comparator, not an observed 2025 first-sale realization.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The USD100-plus-tax device is a retail comparator, not an observed 2025 first-sale realization.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Customer purchase and replacement responsibilities support household-funded procurement.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Customer purchase and replacement responsibilities support household-funded procurement.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Purchased equipment does not automatically include continuing service-plan coverage.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Purchased equipment does not automatically include continuing service-plan coverage.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Local provider sales establish this route alongside manufacturer-direct purchasing.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Local provider sales establish this route alongside manufacturer-direct purchasing.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The provider advertises approximately five hours for combined voice and internet, supporting service-specific Extended classification, not an observed 2025 purchase mix. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The provider advertises approximately five hours for combined voice and internet, supporting service-specific Extended classification, not an observed 2025 purchase mix. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The same proposition advertises xx.xx-hour voice-only protection, supporting Day-Scale mapping without equating duration with a universally larger purchase basket. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The same proposition advertises xx.xx-hour voice-only protection, supporting Day-Scale mapping without equating duration with a universally larger purchase basket. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
4. EnerSys 2026 Proxy Statement and Annual Report
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Direct customer supply is disclosed within a diversified international business; telecom channel proportions are not disclosed.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Direct customer supply is disclosed within a diversified international business; telecom channel proportions are not disclosed.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Distributor supply is disclosed, supporting route occurrence rather than its modeled sales weight.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Distributor supply is disclosed, supporting route occurrence rather than its modeled sales weight.

5. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Audited 2025 telecom revenue of RMB1,xx.xx declined xx.xx%; telecom purchasing weakness is retained as counterevidence to automatic substitution-led aggregate growth. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Audited 2025 telecom revenue of RMB1,xx.xx declined xx.xx%; telecom purchasing weakness is retained as counterevidence to automatic substitution-led aggregate growth. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Telecom-specific results are separated from adjacent data-center and power-storage growth when assessing lithium substitution; the filing does not disclose the modeled Global split. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom-specific results are separated from adjacent data-center and power-storage growth when assessing lithium substitution; the filing does not disclose the modeled Global split. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
6. Amara Raja Energy & Mobility - Q2/H1 FY2026 Earnings Presentation, November 6, 2025
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand. ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))
7. IHS Holding Limited - First-Quarter 2026 Financial Statements
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement. ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

8. Ofcom - Mobile RAN Power Resilience: Technical Report and CFI Update, February 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The evaluated xx.xx-minute alternative supplies a subhour commercial-planning anchor, not observed shipments.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The evaluated xx.xx-minute alternative supplies a subhour commercial-planning anchor, not observed shipments.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: One-hour and two-hour alternatives anchor the analytical Intermediate band. Aggregate scenarios include multiple years of operating costs and are not annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: One-hour and two-hour alternatives anchor the analytical Intermediate band. Aggregate scenarios include multiple years of operating costs and are not annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The four-hour alternative anchors the Extended band's lower boundary without establishing a Global minimum or purchasing allocation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The four-hour alternative anchors the Extended band's lower boundary without establishing a Global minimum or purchasing allocation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

9. Ofcom - Your Landline Is Going Digital: What You Need to Know

- Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
- Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Restricted provider-funded eligibility constrains operator-funded premises attribution and forecast adoption.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Restricted provider-funded eligibility constrains operator-funded premises attribution and forecast adoption.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Eligibility is not universal household funding; purchaser proportions remain assumptions.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Eligibility is not universal household funding; purchaser proportions remain assumptions.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Eligibility-limited provider backup and the one-hour minimum for qualifying customers constrain premises demand and anchor the Intermediate band's lower boundary. They do not establish universal adoption. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Eligibility-limited provider backup and the one-hour minimum for qualifying customers constrain premises demand and anchor the Intermediate band's lower boundary. They do not establish universal adoption. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

10. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone
    - Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue. ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
    - Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions. ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: USD45m financing and xx.xx planned site modernizations support an expansion signal, not observed backup-only service revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: USD45m financing and xx.xx planned site modernizations support an expansion signal, not observed backup-only service revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Energy-service activity supports the role; the modeled provider-as-buyer subcontract share is not established.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Energy-service activity supports the role; the modeled provider-as-buyer subcontract share is not established.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: More than xx.xx% weak/off-grid project exposure constrains service-cohort concentration, not the global grid mix.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: More than xx.xx% weak/off-grid project exposure constrains service-cohort concentration, not the global grid mix.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The project confirms disconnected-site commercial demand; its weak/off-grid combined statistic does not separate those categories.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The project confirms disconnected-site commercial demand; its weak/off-grid combined statistic does not separate those categories.
11. Fingrid - How to Participate in the Reserve Markets
    - Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue. ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Applicable owner permission and market agreements are commercial access gates. They constrain forecast mixed-duty adoption without measuring its Global percentage. ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))
12. PowerSafe SBS Batteries | EnerSys
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Named telecom batteries support the battery-unit offering boundary; allocation weights are assumed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Named telecom batteries support the battery-unit offering boundary; allocation weights are assumed.

13. Vertiv NetSure M Series
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Configured enclosure, power and battery options support broader system classification, not universal bundle inclusion.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Configured enclosure, power and battery options support broader system classification, not universal bundle inclusion.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A marketed outdoor enclosure supports a protection option; global adoption and configuration proportions remain modeled.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A marketed outdoor enclosure supports a protection option; global adoption and configuration proportions remain modeled.
14. Ofcom - Network and Service Resilience Guidance for Communications Providers, June 16, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Core is a distinct, comparatively concentrated function with explicit backup expectations; global spending remains estimated.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Core is a distinct, comparatively concentrated function with explicit backup expectations; global spending remains estimated.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The stated xx.xx-xx.xx-fold site-scale distinction motivates lower-value, more numerous transport purchase equivalents.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The stated xx.xx-xx.xx-fold site-scale distinction motivates lower-value, more numerous transport purchase equivalents.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Peering and non-Internet interconnection are distinct functions; attributable backup purchase values are not disclosed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Peering and non-Internet interconnection are distinct functions; attributable backup purchase values are not disclosed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: June 2026 guidance identifies approximately four hours as good practice for active fixed-access cabinets. This supports a conditional Extended purchasing shift, not completed orders or a Global mandate. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/network-and-service-resilience-guidance-for-communications-providerspdf?v=xx.xx))
15. Technology and Tools | First Responder Network Authority
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Radio access, transport backhaul and core are separate network functions, supporting functional attribution without duplicate facility counting.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Radio access, transport backhaul and core are separate network functions, supporting functional attribution without duplicate facility counting.
16. Mobile Network Hardening Program | Australian Department of Infrastructure
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Completed battery enhancements and broader resilience projects provide a delivered regional demand signal, not a global forecast rate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Completed battery enhancements and broader resilience projects provide a delivered regional demand signal, not a global forecast rate.
17. BT - Digital Voice for Business Service Schedule, May 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Business customers bear backup-power expense, supporting a distinct institutional/business payer route rather than consumer eligibility extrapolation.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Business customers bear backup-power expense, supporting a distinct institutional/business payer route rather than consumer eligibility extrapolation.

18. Los Angeles Metro - Board Report 2024-1128, UPS Battery Replacement
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Completed and additional UPS battery replacements support continuing underground demand; mixed-load project budgets are not telecom-only revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Completed and additional UPS battery replacements support continuing underground demand; mixed-load project budgets are not telecom-only revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The transit authority's purchasing program supports an institutional own-use role, not its global spending proportion.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The transit authority's purchasing program supports an institutional own-use role, not its global spending proportion.
19. ETSI EN 300 019-1-3 V3.1.1 - Stationary Use at Weatherprotected Locations, May 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Weather-protected categories distinguish enclosure from environmental control; the standard does not measure market mix.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Weather-protected categories distinguish enclosure from environmental control; the standard does not measure market mix.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Maintained temperature control is a separate classification premise for the modeled conditional allocation.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Maintained temperature control is a separate classification premise for the modeled conditional allocation.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Enclosed locations without temperature control are distinguished from controlled locations.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Enclosed locations without temperature control are distinguished from controlled locations.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Partial weather protection is recognized separately; sales weights and future adoption remain assumed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Partial weather protection is recognized separately; sales weights and future adoption remain assumed.
20. ETSI EN 300 019-1-4 V3.1.1 - Stationary Use at Non-Weatherprotected Locations, May 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Non-weather-protected locations form a distinct classification regime, not a measured global spending pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Non-weather-protected locations form a distinct classification regime, not a measured global spending pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Sheltered non-weather-protected locations support the named conditional category.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Sheltered non-weather-protected locations support the named conditional category.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Open-air locations are separately recognized; their purchasing mix remains modeled.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Open-air locations are separately recognized; their purchasing mix remains modeled.

21. DC Power Plant / Rectifiers - UPS Rental
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Battery and complete DC-plant rentals establish delivery-category occurrence; global fees and utilization are not disclosed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Battery and complete DC-plant rentals establish delivery-category occurrence; global fees and utilization are not disclosed.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Commercial rental availability is a role premise only; modeled lessor sub-hire procurement remains unverified.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Commercial rental availability is a role premise only; modeled lessor sub-hire procurement remains unverified.
22. Helios Towers - Full Year Results 2025, March 12, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Grid-integration investment supplies a connection-improvement counterforce used conditionally in the forecast.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Grid-integration investment supplies a connection-improvement counterforce used conditionally in the forecast.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Reported xx.xx-hour average daily grid availability supports weak-grid commercial exposure, without a global classification share.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Reported xx.xx-hour average daily grid availability supports weak-grid commercial exposure, without a global classification share.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Grid integration and alternative-power investment qualify assumptions of permanently unchanged disconnected-site exposure.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Grid integration and alternative-power investment qualify assumptions of permanently unchanged disconnected-site exposure.
23. Telecommunications | Aggreko US
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Telecom battery-storage rental for temporary continuity supports delivery occurrence, not the estimated global fee scale.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom battery-storage rental for temporary continuity supports delivery occurrence, not the estimated global fee scale.
24. EnerSys PowerSafe SBS Front Terminal Batteries | Alpine Power Systems
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A named battery distributor supports the intermediary route; its listing is not a global channel-sales observation.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A named battery distributor supports the intermediary route; its listing is not a global channel-sales observation.
25. DC Power Services | Vertiv
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Cross-manufacturer projects and narrower upgrades support integration-prime and supported-replacement routes; numerical route proportions remain assumed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Cross-manufacturer projects and narrower upgrades support integration-prime and supported-replacement routes; numerical route proportions remain assumed.

26. Shuangdeng Group Co., Ltd. - Global Offering Prospectus, August 18, 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The company's own five-month 2025 lead-acid realization of RMB520.xx.xx/kWh constrains the relative-price bridge; syndicated industry claims are excluded. Forecast convergence remains assumed. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The company's own five-month 2025 lead-acid realization of RMB520.xx.xx/kWh constrains the relative-price bridge; syndicated industry claims are excluded. Forecast convergence remains assumed. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Own lithium-ion realization of RMB595.xx.xx/kWh is an input to the Lithium-Based value model, not a Global share or a Lithium-Metal sales observation. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Own lithium-ion realization of RMB595.xx.xx/kWh is an input to the Lithium-Based value model, not a Global share or a Lithium-Metal sales observation. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
27. Amara Raja Crosses 1 GWh Lithium Storage Deployment Powering India's Telecom Networks
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The April xx.xx 2026 disclosure reports approximately xx.xx GWh across xx.xx cumulative telecom lithium sites over four years. This is a commercial adoption scale check, not annual Global revenue or a supplier-share input. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The April xx.xx 2026 disclosure reports approximately xx.xx GWh across xx.xx cumulative telecom lithium sites over four years. This is a commercial adoption scale check, not annual Global revenue or a supplier-share input. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The disclosed deployment identifies lithium-ion commercialization at scale, supporting the subtype's established commercial position without directly measuring its conditional Global share. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The disclosed deployment identifies lithium-ion commercialization at scale, supporting the subtype's established commercial position without directly measuring its conditional Global share. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
28. Central Office Power Systems - EnerSys
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The central-office portfolio identifies Flooded Lead-Acid as a distinct telecom alternative, supporting the legacy-network category mapping but not its purchasing fraction. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The central-office portfolio identifies Flooded Lead-Acid as a distinct telecom alternative, supporting the legacy-network category mapping but not its purchasing fraction. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The portfolio separately identifies Valve-Regulated Lead-Acid, supporting the within-lead construction boundary used by the model. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The portfolio separately identifies Valve-Regulated Lead-Acid, supporting the within-lead construction boundary used by the model. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))

29. PowerSafe OPzV Batteries - EnerSys

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: EnerSys identifies OPzV as Gel and lists telecom applications. This supports commercial subtype mapping, not the assumed Gel/AGM volume or price mix. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-opzv/))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: EnerSys identifies OPzV as Gel and lists telecom applications. This supports commercial subtype mapping, not the assumed Gel/AGM volume or price mix. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-opzv/))

30. Bolloré - 2017 Registration Document

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The official filing identifies LMP professional outage-protection applications including telecom relays. This is a dated commercial boundary input, not evidence of 2025 telecom shipment value. ([bollore.com](https://www.bollore.com/wp-content/uploads/2018/xx.xx/bollore_ddr_2017_gb_bag-xx.xx-juin.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The official filing identifies LMP professional outage-protection applications including telecom relays. This is a dated commercial boundary input, not evidence of 2025 telecom shipment value. ([bollore.com](https://www.bollore.com/wp-content/uploads/2018/xx.xx/bollore_ddr_2017_gb_bag-xx.xx-juin.pdf))

31. Bolloré - Business Report 2025

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The 2025 report establishes continuing Lithium Metal Polymer commercial applications in electricity storage and buses, while omitting separately attributable telecom sales. It constrains the low-access expected-purchase model; no capacity-to-sales conversion is used. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The 2025 report establishes continuing Lithium Metal Polymer commercial applications in electricity storage and buses, while omitting separately attributable telecom sales. It constrains the low-access expected-purchase model; no capacity-to-sales conversion is used. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The report preserves the distinction between LMP and conventional lithium-ion, supporting the exhaustive subtype attribution rule rather than treating polymer packaging as Lithium-Metal. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The report preserves the distinction between LMP and conventional lithium-ion, supporting the exhaustive subtype attribution rule rather than treating polymer packaging as Lithium-Metal. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))

32. AT&T to Replace U-Verse Cabinet Batteries - Fierce Network, January 15, 2008

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The January xx.xx 2008 report corroborates AT&T's replacement of approximately xx.xx Avestor batteries after the supplier's closure. The obsolete stock is therefore not carried into the 2025 or 2032 purchasing numerator. ([fierce-network.com](https://www.fierce-network.com/telecom/at-t-to-replace-u-verse-cabinet-batteries))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The January xx.xx 2008 report corroborates AT&T's replacement of approximately xx.xx Avestor batteries after the supplier's closure. The obsolete stock is therefore not carried into the 2025 or 2032 purchasing numerator. ([fierce-network.com](https://www.fierce-network.com/telecom/at-t-to-replace-u-verse-cabinet-batteries))

33. PowerSafe NiCd Batteries - EnerSys
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: EnerSys identifies Nickel-Cadmium for central offices and outside plant, supporting the modeled legacy telecom cohort but not its installed attachment or replacement spending. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-nicd/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: EnerSys identifies Nickel-Cadmium for central offices and outside plant, supporting the modeled legacy telecom cohort but not its installed attachment or replacement spending. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-nicd/))
34. FDK Ni-MH Battery Is Chosen for the Cellect 600 Product of Alpha Technologies
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The October xx.xx 2015 announcement identifies NiMH in Alpha's Cellect xx.xx small-cell backup proposition. It supports a historical cohort rather than current fulfillment or assumed surviving stock. ([fdk.com](https://www.fdk.com/whatsnew-e/release20151019-e.html))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The October xx.xx 2015 announcement identifies NiMH in Alpha's Cellect xx.xx small-cell backup proposition. It supports a historical cohort rather than current fulfillment or assumed surviving stock. ([fdk.com](https://www.fdk.com/whatsnew-e/release20151019-e.html))
35. Products - Encell Technology
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Encell positions its Fused Iron Nickel-Iron battery for telecom. This supports the commercial category lead, while current purchases and attachment remain modeled. ([encell.com](https://encell.com/products/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Encell positions its Fused Iron Nickel-Iron battery for telecom. This supports the commercial category lead, while current purchases and attachment remain modeled. ([encell.com](https://encell.com/products/))
36. Telecom/5G - ZAF Energy Systems
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: ZAF positions Nickel-Zinc for telecom/5G. Its supplier proposition supports application mapping, not the modeled annual attachment or threefold forecast value multiplier. ([zafsys.com](https://zafsys.com/telecom-5g/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: ZAF positions Nickel-Zinc for telecom/5G. Its supplier proposition supports application mapping, not the modeled annual attachment or threefold forecast value multiplier. ([zafsys.com](https://zafsys.com/telecom-5g/))
37. HORIEN Salt Battery Solutions and Inlyte Energy Announce a Strategic Partnership
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: HORIEN's March xx.xx 2025 statement identifies sodium-metal-chloride telecom backup. Its separate partnership announcement is not counted as delivered telecom sales. ([horien.com](https://horien.com/wp-content/uploads/2025/xx.xx/Press-Release_HORIEN-Inlyte-International-Version.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: HORIEN's March xx.xx 2025 statement identifies sodium-metal-chloride telecom backup. Its separate partnership announcement is not counted as delivered telecom sales. ([horien.com](https://horien.com/wp-content/uploads/2025/xx.xx/Press-Release_HORIEN-Inlyte-International-Version.pdf))
38. Energy Backup - Phinergy
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Phinergy markets Aluminum-Air continuity offerings to telecom operators and tower companies. The source supports category and buyer mapping, not the modeled installed attachment or replacement numerator. ([phinergy.com](https://phinergy.com/solutions/energy-backup/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Phinergy markets Aluminum-Air continuity offerings to telecom operators and tower companies. The source supports category and buyer mapping, not the modeled installed attachment or replacement numerator. ([phinergy.com](https://phinergy.com/solutions/energy-backup/))

39. Australian Flow Batteries - RFB40X Series

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: RFB40X literature identifies telecom among stationary commercial applications. It supports the qualifying project boundary, not delivered projects, revenue or assumed attachment. ([afb.energy](https://www.afb.energy/wp-content/uploads/2025/xx.xx/Australian-Flow-Batteries-RFB40X-Series-2024.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: RFB40X literature identifies telecom among stationary commercial applications. It supports the qualifying project boundary, not delivered projects, revenue or assumed attachment. ([afb.energy](https://www.afb.energy/wp-content/uploads/2025/xx.xx/Australian-Flow-Batteries-RFB40X-Series-2024.pdf))

40. PowerReserve - Verizon Residential Accessories

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Verizon advertises an alkaline-cell voice-backup device at USD39.xx.xx excluding batteries. This supports a qualifying primary-zinc premises route and price comparator, not assumed Global attachment or first-sale realization. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Verizon advertises an alkaline-cell voice-backup device at USD39.xx.xx excluding batteries. This supports a qualifying primary-zinc premises route and price comparator, not assumed Global attachment or first-sale realization. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Advertised voice-only protection reaches xx.xx hours; internet and television protection are excluded. This supports service-specific Day-Scale classification. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Advertised voice-only protection reaches xx.xx hours; internet and television protection are excluded. This supports service-specific Day-Scale classification. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))

41. Alkaline Manganese Dioxide Handbook and Application Manual - Energizer

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The manufacturer's alkaline manganese-dioxide classification supports the zinc-family mapping for qualifying premises backup. It provides no telecom purchasing weight. ([data.energizer.com](https://data.energizer.com/pdfs/alkaline_appman.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The manufacturer's alkaline manganese-dioxide classification supports the zinc-family mapping for qualifying premises backup. It provides no telecom purchasing weight. ([data.energizer.com](https://data.energizer.com/pdfs/alkaline_appman.pdf))

42. ITU-T Work Programme - Aqueous Zinc-Based Battery Systems for Base Station Applications

- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The aqueous-zinc base-station work item is Under study with December 2027 timing. It constrains the forecast commercialization assumption but establishes neither approval nor customer purchases. ([itu.int](https://www.itu.int/itu-t/workprog/wp_item.aspx?isn=xx.xx))

43. ITU-T L.1397 - Battery System with Integrated Control and Monitoring Information Model

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The October 2025 recommendation names lithium-lead, lithium-sodium and sodium-lead combinations. This supports mixed-family classification, not inseparable pricing or Global prevalence. ([itu.int](https://www.itu.int/rec/dologin_pub.asp?id=T-REC-L.xx.xx-xx.xx-I%xx.xx%21PDF-E&lang=e&type=items))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The October 2025 recommendation names lithium-lead, lithium-sodium and sodium-lead combinations. This supports mixed-family classification, not inseparable pricing or Global prevalence. ([itu.int](https://www.itu.int/rec/dologin_pub.asp?id=T-REC-L.xx.xx-xx.xx-I%xx.xx%21PDF-E&lang=e&type=items))

44. ETSI EN 300 132-1 V2.2.1 - ICT Power Supply Interface: Alternating Current
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The ICT standard identifies the protected-load AC interface, supporting output-side attribution rather than classification by chemistry or normal utility input. It supplies no sales mix. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013201v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The ICT standard identifies the protected-load AC interface, supporting output-side attribution rather than classification by chemistry or normal utility input. It supplies no sales mix. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013201v020201p.pdf))
45. ETSI EN 300 132-2 V2.8.1 - ICT Power Supply Interface: Direct Current
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The ICT standard separately identifies the DC protected-equipment interface, supporting the DC-output boundary independently of battery chemistry. It is not a purchasing census. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013202v020801p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The ICT standard separately identifies the DC protected-equipment interface, supporting the DC-output boundary independently of battery chemistry. It is not a purchasing census. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013202v020801p.pdf))
46. Vertiv NetSure Inverter Series - Converged AC and DC Power System
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: NetSure Inverter Series identifies AC and DC loads supported through a common battery bank. This establishes a combined-output proposition, not its modeled purchasing fraction or future adoption. ([vertiv.com](https://www.vertiv.com/en-us/products-catalog/critical-power/dc-power-systems/vertiv-netsure-inverter-series/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: NetSure Inverter Series identifies AC and DC loads supported through a common battery bank. This establishes a combined-output proposition, not its modeled purchasing fraction or future adoption. ([vertiv.com](https://www.vertiv.com/en-us/products-catalog/critical-power/dc-power-systems/vertiv-netsure-inverter-series/))

47. ETSI EN 302 099 V2.2.1 - Powering of Equipment in Access Network
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Local powering uses a colocated source; allocation follows the backed source rather than receiver inventory. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Local powering uses a colocated source; allocation follows the backed source rather than receiver inventory. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Remote-source backup is distinguished from local backup, supporting the parent commercial boundary but not purchasing weights. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Remote-source backup is distinguished from local backup, supporting the parent commercial boundary but not purchasing weights. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Centralized powering originates at a telecommunications center. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Centralized powering originates at a telecommunications center. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Cluster powering uses a source outside the telecommunications center, supporting separation within Remote Powering. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Cluster powering uses a source outside the telecommunications center, supporting separation within Remote Powering. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Reverse powering is customer-origin supply, supporting source-level attribution of the battery-backed provider package. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Reverse powering is customer-origin supply, supporting source-level attribution of the battery-backed provider package. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))

48. Set Up Your Battery Backup - AT&T G.Fast Service with BGW210

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The 2021 provider document names a battery-backed package protecting G.fast customer and distribution equipment through reverse power feed. It establishes a dated source-backup proposition, not current Global quantities. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The 2021 provider document names a battery-backed package protecting G.fast customer and distribution equipment through reverse power feed. It establishes a dated source-backup proposition, not current Global quantities. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The provider advertises a xx.xx-hour service window for the particular package, supporting Day-Scale mapping without a universal premises-duration inference. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The provider advertises a xx.xx-hour service window for the particular package, supporting Day-Scale mapping without a universal premises-duration inference. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

49. DNA Tower Offers Battery Capacity in Electricity Reserve Markets with Elisa DES

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The June xx.xx 2025 announcement reports DNA Tower batteries connected to Finnish reserve markets while retaining outage continuity. This establishes a specific mixed-duty implementation, not Global attachment or guaranteed returns. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/press-releases/dna-tower-becomes-worlds-first-tower-company-to-offer-battery-capacity-in-electricity-reserve-markets-with-elisa-des))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The June xx.xx 2025 announcement reports DNA Tower batteries connected to Finnish reserve markets while retaining outage continuity. This establishes a specific mixed-duty implementation, not Global attachment or guaranteed returns. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/press-releases/dna-tower-becomes-worlds-first-tower-company-to-offer-battery-capacity-in-electricity-reserve-markets-with-elisa-des))

50. Case Elisa: Virtual Power Plant in the Telecom Industry

- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The company case reports over 2,000 aggregated sites and approximately xx.xx MWh. This is an installed commercial scale check, not annual purchasing value or Global prevalence. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/customer-stories/elisacase))

21.6. Brazil

Table 584. Brazil Telecom Battery Backup System Market Size, 2017-2032 (USD Million)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Brazil	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 585. Brazil Telecom Battery Backup System Market Size, by Offering, 2017-2032 (USD Million)

Offering	2023	2024	2025	2026	2027	2032	CAGR (%)
Battery Units and Assemblies	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Complete Backup Systems	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 586. Brazil Telecom Battery Backup System Market Size, by Battery Technology, 2017-2032 (USD Million)

Battery Technology	2023	2024	2025	2026	2027	2032	CAGR (%)
Aqueous Zinc-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Flow Batteries	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lithium-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Metal-Air	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Multi-Chemistry	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Sodium-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 587. Brazil Telecom Battery Backup System Market Size, by Lead-Acid, 2017-2032 (USD Million)

Lead-Acid	2023	2024	2025	2026	2027	2032	CAGR (%)
Flooded Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Valve-Regulated Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 588. Brazil Telecom Battery Backup System Market Size, by Valve-Regulated Lead-Acid, 2017-2032 (USD Million)

Valve-Regulated Lead-Acid	2023	2024	2025	2026	2027	2032	CAGR (%)
Absorbent Glass Mat	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Gel	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 589. Brazil Telecom Battery Backup System Market Size, by Lithium-Based, 2017-2032 (USD Million)

Lithium-Based	2023	2024	2025	2026	2027	2032	CAGR (%)
Lithium-Ion	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lithium-Metal	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 590. Brazil Telecom Battery Backup System Market Size, by Nickel-Based, 2017-2032 (USD Million)

Nickel-Based	2023	2024	2025	2026	2027	2032	CAGR (%)
Nickel-Cadmium	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Iron	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Metal Hydride	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Zinc	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 591. Brazil Telecom Battery Backup System Market Size, by Power Interface, 2017-2032 (USD Million)

Power Interface	2023	2024	2025	2026	2027	2032	CAGR (%)
AC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Combined AC/DC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
DC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 592. Brazil Telecom Battery Backup System Market Size, by Network Application, 2017-2032 (USD Million)

Network Application	2023	2024	2025	2026	2027	2032	CAGR (%)
Core Networks & Network Control	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Customer-Premises Connectivity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Network Interconnection & Peering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Transport & Backhaul Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Wireless Access Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Wireline Access Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 593. Brazil Telecom Battery Backup System Market Size, by Buyer Type, 2017-2032 (USD Million)

Buyer Type	2023	2024	2025	2026	2027	2032	CAGR (%)
Business & Institutional Connectivity Owners	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Equipment Leasing & Rental Providers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Household Connectivity Purchasers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Energy-Service Providers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Infrastructure & Tower Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecommunications Network Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 594. Brazil Telecom Battery Backup System Market Size, by Installation Environment, 2017-2032 (USD Million)

Installation Environment	2023	2024	2025	2026	2027	2032	CAGR (%)
Non-Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Underground Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 595. Brazil Telecom Battery Backup System Market Size, by Weather-Protected Locations, 2017-2032 (USD Million)

Weather-Protected Locations	2023	2024	2025	2026	2027	2032	CAGR (%)
Enclosed Locations Without Temperature Control	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Partly Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Temperature-Controlled Enclosed Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 596. Brazil Telecom Battery Backup System Market Size, by Non-Weather-Protected Locations, 2017-2032 (USD Million)

Non-Weather-Protected Locations	2023	2024	2025	2026	2027	2032	CAGR (%)
Open-Air Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Sheltered Non-Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 597. Brazil Telecom Battery Backup System Market Size, by Powering Architecture, 2017-2032 (USD Million)

Powering Architecture	2023	2024	2025	2026	2027	2032	CAGR (%)
Local Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Remote Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 598. Brazil Telecom Battery Backup System Market Size, by Remote Powering, 2017-2032 (USD Million)

Remote Powering	2023	2024	2025	2026	2027	2032	CAGR (%)
Centralized Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Cluster Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reverse Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 599. Brazil Telecom Battery Backup System Market Size, by Commercial Delivery Model, 2017-2032 (USD Million)

Commercial Delivery Model	2023	2024	2025	2026	2027	2032	CAGR (%)
Leased or Rented Equipment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Managed Backup Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Owned Equipment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 600. Brazil Telecom Battery Backup System Market Size, by Sales Channel, 2017-2032 (USD Million)

Sales Channel	2023	2024	2025	2026	2027	2032	CAGR (%)
Direct Manufacturer Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Distributor and Retailer Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Systems Integrator and Contractor Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Service Provider Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 601. Brazil Telecom Battery Backup System Market Size, by Grid Availability, 2017-2032 (USD Million)

Grid Availability	2023	2024	2025	2026	2027	2032	CAGR (%)
Off-Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reliable Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Unreliable Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 602. Brazil Telecom Battery Backup System Market Size, by Backup Duty, 2017-2032 (USD Million)

Backup Duty	2023	2024	2025	2026	2027	2032	CAGR (%)
Backup with Energy Management	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reserve-Only Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 603. Brazil Telecom Battery Backup System Market Size, by Backup Autonomy, 2017-2032 (USD Million)

Backup Autonomy	2023	2024	2025	2026	2027	2032	CAGR (%)
Day-Scale Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Extended-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Intermediate-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Short-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. China Tower - 2025 Annual Results, March 18, 2026
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The xx.xx.149m-site inventory constrains wireless activity; forecast purchasing remains modeled.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The xx.xx.149m-site inventory constrains wireless activity; forecast purchasing remains modeled.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Replacement/improvement CAPEX fell from RMB6837m to RMB5474m, qualifying automatic replacement-led growth.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Replacement/improvement CAPEX fell from RMB6837m to RMB5474m, qualifying automatic replacement-led growth.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Disclosed tower operations establish a material infrastructure purchasing setting, not a global buyer share.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Disclosed tower operations establish a material infrastructure purchasing setting, not a global buyer share.
2. Broadband Commission - The State of Broadband: Our Digital World, 2025
   - Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))

3. Battery Backup - Meriwether Lewis Electric Cooperative
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Separately available replacement batteries support a battery-only replacement route.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Separately available replacement batteries support a battery-only replacement route.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The USD100-plus-tax device is a retail comparator, not an observed 2025 first-sale realization.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The USD100-plus-tax device is a retail comparator, not an observed 2025 first-sale realization.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Customer purchase and replacement responsibilities support household-funded procurement.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Customer purchase and replacement responsibilities support household-funded procurement.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Purchased equipment does not automatically include continuing service-plan coverage.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Purchased equipment does not automatically include continuing service-plan coverage.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Local provider sales establish this route alongside manufacturer-direct purchasing.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Local provider sales establish this route alongside manufacturer-direct purchasing.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The provider advertises approximately five hours for combined voice and internet, supporting service-specific Extended classification, not an observed 2025 purchase mix. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The provider advertises approximately five hours for combined voice and internet, supporting service-specific Extended classification, not an observed 2025 purchase mix. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The same proposition advertises xx.xx-hour voice-only protection, supporting Day-Scale mapping without equating duration with a universally larger purchase basket. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The same proposition advertises xx.xx-hour voice-only protection, supporting Day-Scale mapping without equating duration with a universally larger purchase basket. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
4. EnerSys 2026 Proxy Statement and Annual Report
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Direct customer supply is disclosed within a diversified international business; telecom channel proportions are not disclosed.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Direct customer supply is disclosed within a diversified international business; telecom channel proportions are not disclosed.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Distributor supply is disclosed, supporting route occurrence rather than its modeled sales weight.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Distributor supply is disclosed, supporting route occurrence rather than its modeled sales weight.

5. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: Audited 2025 telecom revenue of RMB1,xx.xx declined xx.xx%; telecom purchasing weakness is retained as counterevidence to automatic substitution-led aggregate growth. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Audited 2025 telecom revenue of RMB1,xx.xx declined xx.xx%; telecom purchasing weakness is retained as counterevidence to automatic substitution-led aggregate growth. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: Telecom-specific results are separated from adjacent data-center and power-storage growth when assessing lithium substitution; the filing does not disclose the modeled Global split. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom-specific results are separated from adjacent data-center and power-storage growth when assessing lithium substitution; the filing does not disclose the modeled Global split. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

6. Amara Raja Energy & Mobility - Q2/H1 FY2026 Earnings Presentation, November 6, 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand. ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))

7. IHS Holding Limited - First-Quarter 2026 Financial Statements

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement. ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

8. Ofcom - Mobile RAN Power Resilience: Technical Report and CFI Update, February 2025

- Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))
- Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The evaluated xx.xx-minute alternative supplies a subhour commercial-planning anchor, not observed shipments. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The evaluated xx.xx-minute alternative supplies a subhour commercial-planning anchor, not observed shipments. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: One-hour and two-hour alternatives anchor the analytical Intermediate band. Aggregate scenarios include multiple years of operating costs and are not annual battery revenue. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: One-hour and two-hour alternatives anchor the analytical Intermediate band. Aggregate scenarios include multiple years of operating costs and are not annual battery revenue. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The four-hour alternative anchors the Extended band's lower boundary without establishing a Global minimum or purchasing allocation. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The four-hour alternative anchors the Extended band's lower boundary without establishing a Global minimum or purchasing allocation. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

9. Ofcom - Your Landline Is Going Digital: What You Need to Know

- Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
- Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Restricted provider-funded eligibility constrains operator-funded premises attribution and forecast adoption.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Restricted provider-funded eligibility constrains operator-funded premises attribution and forecast adoption.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Eligibility is not universal household funding; purchaser proportions remain assumptions.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Eligibility is not universal household funding; purchaser proportions remain assumptions.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Eligibility-limited provider backup and the one-hour minimum for qualifying customers constrain premises demand and anchor the Intermediate band's lower boundary. They do not establish universal adoption. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Eligibility-limited provider backup and the one-hour minimum for qualifying customers constrain premises demand and anchor the Intermediate band's lower boundary. They do not establish universal adoption. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

10. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone
    - Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue. ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
    - Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions. ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: USD45m financing and xx.xx planned site modernizations support an expansion signal, not observed backup-only service revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: USD45m financing and xx.xx planned site modernizations support an expansion signal, not observed backup-only service revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Energy-service activity supports the role; the modeled provider-as-buyer subcontract share is not established.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Energy-service activity supports the role; the modeled provider-as-buyer subcontract share is not established.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: More than xx.xx% weak/off-grid project exposure constrains service-cohort concentration, not the global grid mix.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: More than xx.xx% weak/off-grid project exposure constrains service-cohort concentration, not the global grid mix.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The project confirms disconnected-site commercial demand; its weak/off-grid combined statistic does not separate those categories.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The project confirms disconnected-site commercial demand; its weak/off-grid combined statistic does not separate those categories.
11. Fingrid - How to Participate in the Reserve Markets
    - Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue. ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Applicable owner permission and market agreements are commercial access gates. They constrain forecast mixed-duty adoption without measuring its Global percentage. ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))
12. American Tower Corporation - Annual Report on Form 10-K for 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Brazilian tower inventory supports a substantial local wireless-network pool.

13. PowerSafe SBS Batteries | EnerSys
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Named telecom batteries support the battery-unit offering boundary; allocation weights are assumed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Named telecom batteries support the battery-unit offering boundary; allocation weights are assumed.
14. Vertiv NetSure M Series
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Configured enclosure, power and battery options support broader system classification, not universal bundle inclusion.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Configured enclosure, power and battery options support broader system classification, not universal bundle inclusion.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A marketed outdoor enclosure supports a protection option; global adoption and configuration proportions remain modeled.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A marketed outdoor enclosure supports a protection option; global adoption and configuration proportions remain modeled.
15. Ofcom - Network and Service Resilience Guidance for Communications Providers, June 16, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Core is a distinct, comparatively concentrated function with explicit backup expectations; global spending remains estimated.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Core is a distinct, comparatively concentrated function with explicit backup expectations; global spending remains estimated.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The stated xx.xx-xx.xx-fold site-scale distinction motivates lower-value, more numerous transport purchase equivalents.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The stated xx.xx-xx.xx-fold site-scale distinction motivates lower-value, more numerous transport purchase equivalents.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Peering and non-Internet interconnection are distinct functions; attributable backup purchase values are not disclosed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Peering and non-Internet interconnection are distinct functions; attributable backup purchase values are not disclosed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: June 2026 guidance identifies approximately four hours as good practice for active fixed-access cabinets. This supports a conditional Extended purchasing shift, not completed orders or a Global mandate. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/network-and-service-resilience-guidance-for-communications-providerspdf?v=xx.xx))
16. Technology and Tools | First Responder Network Authority
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Radio access, transport backhaul and core are separate network functions, supporting functional attribution without duplicate facility counting.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Radio access, transport backhaul and core are separate network functions, supporting functional attribution without duplicate facility counting.
17. Mobile Network Hardening Program | Australian Department of Infrastructure
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Completed battery enhancements and broader resilience projects provide a delivered regional demand signal, not a global forecast rate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Completed battery enhancements and broader resilience projects provide a delivered regional demand signal, not a global forecast rate.

18. BT - Digital Voice for Business Service Schedule, May 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Business customers bear backup-power expense, supporting a distinct institutional/business payer route rather than consumer eligibility extrapolation.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Business customers bear backup-power expense, supporting a distinct institutional/business payer route rather than consumer eligibility extrapolation.
19. Los Angeles Metro - Board Report 2024-1128, UPS Battery Replacement
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Completed and additional UPS battery replacements support continuing underground demand; mixed-load project budgets are not telecom-only revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Completed and additional UPS battery replacements support continuing underground demand; mixed-load project budgets are not telecom-only revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The transit authority's purchasing program supports an institutional own-use role, not its global spending proportion.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The transit authority's purchasing program supports an institutional own-use role, not its global spending proportion.
20. ETSI EN 300 019-1-3 V3.1.1 - Stationary Use at Weatherprotected Locations, May 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Weather-protected categories distinguish enclosure from environmental control; the standard does not measure market mix.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Weather-protected categories distinguish enclosure from environmental control; the standard does not measure market mix.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Maintained temperature control is a separate classification premise for the modeled conditional allocation.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Maintained temperature control is a separate classification premise for the modeled conditional allocation.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Enclosed locations without temperature control are distinguished from controlled locations.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Enclosed locations without temperature control are distinguished from controlled locations.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Partial weather protection is recognized separately; sales weights and future adoption remain assumed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Partial weather protection is recognized separately; sales weights and future adoption remain assumed.
21. ETSI EN 300 019-1-4 V3.1.1 - Stationary Use at Non-Weatherprotected Locations, May 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Non-weather-protected locations form a distinct classification regime, not a measured global spending pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Non-weather-protected locations form a distinct classification regime, not a measured global spending pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Sheltered non-weather-protected locations support the named conditional category.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Sheltered non-weather-protected locations support the named conditional category.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Open-air locations are separately recognized; their purchasing mix remains modeled.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Open-air locations are separately recognized; their purchasing mix remains modeled.

22. DC Power Plant / Rectifiers - UPS Rental
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Battery and complete DC-plant rentals establish delivery-category occurrence; global fees and utilization are not disclosed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Battery and complete DC-plant rentals establish delivery-category occurrence; global fees and utilization are not disclosed.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Commercial rental availability is a role premise only; modeled lessor sub-hire procurement remains unverified.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Commercial rental availability is a role premise only; modeled lessor sub-hire procurement remains unverified.
23. Helios Towers - Full Year Results 2025, March 12, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Grid-integration investment supplies a connection-improvement counterforce used conditionally in the forecast.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Grid-integration investment supplies a connection-improvement counterforce used conditionally in the forecast.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Reported xx.xx-hour average daily grid availability supports weak-grid commercial exposure, without a global classification share.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Reported xx.xx-hour average daily grid availability supports weak-grid commercial exposure, without a global classification share.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Grid integration and alternative-power investment qualify assumptions of permanently unchanged disconnected-site exposure.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Grid integration and alternative-power investment qualify assumptions of permanently unchanged disconnected-site exposure.
24. Telecommunications | Aggreko US
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Telecom battery-storage rental for temporary continuity supports delivery occurrence, not the estimated global fee scale.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom battery-storage rental for temporary continuity supports delivery occurrence, not the estimated global fee scale.
25. EnerSys PowerSafe SBS Front Terminal Batteries | Alpine Power Systems
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A named battery distributor supports the intermediary route; its listing is not a global channel-sales observation.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A named battery distributor supports the intermediary route; its listing is not a global channel-sales observation.
26. DC Power Services | Vertiv
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Cross-manufacturer projects and narrower upgrades support integration-prime and supported-replacement routes; numerical route proportions remain assumed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Cross-manufacturer projects and narrower upgrades support integration-prime and supported-replacement routes; numerical route proportions remain assumed.

27. Shuangdeng Group Co., Ltd. - Global Offering Prospectus, August 18, 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The company's own five-month 2025 lead-acid realization of RMB520.xx.xx/kWh constrains the relative-price bridge; syndicated industry claims are excluded. Forecast convergence remains assumed. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The company's own five-month 2025 lead-acid realization of RMB520.xx.xx/kWh constrains the relative-price bridge; syndicated industry claims are excluded. Forecast convergence remains assumed. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Own lithium-ion realization of RMB595.xx.xx/kWh is an input to the Lithium-Based value model, not a Global share or a Lithium-Metal sales observation. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Own lithium-ion realization of RMB595.xx.xx/kWh is an input to the Lithium-Based value model, not a Global share or a Lithium-Metal sales observation. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
28. Amara Raja Crosses 1 GWh Lithium Storage Deployment Powering India's Telecom Networks
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The April xx.xx 2026 disclosure reports approximately xx.xx GWh across xx.xx cumulative telecom lithium sites over four years. This is a commercial adoption scale check, not annual Global revenue or a supplier-share input. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The April xx.xx 2026 disclosure reports approximately xx.xx GWh across xx.xx cumulative telecom lithium sites over four years. This is a commercial adoption scale check, not annual Global revenue or a supplier-share input. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The disclosed deployment identifies lithium-ion commercialization at scale, supporting the subtype's established commercial position without directly measuring its conditional Global share. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The disclosed deployment identifies lithium-ion commercialization at scale, supporting the subtype's established commercial position without directly measuring its conditional Global share. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
29. Central Office Power Systems - EnerSys
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The central-office portfolio identifies Flooded Lead-Acid as a distinct telecom alternative, supporting the legacy-network category mapping but not its purchasing fraction. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The central-office portfolio identifies Flooded Lead-Acid as a distinct telecom alternative, supporting the legacy-network category mapping but not its purchasing fraction. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The portfolio separately identifies Valve-Regulated Lead-Acid, supporting the within-lead construction boundary used by the model. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The portfolio separately identifies Valve-Regulated Lead-Acid, supporting the within-lead construction boundary used by the model. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))

30. PowerSafe OPzV Batteries - EnerSys

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: EnerSys identifies OPzV as Gel and lists telecom applications. This supports commercial subtype mapping, not the assumed Gel/AGM volume or price mix. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-opzv/))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: EnerSys identifies OPzV as Gel and lists telecom applications. This supports commercial subtype mapping, not the assumed Gel/AGM volume or price mix. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-opzv/))

31. Bolloré - 2017 Registration Document

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The official filing identifies LMP professional outage-protection applications including telecom relays. This is a dated commercial boundary input, not evidence of 2025 telecom shipment value. ([bollore.com](https://www.bollore.com/wp-content/uploads/2018/xx.xx/bollore_ddr_2017_gb_bag-xx.xx-juin.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The official filing identifies LMP professional outage-protection applications including telecom relays. This is a dated commercial boundary input, not evidence of 2025 telecom shipment value. ([bollore.com](https://www.bollore.com/wp-content/uploads/2018/xx.xx/bollore_ddr_2017_gb_bag-xx.xx-juin.pdf))

32. Bolloré - Business Report 2025

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The 2025 report establishes continuing Lithium Metal Polymer commercial applications in electricity storage and buses, while omitting separately attributable telecom sales. It constrains the low-access expected-purchase model; no capacity-to-sales conversion is used. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The 2025 report establishes continuing Lithium Metal Polymer commercial applications in electricity storage and buses, while omitting separately attributable telecom sales. It constrains the low-access expected-purchase model; no capacity-to-sales conversion is used. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The report preserves the distinction between LMP and conventional lithium-ion, supporting the exhaustive subtype attribution rule rather than treating polymer packaging as Lithium-Metal. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The report preserves the distinction between LMP and conventional lithium-ion, supporting the exhaustive subtype attribution rule rather than treating polymer packaging as Lithium-Metal. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))

33. AT&T to Replace U-Verse Cabinet Batteries - Fierce Network, January 15, 2008

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The January xx.xx 2008 report corroborates AT&T's replacement of approximately xx.xx Avestor batteries after the supplier's closure. The obsolete stock is therefore not carried into the 2025 or 2032 purchasing numerator. ([fierce-network.com](https://www.fierce-network.com/telecom/at-t-to-replace-u-verse-cabinet-batteries))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The January xx.xx 2008 report corroborates AT&T's replacement of approximately xx.xx Avestor batteries after the supplier's closure. The obsolete stock is therefore not carried into the 2025 or 2032 purchasing numerator. ([fierce-network.com](https://www.fierce-network.com/telecom/at-t-to-replace-u-verse-cabinet-batteries))

34. PowerSafe NiCd Batteries - EnerSys
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: EnerSys identifies Nickel-Cadmium for central offices and outside plant, supporting the modeled legacy telecom cohort but not its installed attachment or replacement spending. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-nicd/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: EnerSys identifies Nickel-Cadmium for central offices and outside plant, supporting the modeled legacy telecom cohort but not its installed attachment or replacement spending. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-nicd/))
35. FDK Ni-MH Battery Is Chosen for the Cellect 600 Product of Alpha Technologies
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The October xx.xx 2015 announcement identifies NiMH in Alpha's Cellect xx.xx small-cell backup proposition. It supports a historical cohort rather than current fulfillment or assumed surviving stock. ([fdk.com](https://www.fdk.com/whatsnew-e/release20151019-e.html))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The October xx.xx 2015 announcement identifies NiMH in Alpha's Cellect xx.xx small-cell backup proposition. It supports a historical cohort rather than current fulfillment or assumed surviving stock. ([fdk.com](https://www.fdk.com/whatsnew-e/release20151019-e.html))
36. Products - Encell Technology
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Encell positions its Fused Iron Nickel-Iron battery for telecom. This supports the commercial category lead, while current purchases and attachment remain modeled. ([encell.com](https://encell.com/products/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Encell positions its Fused Iron Nickel-Iron battery for telecom. This supports the commercial category lead, while current purchases and attachment remain modeled. ([encell.com](https://encell.com/products/))
37. Telecom/5G - ZAF Energy Systems
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: ZAF positions Nickel-Zinc for telecom/5G. Its supplier proposition supports application mapping, not the modeled annual attachment or threefold forecast value multiplier. ([zafsys.com](https://zafsys.com/telecom-5g/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: ZAF positions Nickel-Zinc for telecom/5G. Its supplier proposition supports application mapping, not the modeled annual attachment or threefold forecast value multiplier. ([zafsys.com](https://zafsys.com/telecom-5g/))
38. HORIEN Salt Battery Solutions and Inlyte Energy Announce a Strategic Partnership
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: HORIEN's March xx.xx 2025 statement identifies sodium-metal-chloride telecom backup. Its separate partnership announcement is not counted as delivered telecom sales. ([horien.com](https://horien.com/wp-content/uploads/2025/xx.xx/Press-Release_HORIEN-Inlyte-International-Version.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: HORIEN's March xx.xx 2025 statement identifies sodium-metal-chloride telecom backup. Its separate partnership announcement is not counted as delivered telecom sales. ([horien.com](https://horien.com/wp-content/uploads/2025/xx.xx/Press-Release_HORIEN-Inlyte-International-Version.pdf))
39. Energy Backup - Phinergy
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Phinergy markets Aluminum-Air continuity offerings to telecom operators and tower companies. The source supports category and buyer mapping, not the modeled installed attachment or replacement numerator. ([phinergy.com](https://phinergy.com/solutions/energy-backup/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Phinergy markets Aluminum-Air continuity offerings to telecom operators and tower companies. The source supports category and buyer mapping, not the modeled installed attachment or replacement numerator. ([phinergy.com](https://phinergy.com/solutions/energy-backup/))

40. Australian Flow Batteries - RFB40X Series

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: RFB40X literature identifies telecom among stationary commercial applications. It supports the qualifying project boundary, not delivered projects, revenue or assumed attachment. ([afb.energy](https://www.afb.energy/wp-content/uploads/2025/xx.xx/Australian-Flow-Batteries-RFB40X-Series-2024.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: RFB40X literature identifies telecom among stationary commercial applications. It supports the qualifying project boundary, not delivered projects, revenue or assumed attachment. ([afb.energy](https://www.afb.energy/wp-content/uploads/2025/xx.xx/Australian-Flow-Batteries-RFB40X-Series-2024.pdf))

41. PowerReserve - Verizon Residential Accessories

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Verizon advertises an alkaline-cell voice-backup device at USD39.xx.xx excluding batteries. This supports a qualifying primary-zinc premises route and price comparator, not assumed Global attachment or first-sale realization. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Verizon advertises an alkaline-cell voice-backup device at USD39.xx.xx excluding batteries. This supports a qualifying primary-zinc premises route and price comparator, not assumed Global attachment or first-sale realization. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Advertised voice-only protection reaches xx.xx hours; internet and television protection are excluded. This supports service-specific Day-Scale classification. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Advertised voice-only protection reaches xx.xx hours; internet and television protection are excluded. This supports service-specific Day-Scale classification. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))

42. Alkaline Manganese Dioxide Handbook and Application Manual - Energizer

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The manufacturer's alkaline manganese-dioxide classification supports the zinc-family mapping for qualifying premises backup. It provides no telecom purchasing weight. ([data.energizer.com](https://data.energizer.com/pdfs/alkaline_appman.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The manufacturer's alkaline manganese-dioxide classification supports the zinc-family mapping for qualifying premises backup. It provides no telecom purchasing weight. ([data.energizer.com](https://data.energizer.com/pdfs/alkaline_appman.pdf))

43. ITU-T Work Programme - Aqueous Zinc-Based Battery Systems for Base Station Applications

- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The aqueous-zinc base-station work item is Under study with December 2027 timing. It constrains the forecast commercialization assumption but establishes neither approval nor customer purchases. ([itu.int](https://www.itu.int/itu-t/workprog/wp_item.aspx?isn=xx.xx))

44. ITU-T L.1397 - Battery System with Integrated Control and Monitoring Information Model

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The October 2025 recommendation names lithium-lead, lithium-sodium and sodium-lead combinations. This supports mixed-family classification, not inseparable pricing or Global prevalence. ([itu.int](https://www.itu.int/rec/dologin_pub.asp?id=T-REC-L.xx.xx-xx.xx-I%xx.xx%21PDF-E&lang=e&type=items))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The October 2025 recommendation names lithium-lead, lithium-sodium and sodium-lead combinations. This supports mixed-family classification, not inseparable pricing or Global prevalence. ([itu.int](https://www.itu.int/rec/dologin_pub.asp?id=T-REC-L.xx.xx-xx.xx-I%xx.xx%21PDF-E&lang=e&type=items))

45. ETSI EN 300 132-1 V2.2.1 - ICT Power Supply Interface: Alternating Current
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The ICT standard identifies the protected-load AC interface, supporting output-side attribution rather than classification by chemistry or normal utility input. It supplies no sales mix. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013201v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The ICT standard identifies the protected-load AC interface, supporting output-side attribution rather than classification by chemistry or normal utility input. It supplies no sales mix. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013201v020201p.pdf))
46. ETSI EN 300 132-2 V2.8.1 - ICT Power Supply Interface: Direct Current
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The ICT standard separately identifies the DC protected-equipment interface, supporting the DC-output boundary independently of battery chemistry. It is not a purchasing census. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013202v020801p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The ICT standard separately identifies the DC protected-equipment interface, supporting the DC-output boundary independently of battery chemistry. It is not a purchasing census. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013202v020801p.pdf))
47. Vertiv NetSure Inverter Series - Converged AC and DC Power System
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: NetSure Inverter Series identifies AC and DC loads supported through a common battery bank. This establishes a combined-output proposition, not its modeled purchasing fraction or future adoption. ([vertiv.com](https://www.vertiv.com/en-us/products-catalog/critical-power/dc-power-systems/vertiv-netsure-inverter-series/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: NetSure Inverter Series identifies AC and DC loads supported through a common battery bank. This establishes a combined-output proposition, not its modeled purchasing fraction or future adoption. ([vertiv.com](https://www.vertiv.com/en-us/products-catalog/critical-power/dc-power-systems/vertiv-netsure-inverter-series/))

48. ETSI EN 302 099 V2.2.1 - Powering of Equipment in Access Network
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Local powering uses a colocated source; allocation follows the backed source rather than receiver inventory. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Local powering uses a colocated source; allocation follows the backed source rather than receiver inventory. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Remote-source backup is distinguished from local backup, supporting the parent commercial boundary but not purchasing weights. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Remote-source backup is distinguished from local backup, supporting the parent commercial boundary but not purchasing weights. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Centralized powering originates at a telecommunications center. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Centralized powering originates at a telecommunications center. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Cluster powering uses a source outside the telecommunications center, supporting separation within Remote Powering. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Cluster powering uses a source outside the telecommunications center, supporting separation within Remote Powering. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Reverse powering is customer-origin supply, supporting source-level attribution of the battery-backed provider package. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Reverse powering is customer-origin supply, supporting source-level attribution of the battery-backed provider package. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))

49. Set Up Your Battery Backup - AT&T G.Fast Service with BGW210

    · Evidence informing base-year allocation inputs; displayed values and growth are calculated: The 2021 provider document names a battery-backed package protecting G.fast customer and distribution equipment through reverse power feed. It establishes a dated source-backup proposition, not current Global quantities. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

    · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The 2021 provider document names a battery-backed package protecting G.fast customer and distribution equipment through reverse power feed. It establishes a dated source-backup proposition, not current Global quantities. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

    · Evidence informing base-year allocation inputs; displayed values and growth are calculated: The provider advertises a xx.xx-hour service window for the particular package, supporting Day-Scale mapping without a universal premises-duration inference. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

    · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The provider advertises a xx.xx-hour service window for the particular package, supporting Day-Scale mapping without a universal premises-duration inference. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

50. DNA Tower Offers Battery Capacity in Electricity Reserve Markets with Elisa DES

    · Evidence informing base-year allocation inputs; displayed values and growth are calculated: The June xx.xx 2025 announcement reports DNA Tower batteries connected to Finnish reserve markets while retaining outage continuity. This establishes a specific mixed-duty implementation, not Global attachment or guaranteed returns. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/press-releases/dna-tower-becomes-worlds-first-tower-company-to-offer-battery-capacity-in-electricity-reserve-markets-with-elisa-des))

    · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The June xx.xx 2025 announcement reports DNA Tower batteries connected to Finnish reserve markets while retaining outage continuity. This establishes a specific mixed-duty implementation, not Global attachment or guaranteed returns. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/press-releases/dna-tower-becomes-worlds-first-tower-company-to-offer-battery-capacity-in-electricity-reserve-markets-with-elisa-des))

51. Case Elisa: Virtual Power Plant in the Telecom Industry

    · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The company case reports over 2,000 aggregated sites and approximately xx.xx MWh. This is an installed commercial scale check, not annual purchasing value or Global prevalence. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/customer-stories/elisacase))

21.7. France

Table 604. France Telecom Battery Backup System Market Size, 2017-2032 (USD Million)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
France	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 605. France Telecom Battery Backup System Market Size, by Offering, 2017-2032 (USD Million)

Offering	2023	2024	2025	2026	2027	2032	CAGR (%)
Battery Units and Assemblies	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Complete Backup Systems	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 606. France Telecom Battery Backup System Market Size, by Battery Technology, 2017-2032 (USD Million)

Battery Technology	2023	2024	2025	2026	2027	2032	CAGR (%)
Aqueous Zinc-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Flow Batteries	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lithium-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Metal-Air	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Multi-Chemistry	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Sodium-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 607. France Telecom Battery Backup System Market Size, by Lead-Acid, 2017-2032 (USD Million)

Lead-Acid	2023	2024	2025	2026	2027	2032	CAGR (%)
Flooded Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Valve-Regulated Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 608. France Telecom Battery Backup System Market Size, by Valve-Regulated Lead-Acid, 2017-2032 (USD Million)

Valve-Regulated Lead-Acid	2023	2024	2025	2026	2027	2032	CAGR (%)
Absorbent Glass Mat	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Gel	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 609. France Telecom Battery Backup System Market Size, by Lithium-Based, 2017-2032 (USD Million)

Lithium-Based	2023	2024	2025	2026	2027	2032	CAGR (%)
Lithium-Ion	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lithium-Metal	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 610. France Telecom Battery Backup System Market Size, by Nickel-Based, 2017-2032 (USD Million)

Nickel-Based	2023	2024	2025	2026	2027	2032	CAGR (%)
Nickel-Cadmium	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Iron	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Metal Hydride	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Zinc	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 611. France Telecom Battery Backup System Market Size, by Power Interface, 2017-2032 (USD Million)

Power Interface	2023	2024	2025	2026	2027	2032	CAGR (%)
AC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Combined AC/DC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
DC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 612. France Telecom Battery Backup System Market Size, by Network Application, 2017-2032 (USD Million)

Network Application	2023	2024	2025	2026	2027	2032	CAGR (%)
Core Networks & Network Control	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Customer-Premises Connectivity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Network Interconnection & Peering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Transport & Backhaul Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Wireless Access Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Wireline Access Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 613. France Telecom Battery Backup System Market Size, by Buyer Type, 2017-2032 (USD Million)

Buyer Type	2023	2024	2025	2026	2027	2032	CAGR (%)
Business & Institutional Connectivity Owners	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Equipment Leasing & Rental Providers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Household Connectivity Purchasers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Energy-Service Providers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Infrastructure & Tower Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecommunications Network Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 614. France Telecom Battery Backup System Market Size, by Installation Environment, 2017-2032 (USD Million)

Installation Environment	2023	2024	2025	2026	2027	2032	CAGR (%)
Non-Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Underground Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 615. France Telecom Battery Backup System Market Size, by Weather-Protected Locations, 2017-2032 (USD Million)

Weather-Protected Locations	2023	2024	2025	2026	2027	2032	CAGR (%)
Enclosed Locations Without Temperature Control	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Partly Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Temperature-Controlled Enclosed Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 616. France Telecom Battery Backup System Market Size, by Non-Weather-Protected Locations, 2017-2032 (USD Million)

Non-Weather-Protected Locations	2023	2024	2025	2026	2027	2032	CAGR (%)
Open-Air Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Sheltered Non-Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 617. France Telecom Battery Backup System Market Size, by Powering Architecture, 2017-2032 (USD Million)

Powering Architecture	2023	2024	2025	2026	2027	2032	CAGR (%)
Local Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Remote Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 618. France Telecom Battery Backup System Market Size, by Remote Powering, 2017-2032 (USD Million)

Remote Powering	2023	2024	2025	2026	2027	2032	CAGR (%)
Centralized Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Cluster Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reverse Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 619. France Telecom Battery Backup System Market Size, by Commercial Delivery Model, 2017-2032 (USD Million)

Commercial Delivery Model	2023	2024	2025	2026	2027	2032	CAGR (%)
Leased or Rented Equipment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Managed Backup Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Owned Equipment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 620. France Telecom Battery Backup System Market Size, by Sales Channel, 2017-2032 (USD Million)

Sales Channel	2023	2024	2025	2026	2027	2032	CAGR (%)
Direct Manufacturer Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Distributor and Retailer Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Systems Integrator and Contractor Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Service Provider Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 621. France Telecom Battery Backup System Market Size, by Grid Availability, 2017-2032 (USD Million)

Grid Availability	2023	2024	2025	2026	2027	2032	CAGR (%)
Off-Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reliable Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Unreliable Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 622. France Telecom Battery Backup System Market Size, by Backup Duty, 2017-2032 (USD Million)

Backup Duty	2023	2024	2025	2026	2027	2032	CAGR (%)
Backup with Energy Management	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reserve-Only Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 623. France Telecom Battery Backup System Market Size, by Backup Autonomy, 2017-2032 (USD Million)

Backup Autonomy	2023	2024	2025	2026	2027	2032	CAGR (%)
Day-Scale Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Extended-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Intermediate-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Short-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. China Tower - 2025 Annual Results, March 18, 2026
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The xx.xx.149m-site inventory constrains wireless activity; forecast purchasing remains modeled.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The xx.xx.149m-site inventory constrains wireless activity; forecast purchasing remains modeled.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Replacement/improvement CAPEX fell from RMB6837m to RMB5474m, qualifying automatic replacement-led growth.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Replacement/improvement CAPEX fell from RMB6837m to RMB5474m, qualifying automatic replacement-led growth.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Disclosed tower operations establish a material infrastructure purchasing setting, not a global buyer share.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Disclosed tower operations establish a material infrastructure purchasing setting, not a global buyer share.
2. Broadband Commission - The State of Broadband: Our Digital World, 2025
   - Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))

3. Battery Backup - Meriwether Lewis Electric Cooperative
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Separately available replacement batteries support a battery-only replacement route.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Separately available replacement batteries support a battery-only replacement route.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The USD100-plus-tax device is a retail comparator, not an observed 2025 first-sale realization.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The USD100-plus-tax device is a retail comparator, not an observed 2025 first-sale realization.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Customer purchase and replacement responsibilities support household-funded procurement.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Customer purchase and replacement responsibilities support household-funded procurement.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Purchased equipment does not automatically include continuing service-plan coverage.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Purchased equipment does not automatically include continuing service-plan coverage.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Local provider sales establish this route alongside manufacturer-direct purchasing.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Local provider sales establish this route alongside manufacturer-direct purchasing.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The provider advertises approximately five hours for combined voice and internet, supporting service-specific Extended classification, not an observed 2025 purchase mix. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The provider advertises approximately five hours for combined voice and internet, supporting service-specific Extended classification, not an observed 2025 purchase mix. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The same proposition advertises xx.xx-hour voice-only protection, supporting Day-Scale mapping without equating duration with a universally larger purchase basket. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The same proposition advertises xx.xx-hour voice-only protection, supporting Day-Scale mapping without equating duration with a universally larger purchase basket. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
4. EnerSys 2026 Proxy Statement and Annual Report
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Direct customer supply is disclosed within a diversified international business; telecom channel proportions are not disclosed.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Direct customer supply is disclosed within a diversified international business; telecom channel proportions are not disclosed.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Distributor supply is disclosed, supporting route occurrence rather than its modeled sales weight.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Distributor supply is disclosed, supporting route occurrence rather than its modeled sales weight.

5. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: Audited 2025 telecom revenue of RMB1,xx.xx declined xx.xx%; telecom purchasing weakness is retained as counterevidence to automatic substitution-led aggregate growth. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Audited 2025 telecom revenue of RMB1,xx.xx declined xx.xx%; telecom purchasing weakness is retained as counterevidence to automatic substitution-led aggregate growth. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: Telecom-specific results are separated from adjacent data-center and power-storage growth when assessing lithium substitution; the filing does not disclose the modeled Global split. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom-specific results are separated from adjacent data-center and power-storage growth when assessing lithium substitution; the filing does not disclose the modeled Global split. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

6. Amara Raja Energy & Mobility - Q2/H1 FY2026 Earnings Presentation, November 6, 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand. ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))

7. IHS Holding Limited - First-Quarter 2026 Financial Statements

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement. ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

8. Ofcom - Mobile RAN Power Resilience: Technical Report and CFI Update, February 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The evaluated xx.xx-minute alternative supplies a subhour commercial-planning anchor, not observed shipments.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The evaluated xx.xx-minute alternative supplies a subhour commercial-planning anchor, not observed shipments.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: One-hour and two-hour alternatives anchor the analytical Intermediate band. Aggregate scenarios include multiple years of operating costs and are not annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: One-hour and two-hour alternatives anchor the analytical Intermediate band. Aggregate scenarios include multiple years of operating costs and are not annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The four-hour alternative anchors the Extended band's lower boundary without establishing a Global minimum or purchasing allocation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The four-hour alternative anchors the Extended band's lower boundary without establishing a Global minimum or purchasing allocation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

9. Ofcom - Your Landline Is Going Digital: What You Need to Know

- Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
- Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Restricted provider-funded eligibility constrains operator-funded premises attribution and forecast adoption.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Restricted provider-funded eligibility constrains operator-funded premises attribution and forecast adoption.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Eligibility is not universal household funding; purchaser proportions remain assumptions.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Eligibility is not universal household funding; purchaser proportions remain assumptions.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Eligibility-limited provider backup and the one-hour minimum for qualifying customers constrain premises demand and anchor the Intermediate band's lower boundary. They do not establish universal adoption. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Eligibility-limited provider backup and the one-hour minimum for qualifying customers constrain premises demand and anchor the Intermediate band's lower boundary. They do not establish universal adoption. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

10. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone
    - Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue. ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
    - Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions. ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: USD45m financing and xx.xx planned site modernizations support an expansion signal, not observed backup-only service revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: USD45m financing and xx.xx planned site modernizations support an expansion signal, not observed backup-only service revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Energy-service activity supports the role; the modeled provider-as-buyer subcontract share is not established.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Energy-service activity supports the role; the modeled provider-as-buyer subcontract share is not established.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: More than xx.xx% weak/off-grid project exposure constrains service-cohort concentration, not the global grid mix.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: More than xx.xx% weak/off-grid project exposure constrains service-cohort concentration, not the global grid mix.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The project confirms disconnected-site commercial demand; its weak/off-grid combined statistic does not separate those categories.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The project confirms disconnected-site commercial demand; its weak/off-grid combined statistic does not separate those categories.
11. Fingrid - How to Participate in the Reserve Markets
    - Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue. ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Applicable owner permission and market agreements are commercial access gates. They constrain forecast mixed-duty adoption without measuring its Global percentage. ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))
12. Cellnex - Integrated Annual Report 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: French telecom site portfolio anchors part of the modeled national installed footprint.

13. PowerSafe SBS Batteries | EnerSys
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Named telecom batteries support the battery-unit offering boundary; allocation weights are assumed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Named telecom batteries support the battery-unit offering boundary; allocation weights are assumed.
14. Vertiv NetSure M Series
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Configured enclosure, power and battery options support broader system classification, not universal bundle inclusion.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Configured enclosure, power and battery options support broader system classification, not universal bundle inclusion.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A marketed outdoor enclosure supports a protection option; global adoption and configuration proportions remain modeled.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A marketed outdoor enclosure supports a protection option; global adoption and configuration proportions remain modeled.
15. Ofcom - Network and Service Resilience Guidance for Communications Providers, June 16, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Core is a distinct, comparatively concentrated function with explicit backup expectations; global spending remains estimated.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Core is a distinct, comparatively concentrated function with explicit backup expectations; global spending remains estimated.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The stated xx.xx-xx.xx-fold site-scale distinction motivates lower-value, more numerous transport purchase equivalents.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The stated xx.xx-xx.xx-fold site-scale distinction motivates lower-value, more numerous transport purchase equivalents.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Peering and non-Internet interconnection are distinct functions; attributable backup purchase values are not disclosed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Peering and non-Internet interconnection are distinct functions; attributable backup purchase values are not disclosed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: June 2026 guidance identifies approximately four hours as good practice for active fixed-access cabinets. This supports a conditional Extended purchasing shift, not completed orders or a Global mandate. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/network-and-service-resilience-guidance-for-communications-providerspdf?v=xx.xx))
16. Technology and Tools | First Responder Network Authority
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Radio access, transport backhaul and core are separate network functions, supporting functional attribution without duplicate facility counting.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Radio access, transport backhaul and core are separate network functions, supporting functional attribution without duplicate facility counting.
17. Mobile Network Hardening Program | Australian Department of Infrastructure
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Completed battery enhancements and broader resilience projects provide a delivered regional demand signal, not a global forecast rate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Completed battery enhancements and broader resilience projects provide a delivered regional demand signal, not a global forecast rate.

18. BT - Digital Voice for Business Service Schedule, May 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Business customers bear backup-power expense, supporting a distinct institutional/business payer route rather than consumer eligibility extrapolation.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Business customers bear backup-power expense, supporting a distinct institutional/business payer route rather than consumer eligibility extrapolation.
19. Los Angeles Metro - Board Report 2024-1128, UPS Battery Replacement
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Completed and additional UPS battery replacements support continuing underground demand; mixed-load project budgets are not telecom-only revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Completed and additional UPS battery replacements support continuing underground demand; mixed-load project budgets are not telecom-only revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The transit authority's purchasing program supports an institutional own-use role, not its global spending proportion.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The transit authority's purchasing program supports an institutional own-use role, not its global spending proportion.
20. ETSI EN 300 019-1-3 V3.1.1 - Stationary Use at Weatherprotected Locations, May 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Weather-protected categories distinguish enclosure from environmental control; the standard does not measure market mix.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Weather-protected categories distinguish enclosure from environmental control; the standard does not measure market mix.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Maintained temperature control is a separate classification premise for the modeled conditional allocation.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Maintained temperature control is a separate classification premise for the modeled conditional allocation.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Enclosed locations without temperature control are distinguished from controlled locations.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Enclosed locations without temperature control are distinguished from controlled locations.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Partial weather protection is recognized separately; sales weights and future adoption remain assumed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Partial weather protection is recognized separately; sales weights and future adoption remain assumed.
21. ETSI EN 300 019-1-4 V3.1.1 - Stationary Use at Non-Weatherprotected Locations, May 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Non-weather-protected locations form a distinct classification regime, not a measured global spending pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Non-weather-protected locations form a distinct classification regime, not a measured global spending pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Sheltered non-weather-protected locations support the named conditional category.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Sheltered non-weather-protected locations support the named conditional category.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Open-air locations are separately recognized; their purchasing mix remains modeled.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Open-air locations are separately recognized; their purchasing mix remains modeled.

22. DC Power Plant / Rectifiers - UPS Rental
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Battery and complete DC-plant rentals establish delivery-category occurrence; global fees and utilization are not disclosed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Battery and complete DC-plant rentals establish delivery-category occurrence; global fees and utilization are not disclosed.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Commercial rental availability is a role premise only; modeled lessor sub-hire procurement remains unverified.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Commercial rental availability is a role premise only; modeled lessor sub-hire procurement remains unverified.
23. Helios Towers - Full Year Results 2025, March 12, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Grid-integration investment supplies a connection-improvement counterforce used conditionally in the forecast.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Grid-integration investment supplies a connection-improvement counterforce used conditionally in the forecast.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Reported xx.xx-hour average daily grid availability supports weak-grid commercial exposure, without a global classification share.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Reported xx.xx-hour average daily grid availability supports weak-grid commercial exposure, without a global classification share.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Grid integration and alternative-power investment qualify assumptions of permanently unchanged disconnected-site exposure.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Grid integration and alternative-power investment qualify assumptions of permanently unchanged disconnected-site exposure.
24. Telecommunications | Aggreko US
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Telecom battery-storage rental for temporary continuity supports delivery occurrence, not the estimated global fee scale.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom battery-storage rental for temporary continuity supports delivery occurrence, not the estimated global fee scale.
25. EnerSys PowerSafe SBS Front Terminal Batteries | Alpine Power Systems
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A named battery distributor supports the intermediary route; its listing is not a global channel-sales observation.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A named battery distributor supports the intermediary route; its listing is not a global channel-sales observation.
26. DC Power Services | Vertiv
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Cross-manufacturer projects and narrower upgrades support integration-prime and supported-replacement routes; numerical route proportions remain assumed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Cross-manufacturer projects and narrower upgrades support integration-prime and supported-replacement routes; numerical route proportions remain assumed.

27. Shuangdeng Group Co., Ltd. - Global Offering Prospectus, August 18, 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The company's own five-month 2025 lead-acid realization of RMB520.xx.xx/kWh constrains the relative-price bridge; syndicated industry claims are excluded. Forecast convergence remains assumed. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The company's own five-month 2025 lead-acid realization of RMB520.xx.xx/kWh constrains the relative-price bridge; syndicated industry claims are excluded. Forecast convergence remains assumed. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Own lithium-ion realization of RMB595.xx.xx/kWh is an input to the Lithium-Based value model, not a Global share or a Lithium-Metal sales observation. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Own lithium-ion realization of RMB595.xx.xx/kWh is an input to the Lithium-Based value model, not a Global share or a Lithium-Metal sales observation. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
28. Amara Raja Crosses 1 GWh Lithium Storage Deployment Powering India's Telecom Networks
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The April xx.xx 2026 disclosure reports approximately xx.xx GWh across xx.xx cumulative telecom lithium sites over four years. This is a commercial adoption scale check, not annual Global revenue or a supplier-share input. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The April xx.xx 2026 disclosure reports approximately xx.xx GWh across xx.xx cumulative telecom lithium sites over four years. This is a commercial adoption scale check, not annual Global revenue or a supplier-share input. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The disclosed deployment identifies lithium-ion commercialization at scale, supporting the subtype's established commercial position without directly measuring its conditional Global share. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The disclosed deployment identifies lithium-ion commercialization at scale, supporting the subtype's established commercial position without directly measuring its conditional Global share. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
29. Central Office Power Systems - EnerSys
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The central-office portfolio identifies Flooded Lead-Acid as a distinct telecom alternative, supporting the legacy-network category mapping but not its purchasing fraction. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The central-office portfolio identifies Flooded Lead-Acid as a distinct telecom alternative, supporting the legacy-network category mapping but not its purchasing fraction. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The portfolio separately identifies Valve-Regulated Lead-Acid, supporting the within-lead construction boundary used by the model. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The portfolio separately identifies Valve-Regulated Lead-Acid, supporting the within-lead construction boundary used by the model. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))

30. PowerSafe OPzV Batteries - EnerSys

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: EnerSys identifies OPzV as Gel and lists telecom applications. This supports commercial subtype mapping, not the assumed Gel/AGM volume or price mix. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-opzv/))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: EnerSys identifies OPzV as Gel and lists telecom applications. This supports commercial subtype mapping, not the assumed Gel/AGM volume or price mix. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-opzv/))

31. Bolloré - 2017 Registration Document

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The official filing identifies LMP professional outage-protection applications including telecom relays. This is a dated commercial boundary input, not evidence of 2025 telecom shipment value. ([bollore.com](https://www.bollore.com/wp-content/uploads/2018/xx.xx/bollore_ddr_2017_gb_bag-xx.xx-juin.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The official filing identifies LMP professional outage-protection applications including telecom relays. This is a dated commercial boundary input, not evidence of 2025 telecom shipment value. ([bollore.com](https://www.bollore.com/wp-content/uploads/2018/xx.xx/bollore_ddr_2017_gb_bag-xx.xx-juin.pdf))

32. Bolloré - Business Report 2025

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The 2025 report establishes continuing Lithium Metal Polymer commercial applications in electricity storage and buses, while omitting separately attributable telecom sales. It constrains the low-access expected-purchase model; no capacity-to-sales conversion is used. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The 2025 report establishes continuing Lithium Metal Polymer commercial applications in electricity storage and buses, while omitting separately attributable telecom sales. It constrains the low-access expected-purchase model; no capacity-to-sales conversion is used. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The report preserves the distinction between LMP and conventional lithium-ion, supporting the exhaustive subtype attribution rule rather than treating polymer packaging as Lithium-Metal. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The report preserves the distinction between LMP and conventional lithium-ion, supporting the exhaustive subtype attribution rule rather than treating polymer packaging as Lithium-Metal. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))

33. AT&T to Replace U-Verse Cabinet Batteries - Fierce Network, January 15, 2008

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The January xx.xx 2008 report corroborates AT&T's replacement of approximately xx.xx Avestor batteries after the supplier's closure. The obsolete stock is therefore not carried into the 2025 or 2032 purchasing numerator. ([fierce-network.com](https://www.fierce-network.com/telecom/at-t-to-replace-u-verse-cabinet-batteries))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The January xx.xx 2008 report corroborates AT&T's replacement of approximately xx.xx Avestor batteries after the supplier's closure. The obsolete stock is therefore not carried into the 2025 or 2032 purchasing numerator. ([fierce-network.com](https://www.fierce-network.com/telecom/at-t-to-replace-u-verse-cabinet-batteries))

34. PowerSafe NiCd Batteries - EnerSys
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: EnerSys identifies Nickel-Cadmium for central offices and outside plant, supporting the modeled legacy telecom cohort but not its installed attachment or replacement spending. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-nicd/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: EnerSys identifies Nickel-Cadmium for central offices and outside plant, supporting the modeled legacy telecom cohort but not its installed attachment or replacement spending. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-nicd/))
35. FDK Ni-MH Battery Is Chosen for the Cellect 600 Product of Alpha Technologies
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The October xx.xx 2015 announcement identifies NiMH in Alpha's Cellect xx.xx small-cell backup proposition. It supports a historical cohort rather than current fulfillment or assumed surviving stock. ([fdk.com](https://www.fdk.com/whatsnew-e/release20151019-e.html))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The October xx.xx 2015 announcement identifies NiMH in Alpha's Cellect xx.xx small-cell backup proposition. It supports a historical cohort rather than current fulfillment or assumed surviving stock. ([fdk.com](https://www.fdk.com/whatsnew-e/release20151019-e.html))
36. Products - Encell Technology
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Encell positions its Fused Iron Nickel-Iron battery for telecom. This supports the commercial category lead, while current purchases and attachment remain modeled. ([encell.com](https://encell.com/products/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Encell positions its Fused Iron Nickel-Iron battery for telecom. This supports the commercial category lead, while current purchases and attachment remain modeled. ([encell.com](https://encell.com/products/))
37. Telecom/5G - ZAF Energy Systems
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: ZAF positions Nickel-Zinc for telecom/5G. Its supplier proposition supports application mapping, not the modeled annual attachment or threefold forecast value multiplier. ([zafsys.com](https://zafsys.com/telecom-5g/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: ZAF positions Nickel-Zinc for telecom/5G. Its supplier proposition supports application mapping, not the modeled annual attachment or threefold forecast value multiplier. ([zafsys.com](https://zafsys.com/telecom-5g/))
38. HORIEN Salt Battery Solutions and Inlyte Energy Announce a Strategic Partnership
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: HORIEN's March xx.xx 2025 statement identifies sodium-metal-chloride telecom backup. Its separate partnership announcement is not counted as delivered telecom sales. ([horien.com](https://horien.com/wp-content/uploads/2025/xx.xx/Press-Release_HORIEN-Inlyte-International-Version.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: HORIEN's March xx.xx 2025 statement identifies sodium-metal-chloride telecom backup. Its separate partnership announcement is not counted as delivered telecom sales. ([horien.com](https://horien.com/wp-content/uploads/2025/xx.xx/Press-Release_HORIEN-Inlyte-International-Version.pdf))
39. Energy Backup - Phinergy
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Phinergy markets Aluminum-Air continuity offerings to telecom operators and tower companies. The source supports category and buyer mapping, not the modeled installed attachment or replacement numerator. ([phinergy.com](https://phinergy.com/solutions/energy-backup/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Phinergy markets Aluminum-Air continuity offerings to telecom operators and tower companies. The source supports category and buyer mapping, not the modeled installed attachment or replacement numerator. ([phinergy.com](https://phinergy.com/solutions/energy-backup/))

40. Australian Flow Batteries - RFB40X Series

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: RFB40X literature identifies telecom among stationary commercial applications. It supports the qualifying project boundary, not delivered projects, revenue or assumed attachment. ([afb.energy](https://www.afb.energy/wp-content/uploads/2025/xx.xx/Australian-Flow-Batteries-RFB40X-Series-2024.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: RFB40X literature identifies telecom among stationary commercial applications. It supports the qualifying project boundary, not delivered projects, revenue or assumed attachment. ([afb.energy](https://www.afb.energy/wp-content/uploads/2025/xx.xx/Australian-Flow-Batteries-RFB40X-Series-2024.pdf))

41. PowerReserve - Verizon Residential Accessories

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Verizon advertises an alkaline-cell voice-backup device at USD39.xx.xx excluding batteries. This supports a qualifying primary-zinc premises route and price comparator, not assumed Global attachment or first-sale realization. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Verizon advertises an alkaline-cell voice-backup device at USD39.xx.xx excluding batteries. This supports a qualifying primary-zinc premises route and price comparator, not assumed Global attachment or first-sale realization. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Advertised voice-only protection reaches xx.xx hours; internet and television protection are excluded. This supports service-specific Day-Scale classification. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Advertised voice-only protection reaches xx.xx hours; internet and television protection are excluded. This supports service-specific Day-Scale classification. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))

42. Alkaline Manganese Dioxide Handbook and Application Manual - Energizer

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The manufacturer's alkaline manganese-dioxide classification supports the zinc-family mapping for qualifying premises backup. It provides no telecom purchasing weight. ([data.energizer.com](https://data.energizer.com/pdfs/alkaline_appman.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The manufacturer's alkaline manganese-dioxide classification supports the zinc-family mapping for qualifying premises backup. It provides no telecom purchasing weight. ([data.energizer.com](https://data.energizer.com/pdfs/alkaline_appman.pdf))

43. ITU-T Work Programme - Aqueous Zinc-Based Battery Systems for Base Station Applications

- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The aqueous-zinc base-station work item is Under study with December 2027 timing. It constrains the forecast commercialization assumption but establishes neither approval nor customer purchases. ([itu.int](https://www.itu.int/itu-t/workprog/wp_item.aspx?isn=xx.xx))

44. ITU-T L.1397 - Battery System with Integrated Control and Monitoring Information Model

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The October 2025 recommendation names lithium-lead, lithium-sodium and sodium-lead combinations. This supports mixed-family classification, not inseparable pricing or Global prevalence. ([itu.int](https://www.itu.int/rec/dologin_pub.asp?id=T-REC-L.xx.xx-xx.xx-I%xx.xx%21PDF-E&lang=e&type=items))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The October 2025 recommendation names lithium-lead, lithium-sodium and sodium-lead combinations. This supports mixed-family classification, not inseparable pricing or Global prevalence. ([itu.int](https://www.itu.int/rec/dologin_pub.asp?id=T-REC-L.xx.xx-xx.xx-I%xx.xx%21PDF-E&lang=e&type=items))

45. ETSI EN 300 132-1 V2.2.1 - ICT Power Supply Interface: Alternating Current
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The ICT standard identifies the protected-load AC interface, supporting output-side attribution rather than classification by chemistry or normal utility input. It supplies no sales mix. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013201v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The ICT standard identifies the protected-load AC interface, supporting output-side attribution rather than classification by chemistry or normal utility input. It supplies no sales mix. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013201v020201p.pdf))
46. ETSI EN 300 132-2 V2.8.1 - ICT Power Supply Interface: Direct Current
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The ICT standard separately identifies the DC protected-equipment interface, supporting the DC-output boundary independently of battery chemistry. It is not a purchasing census. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013202v020801p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The ICT standard separately identifies the DC protected-equipment interface, supporting the DC-output boundary independently of battery chemistry. It is not a purchasing census. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013202v020801p.pdf))
47. Vertiv NetSure Inverter Series - Converged AC and DC Power System
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: NetSure Inverter Series identifies AC and DC loads supported through a common battery bank. This establishes a combined-output proposition, not its modeled purchasing fraction or future adoption. ([vertiv.com](https://www.vertiv.com/en-us/products-catalog/critical-power/dc-power-systems/vertiv-netsure-inverter-series/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: NetSure Inverter Series identifies AC and DC loads supported through a common battery bank. This establishes a combined-output proposition, not its modeled purchasing fraction or future adoption. ([vertiv.com](https://www.vertiv.com/en-us/products-catalog/critical-power/dc-power-systems/vertiv-netsure-inverter-series/))

48. ETSI EN 302 099 V2.2.1 - Powering of Equipment in Access Network
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Local powering uses a colocated source; allocation follows the backed source rather than receiver inventory. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Local powering uses a colocated source; allocation follows the backed source rather than receiver inventory. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Remote-source backup is distinguished from local backup, supporting the parent commercial boundary but not purchasing weights. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Remote-source backup is distinguished from local backup, supporting the parent commercial boundary but not purchasing weights. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Centralized powering originates at a telecommunications center. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Centralized powering originates at a telecommunications center. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Cluster powering uses a source outside the telecommunications center, supporting separation within Remote Powering. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Cluster powering uses a source outside the telecommunications center, supporting separation within Remote Powering. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Reverse powering is customer-origin supply, supporting source-level attribution of the battery-backed provider package. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Reverse powering is customer-origin supply, supporting source-level attribution of the battery-backed provider package. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))

49. Set Up Your Battery Backup - AT&T G.Fast Service with BGW210

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The 2021 provider document names a battery-backed package protecting G.fast customer and distribution equipment through reverse power feed. It establishes a dated source-backup proposition, not current Global quantities. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The 2021 provider document names a battery-backed package protecting G.fast customer and distribution equipment through reverse power feed. It establishes a dated source-backup proposition, not current Global quantities. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The provider advertises a xx.xx-hour service window for the particular package, supporting Day-Scale mapping without a universal premises-duration inference. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The provider advertises a xx.xx-hour service window for the particular package, supporting Day-Scale mapping without a universal premises-duration inference. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

50. DNA Tower Offers Battery Capacity in Electricity Reserve Markets with Elisa DES

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The June xx.xx 2025 announcement reports DNA Tower batteries connected to Finnish reserve markets while retaining outage continuity. This establishes a specific mixed-duty implementation, not Global attachment or guaranteed returns. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/press-releases/dna-tower-becomes-worlds-first-tower-company-to-offer-battery-capacity-in-electricity-reserve-markets-with-elisa-des))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The June xx.xx 2025 announcement reports DNA Tower batteries connected to Finnish reserve markets while retaining outage continuity. This establishes a specific mixed-duty implementation, not Global attachment or guaranteed returns. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/press-releases/dna-tower-becomes-worlds-first-tower-company-to-offer-battery-capacity-in-electricity-reserve-markets-with-elisa-des))

51. Case Elisa: Virtual Power Plant in the Telecom Industry

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The company case reports over 2,000 aggregated sites and approximately xx.xx MWh. This is an installed commercial scale check, not annual purchasing value or Global prevalence. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/customer-stories/elisacase))

21.8. Russia

Table 624. Russia Telecom Battery Backup System Market Size, 2017-2032 (USD Million)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Russia	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 625. Russia Telecom Battery Backup System Market Size, by Offering, 2017-2032 (USD Million)

Offering	2023	2024	2025	2026	2027	2032	CAGR (%)
Battery Units and Assemblies	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Complete Backup Systems	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 626. Russia Telecom Battery Backup System Market Size, by Battery Technology, 2017-2032 (USD Million)

Battery Technology	2023	2024	2025	2026	2027	2032	CAGR (%)
Aqueous Zinc-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Flow Batteries	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lithium-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Metal-Air	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Multi-Chemistry	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Sodium-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 627. Russia Telecom Battery Backup System Market Size, by Lead-Acid, 2017-2032 (USD Million)

Lead-Acid	2023	2024	2025	2026	2027	2032	CAGR (%)
Flooded Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Valve-Regulated Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 628. Russia Telecom Battery Backup System Market Size, by Valve-Regulated Lead-Acid, 2017-2032 (USD Million)

Valve-Regulated Lead-Acid	2023	2024	2025	2026	2027	2032	CAGR (%)
Absorbent Glass Mat	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Gel	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 629. Russia Telecom Battery Backup System Market Size, by Lithium-Based, 2017-2032 (USD Million)

Lithium-Based	2023	2024	2025	2026	2027	2032	CAGR (%)
Lithium-Ion	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lithium-Metal	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 630. Russia Telecom Battery Backup System Market Size, by Nickel-Based, 2017-2032 (USD Million)

Nickel-Based	2023	2024	2025	2026	2027	2032	CAGR (%)
Nickel-Cadmium	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Iron	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Metal Hydride	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Zinc	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 631. Russia Telecom Battery Backup System Market Size, by Power Interface, 2017-2032 (USD Million)

Power Interface	2023	2024	2025	2026	2027	2032	CAGR (%)
AC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Combined AC/DC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
DC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 632. Russia Telecom Battery Backup System Market Size, by Network Application, 2017-2032 (USD Million)

Network Application	2023	2024	2025	2026	2027	2032	CAGR (%)
Core Networks & Network Control	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Customer-Premises Connectivity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Network Interconnection & Peering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Transport & Backhaul Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Wireless Access Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Wireline Access Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 633. Russia Telecom Battery Backup System Market Size, by Buyer Type, 2017-2032 (USD Million)

Buyer Type	2023	2024	2025	2026	2027	2032	CAGR (%)
Business & Institutional Connectivity Owners	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Equipment Leasing & Rental Providers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Household Connectivity Purchasers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Energy-Service Providers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Infrastructure & Tower Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecommunications Network Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 634. Russia Telecom Battery Backup System Market Size, by Installation Environment, 2017-2032 (USD Million)

Installation Environment	2023	2024	2025	2026	2027	2032	CAGR (%)
Non-Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Underground Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 635. Russia Telecom Battery Backup System Market Size, by Weather-Protected Locations, 2017-2032 (USD Million)

Weather-Protected Locations	2023	2024	2025	2026	2027	2032	CAGR (%)
Enclosed Locations Without Temperature Control	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Partly Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Temperature-Controlled Enclosed Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 636. Russia Telecom Battery Backup System Market Size, by Non-Weather-Protected Locations, 2017-2032 (USD Million)

Non-Weather-Protected Locations	2023	2024	2025	2026	2027	2032	CAGR (%)
Open-Air Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Sheltered Non-Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 637. Russia Telecom Battery Backup System Market Size, by Powering Architecture, 2017-2032 (USD Million)

Powering Architecture	2023	2024	2025	2026	2027	2032	CAGR (%)
Local Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Remote Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 638. Russia Telecom Battery Backup System Market Size, by Remote Powering, 2017-2032 (USD Million)

Remote Powering	2023	2024	2025	2026	2027	2032	CAGR (%)
Centralized Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Cluster Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reverse Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 639. Russia Telecom Battery Backup System Market Size, by Commercial Delivery Model, 2017-2032 (USD Million)

Commercial Delivery Model	2023	2024	2025	2026	2027	2032	CAGR (%)
Leased or Rented Equipment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Managed Backup Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Owned Equipment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 640. Russia Telecom Battery Backup System Market Size, by Sales Channel, 2017-2032 (USD Million)

Sales Channel	2023	2024	2025	2026	2027	2032	CAGR (%)
Direct Manufacturer Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Distributor and Retailer Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Systems Integrator and Contractor Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Service Provider Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 641. Russia Telecom Battery Backup System Market Size, by Grid Availability, 2017-2032 (USD Million)

Grid Availability	2023	2024	2025	2026	2027	2032	CAGR (%)
Off-Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reliable Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Unreliable Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 642. Russia Telecom Battery Backup System Market Size, by Backup Duty, 2017-2032 (USD Million)

Backup Duty	2023	2024	2025	2026	2027	2032	CAGR (%)
Backup with Energy Management	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reserve-Only Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 643. Russia Telecom Battery Backup System Market Size, by Backup Autonomy, 2017-2032 (USD Million)

Backup Autonomy	2023	2024	2025	2026	2027	2032	CAGR (%)
Day-Scale Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Extended-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Intermediate-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Short-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. China Tower - 2025 Annual Results, March 18, 2026
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The xx.xx.149m-site inventory constrains wireless activity; forecast purchasing remains modeled.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The xx.xx.149m-site inventory constrains wireless activity; forecast purchasing remains modeled.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Replacement/improvement CAPEX fell from RMB6837m to RMB5474m, qualifying automatic replacement-led growth.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Replacement/improvement CAPEX fell from RMB6837m to RMB5474m, qualifying automatic replacement-led growth.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Disclosed tower operations establish a material infrastructure purchasing setting, not a global buyer share.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Disclosed tower operations establish a material infrastructure purchasing setting, not a global buyer share.
2. Broadband Commission - The State of Broadband: Our Digital World, 2025
   - Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))

3. Battery Backup - Meriwether Lewis Electric Cooperative
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Separately available replacement batteries support a battery-only replacement route.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Separately available replacement batteries support a battery-only replacement route.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The USD100-plus-tax device is a retail comparator, not an observed 2025 first-sale realization.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The USD100-plus-tax device is a retail comparator, not an observed 2025 first-sale realization.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Customer purchase and replacement responsibilities support household-funded procurement.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Customer purchase and replacement responsibilities support household-funded procurement.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Purchased equipment does not automatically include continuing service-plan coverage.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Purchased equipment does not automatically include continuing service-plan coverage.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Local provider sales establish this route alongside manufacturer-direct purchasing.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Local provider sales establish this route alongside manufacturer-direct purchasing.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The provider advertises approximately five hours for combined voice and internet, supporting service-specific Extended classification, not an observed 2025 purchase mix. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The provider advertises approximately five hours for combined voice and internet, supporting service-specific Extended classification, not an observed 2025 purchase mix. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The same proposition advertises xx.xx-hour voice-only protection, supporting Day-Scale mapping without equating duration with a universally larger purchase basket. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The same proposition advertises xx.xx-hour voice-only protection, supporting Day-Scale mapping without equating duration with a universally larger purchase basket. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
4. EnerSys 2026 Proxy Statement and Annual Report
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Direct customer supply is disclosed within a diversified international business; telecom channel proportions are not disclosed.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Direct customer supply is disclosed within a diversified international business; telecom channel proportions are not disclosed.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Distributor supply is disclosed, supporting route occurrence rather than its modeled sales weight.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Distributor supply is disclosed, supporting route occurrence rather than its modeled sales weight.

5. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: Audited 2025 telecom revenue of RMB1,xx.xx declined xx.xx%; telecom purchasing weakness is retained as counterevidence to automatic substitution-led aggregate growth. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Audited 2025 telecom revenue of RMB1,xx.xx declined xx.xx%; telecom purchasing weakness is retained as counterevidence to automatic substitution-led aggregate growth. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: Telecom-specific results are separated from adjacent data-center and power-storage growth when assessing lithium substitution; the filing does not disclose the modeled Global split. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom-specific results are separated from adjacent data-center and power-storage growth when assessing lithium substitution; the filing does not disclose the modeled Global split. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

6. Amara Raja Energy & Mobility - Q2/H1 FY2026 Earnings Presentation, November 6, 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand. ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))

7. IHS Holding Limited - First-Quarter 2026 Financial Statements

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement. ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

8. Ofcom - Mobile RAN Power Resilience: Technical Report and CFI Update, February 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The evaluated xx.xx-minute alternative supplies a subhour commercial-planning anchor, not observed shipments.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The evaluated xx.xx-minute alternative supplies a subhour commercial-planning anchor, not observed shipments.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: One-hour and two-hour alternatives anchor the analytical Intermediate band. Aggregate scenarios include multiple years of operating costs and are not annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: One-hour and two-hour alternatives anchor the analytical Intermediate band. Aggregate scenarios include multiple years of operating costs and are not annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The four-hour alternative anchors the Extended band's lower boundary without establishing a Global minimum or purchasing allocation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The four-hour alternative anchors the Extended band's lower boundary without establishing a Global minimum or purchasing allocation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

9. Ofcom - Your Landline Is Going Digital: What You Need to Know

- Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
- Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Restricted provider-funded eligibility constrains operator-funded premises attribution and forecast adoption.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Restricted provider-funded eligibility constrains operator-funded premises attribution and forecast adoption.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Eligibility is not universal household funding; purchaser proportions remain assumptions.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Eligibility is not universal household funding; purchaser proportions remain assumptions.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Eligibility-limited provider backup and the one-hour minimum for qualifying customers constrain premises demand and anchor the Intermediate band's lower boundary. They do not establish universal adoption. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Eligibility-limited provider backup and the one-hour minimum for qualifying customers constrain premises demand and anchor the Intermediate band's lower boundary. They do not establish universal adoption. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

10. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone
    - Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue. ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
    - Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions. ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: USD45m financing and xx.xx planned site modernizations support an expansion signal, not observed backup-only service revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: USD45m financing and xx.xx planned site modernizations support an expansion signal, not observed backup-only service revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Energy-service activity supports the role; the modeled provider-as-buyer subcontract share is not established.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Energy-service activity supports the role; the modeled provider-as-buyer subcontract share is not established.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: More than xx.xx% weak/off-grid project exposure constrains service-cohort concentration, not the global grid mix.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: More than xx.xx% weak/off-grid project exposure constrains service-cohort concentration, not the global grid mix.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The project confirms disconnected-site commercial demand; its weak/off-grid combined statistic does not separate those categories.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The project confirms disconnected-site commercial demand; its weak/off-grid combined statistic does not separate those categories.
11. Fingrid - How to Participate in the Reserve Markets
    - Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue. ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Applicable owner permission and market agreements are commercial access gates. They constrain forecast mixed-duty adoption without measuring its Global percentage. ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))
12. PowerSafe SBS Batteries | EnerSys
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Named telecom batteries support the battery-unit offering boundary; allocation weights are assumed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Named telecom batteries support the battery-unit offering boundary; allocation weights are assumed.

13. Vertiv NetSure M Series
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Configured enclosure, power and battery options support broader system classification, not universal bundle inclusion.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Configured enclosure, power and battery options support broader system classification, not universal bundle inclusion.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A marketed outdoor enclosure supports a protection option; global adoption and configuration proportions remain modeled.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A marketed outdoor enclosure supports a protection option; global adoption and configuration proportions remain modeled.
14. Ofcom - Network and Service Resilience Guidance for Communications Providers, June 16, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Core is a distinct, comparatively concentrated function with explicit backup expectations; global spending remains estimated.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Core is a distinct, comparatively concentrated function with explicit backup expectations; global spending remains estimated.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The stated xx.xx-xx.xx-fold site-scale distinction motivates lower-value, more numerous transport purchase equivalents.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The stated xx.xx-xx.xx-fold site-scale distinction motivates lower-value, more numerous transport purchase equivalents.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Peering and non-Internet interconnection are distinct functions; attributable backup purchase values are not disclosed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Peering and non-Internet interconnection are distinct functions; attributable backup purchase values are not disclosed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: June 2026 guidance identifies approximately four hours as good practice for active fixed-access cabinets. This supports a conditional Extended purchasing shift, not completed orders or a Global mandate. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/network-and-service-resilience-guidance-for-communications-providerspdf?v=xx.xx))
15. Technology and Tools | First Responder Network Authority
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Radio access, transport backhaul and core are separate network functions, supporting functional attribution without duplicate facility counting.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Radio access, transport backhaul and core are separate network functions, supporting functional attribution without duplicate facility counting.
16. Mobile Network Hardening Program | Australian Department of Infrastructure
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Completed battery enhancements and broader resilience projects provide a delivered regional demand signal, not a global forecast rate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Completed battery enhancements and broader resilience projects provide a delivered regional demand signal, not a global forecast rate.
17. BT - Digital Voice for Business Service Schedule, May 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Business customers bear backup-power expense, supporting a distinct institutional/business payer route rather than consumer eligibility extrapolation.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Business customers bear backup-power expense, supporting a distinct institutional/business payer route rather than consumer eligibility extrapolation.

18. Los Angeles Metro - Board Report 2024-1128, UPS Battery Replacement
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Completed and additional UPS battery replacements support continuing underground demand; mixed-load project budgets are not telecom-only revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Completed and additional UPS battery replacements support continuing underground demand; mixed-load project budgets are not telecom-only revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The transit authority's purchasing program supports an institutional own-use role, not its global spending proportion.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The transit authority's purchasing program supports an institutional own-use role, not its global spending proportion.
19. ETSI EN 300 019-1-3 V3.1.1 - Stationary Use at Weatherprotected Locations, May 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Weather-protected categories distinguish enclosure from environmental control; the standard does not measure market mix.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Weather-protected categories distinguish enclosure from environmental control; the standard does not measure market mix.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Maintained temperature control is a separate classification premise for the modeled conditional allocation.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Maintained temperature control is a separate classification premise for the modeled conditional allocation.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Enclosed locations without temperature control are distinguished from controlled locations.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Enclosed locations without temperature control are distinguished from controlled locations.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Partial weather protection is recognized separately; sales weights and future adoption remain assumed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Partial weather protection is recognized separately; sales weights and future adoption remain assumed.
20. ETSI EN 300 019-1-4 V3.1.1 - Stationary Use at Non-Weatherprotected Locations, May 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Non-weather-protected locations form a distinct classification regime, not a measured global spending pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Non-weather-protected locations form a distinct classification regime, not a measured global spending pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Sheltered non-weather-protected locations support the named conditional category.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Sheltered non-weather-protected locations support the named conditional category.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Open-air locations are separately recognized; their purchasing mix remains modeled.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Open-air locations are separately recognized; their purchasing mix remains modeled.

21. DC Power Plant / Rectifiers - UPS Rental
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Battery and complete DC-plant rentals establish delivery-category occurrence; global fees and utilization are not disclosed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Battery and complete DC-plant rentals establish delivery-category occurrence; global fees and utilization are not disclosed.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Commercial rental availability is a role premise only; modeled lessor sub-hire procurement remains unverified.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Commercial rental availability is a role premise only; modeled lessor sub-hire procurement remains unverified.
22. Helios Towers - Full Year Results 2025, March 12, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Grid-integration investment supplies a connection-improvement counterforce used conditionally in the forecast.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Grid-integration investment supplies a connection-improvement counterforce used conditionally in the forecast.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Reported xx.xx-hour average daily grid availability supports weak-grid commercial exposure, without a global classification share.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Reported xx.xx-hour average daily grid availability supports weak-grid commercial exposure, without a global classification share.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Grid integration and alternative-power investment qualify assumptions of permanently unchanged disconnected-site exposure.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Grid integration and alternative-power investment qualify assumptions of permanently unchanged disconnected-site exposure.
23. Telecommunications | Aggreko US
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Telecom battery-storage rental for temporary continuity supports delivery occurrence, not the estimated global fee scale.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom battery-storage rental for temporary continuity supports delivery occurrence, not the estimated global fee scale.
24. EnerSys PowerSafe SBS Front Terminal Batteries | Alpine Power Systems
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A named battery distributor supports the intermediary route; its listing is not a global channel-sales observation.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A named battery distributor supports the intermediary route; its listing is not a global channel-sales observation.
25. DC Power Services | Vertiv
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Cross-manufacturer projects and narrower upgrades support integration-prime and supported-replacement routes; numerical route proportions remain assumed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Cross-manufacturer projects and narrower upgrades support integration-prime and supported-replacement routes; numerical route proportions remain assumed.

26. Shuangdeng Group Co., Ltd. - Global Offering Prospectus, August 18, 2025

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The company's own five-month 2025 lead-acid realization of RMB520.xx.xx/kWh constrains the relative-price bridge; syndicated industry claims are excluded. Forecast convergence remains assumed. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The company's own five-month 2025 lead-acid realization of RMB520.xx.xx/kWh constrains the relative-price bridge; syndicated industry claims are excluded. Forecast convergence remains assumed. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: Own lithium-ion realization of RMB595.xx.xx/kWh is an input to the Lithium-Based value model, not a Global share or a Lithium-Metal sales observation. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Own lithium-ion realization of RMB595.xx.xx/kWh is an input to the Lithium-Based value model, not a Global share or a Lithium-Metal sales observation. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))

27. Amara Raja Crosses 1 GWh Lithium Storage Deployment Powering India's Telecom Networks

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The April xx.xx 2026 disclosure reports approximately xx.xx GWh across xx.xx cumulative telecom lithium sites over four years. This is a commercial adoption scale check, not annual Global revenue or a supplier-share input. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The April xx.xx 2026 disclosure reports approximately xx.xx GWh across xx.xx cumulative telecom lithium sites over four years. This is a commercial adoption scale check, not annual Global revenue or a supplier-share input. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The disclosed deployment identifies lithium-ion commercialization at scale, supporting the subtype's established commercial position without directly measuring its conditional Global share. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The disclosed deployment identifies lithium-ion commercialization at scale, supporting the subtype's established commercial position without directly measuring its conditional Global share. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))

28. Central Office Power Systems - EnerSys

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The central-office portfolio identifies Flooded Lead-Acid as a distinct telecom alternative, supporting the legacy-network category mapping but not its purchasing fraction. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The central-office portfolio identifies Flooded Lead-Acid as a distinct telecom alternative, supporting the legacy-network category mapping but not its purchasing fraction. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The portfolio separately identifies Valve-Regulated Lead-Acid, supporting the within-lead construction boundary used by the model. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The portfolio separately identifies Valve-Regulated Lead-Acid, supporting the within-lead construction boundary used by the model. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))

29. PowerSafe OPzV Batteries - EnerSys

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: EnerSys identifies OPzV as Gel and lists telecom applications. This supports commercial subtype mapping, not the assumed Gel/AGM volume or price mix. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-opzv/))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: EnerSys identifies OPzV as Gel and lists telecom applications. This supports commercial subtype mapping, not the assumed Gel/AGM volume or price mix. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-opzv/))

30. Bolloré - 2017 Registration Document

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The official filing identifies LMP professional outage-protection applications including telecom relays. This is a dated commercial boundary input, not evidence of 2025 telecom shipment value. ([bollore.com](https://www.bollore.com/wp-content/uploads/2018/xx.xx/bollore_ddr_2017_gb_bag-xx.xx-juin.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The official filing identifies LMP professional outage-protection applications including telecom relays. This is a dated commercial boundary input, not evidence of 2025 telecom shipment value. ([bollore.com](https://www.bollore.com/wp-content/uploads/2018/xx.xx/bollore_ddr_2017_gb_bag-xx.xx-juin.pdf))

31. Bolloré - Business Report 2025

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The 2025 report establishes continuing Lithium Metal Polymer commercial applications in electricity storage and buses, while omitting separately attributable telecom sales. It constrains the low-access expected-purchase model; no capacity-to-sales conversion is used. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The 2025 report establishes continuing Lithium Metal Polymer commercial applications in electricity storage and buses, while omitting separately attributable telecom sales. It constrains the low-access expected-purchase model; no capacity-to-sales conversion is used. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The report preserves the distinction between LMP and conventional lithium-ion, supporting the exhaustive subtype attribution rule rather than treating polymer packaging as Lithium-Metal. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The report preserves the distinction between LMP and conventional lithium-ion, supporting the exhaustive subtype attribution rule rather than treating polymer packaging as Lithium-Metal. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))

32. AT&T to Replace U-Verse Cabinet Batteries - Fierce Network, January 15, 2008

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The January xx.xx 2008 report corroborates AT&T's replacement of approximately xx.xx Avestor batteries after the supplier's closure. The obsolete stock is therefore not carried into the 2025 or 2032 purchasing numerator. ([fierce-network.com](https://www.fierce-network.com/telecom/at-t-to-replace-u-verse-cabinet-batteries))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The January xx.xx 2008 report corroborates AT&T's replacement of approximately xx.xx Avestor batteries after the supplier's closure. The obsolete stock is therefore not carried into the 2025 or 2032 purchasing numerator. ([fierce-network.com](https://www.fierce-network.com/telecom/at-t-to-replace-u-verse-cabinet-batteries))

33. PowerSafe NiCd Batteries - EnerSys
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: EnerSys identifies Nickel-Cadmium for central offices and outside plant, supporting the modeled legacy telecom cohort but not its installed attachment or replacement spending. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-nicd/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: EnerSys identifies Nickel-Cadmium for central offices and outside plant, supporting the modeled legacy telecom cohort but not its installed attachment or replacement spending. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-nicd/))
34. FDK Ni-MH Battery Is Chosen for the Cellect 600 Product of Alpha Technologies
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The October xx.xx 2015 announcement identifies NiMH in Alpha's Cellect xx.xx small-cell backup proposition. It supports a historical cohort rather than current fulfillment or assumed surviving stock. ([fdk.com](https://www.fdk.com/whatsnew-e/release20151019-e.html))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The October xx.xx 2015 announcement identifies NiMH in Alpha's Cellect xx.xx small-cell backup proposition. It supports a historical cohort rather than current fulfillment or assumed surviving stock. ([fdk.com](https://www.fdk.com/whatsnew-e/release20151019-e.html))
35. Products - Encell Technology
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Encell positions its Fused Iron Nickel-Iron battery for telecom. This supports the commercial category lead, while current purchases and attachment remain modeled. ([encell.com](https://encell.com/products/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Encell positions its Fused Iron Nickel-Iron battery for telecom. This supports the commercial category lead, while current purchases and attachment remain modeled. ([encell.com](https://encell.com/products/))
36. Telecom/5G - ZAF Energy Systems
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: ZAF positions Nickel-Zinc for telecom/5G. Its supplier proposition supports application mapping, not the modeled annual attachment or threefold forecast value multiplier. ([zafsys.com](https://zafsys.com/telecom-5g/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: ZAF positions Nickel-Zinc for telecom/5G. Its supplier proposition supports application mapping, not the modeled annual attachment or threefold forecast value multiplier. ([zafsys.com](https://zafsys.com/telecom-5g/))
37. HORIEN Salt Battery Solutions and Inlyte Energy Announce a Strategic Partnership
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: HORIEN's March xx.xx 2025 statement identifies sodium-metal-chloride telecom backup. Its separate partnership announcement is not counted as delivered telecom sales. ([horien.com](https://horien.com/wp-content/uploads/2025/xx.xx/Press-Release_HORIEN-Inlyte-International-Version.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: HORIEN's March xx.xx 2025 statement identifies sodium-metal-chloride telecom backup. Its separate partnership announcement is not counted as delivered telecom sales. ([horien.com](https://horien.com/wp-content/uploads/2025/xx.xx/Press-Release_HORIEN-Inlyte-International-Version.pdf))
38. Energy Backup - Phinergy
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Phinergy markets Aluminum-Air continuity offerings to telecom operators and tower companies. The source supports category and buyer mapping, not the modeled installed attachment or replacement numerator. ([phinergy.com](https://phinergy.com/solutions/energy-backup/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Phinergy markets Aluminum-Air continuity offerings to telecom operators and tower companies. The source supports category and buyer mapping, not the modeled installed attachment or replacement numerator. ([phinergy.com](https://phinergy.com/solutions/energy-backup/))

39. Australian Flow Batteries - RFB40X Series

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: RFB40X literature identifies telecom among stationary commercial applications. It supports the qualifying project boundary, not delivered projects, revenue or assumed attachment. ([afb.energy](https://www.afb.energy/wp-content/uploads/2025/xx.xx/Australian-Flow-Batteries-RFB40X-Series-2024.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: RFB40X literature identifies telecom among stationary commercial applications. It supports the qualifying project boundary, not delivered projects, revenue or assumed attachment. ([afb.energy](https://www.afb.energy/wp-content/uploads/2025/xx.xx/Australian-Flow-Batteries-RFB40X-Series-2024.pdf))

40. PowerReserve - Verizon Residential Accessories

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Verizon advertises an alkaline-cell voice-backup device at USD39.xx.xx excluding batteries. This supports a qualifying primary-zinc premises route and price comparator, not assumed Global attachment or first-sale realization. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Verizon advertises an alkaline-cell voice-backup device at USD39.xx.xx excluding batteries. This supports a qualifying primary-zinc premises route and price comparator, not assumed Global attachment or first-sale realization. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Advertised voice-only protection reaches xx.xx hours; internet and television protection are excluded. This supports service-specific Day-Scale classification. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Advertised voice-only protection reaches xx.xx hours; internet and television protection are excluded. This supports service-specific Day-Scale classification. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))

41. Alkaline Manganese Dioxide Handbook and Application Manual - Energizer

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The manufacturer's alkaline manganese-dioxide classification supports the zinc-family mapping for qualifying premises backup. It provides no telecom purchasing weight. ([data.energizer.com](https://data.energizer.com/pdfs/alkaline_appman.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The manufacturer's alkaline manganese-dioxide classification supports the zinc-family mapping for qualifying premises backup. It provides no telecom purchasing weight. ([data.energizer.com](https://data.energizer.com/pdfs/alkaline_appman.pdf))

42. ITU-T Work Programme - Aqueous Zinc-Based Battery Systems for Base Station Applications

- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The aqueous-zinc base-station work item is Under study with December 2027 timing. It constrains the forecast commercialization assumption but establishes neither approval nor customer purchases. ([itu.int](https://www.itu.int/itu-t/workprog/wp_item.aspx?isn=xx.xx))

43. ITU-T L.1397 - Battery System with Integrated Control and Monitoring Information Model

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The October 2025 recommendation names lithium-lead, lithium-sodium and sodium-lead combinations. This supports mixed-family classification, not inseparable pricing or Global prevalence. ([itu.int](https://www.itu.int/rec/dologin_pub.asp?id=T-REC-L.xx.xx-xx.xx-I%xx.xx%21PDF-E&lang=e&type=items))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The October 2025 recommendation names lithium-lead, lithium-sodium and sodium-lead combinations. This supports mixed-family classification, not inseparable pricing or Global prevalence. ([itu.int](https://www.itu.int/rec/dologin_pub.asp?id=T-REC-L.xx.xx-xx.xx-I%xx.xx%21PDF-E&lang=e&type=items))

44. ETSI EN 300 132-1 V2.2.1 - ICT Power Supply Interface: Alternating Current
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The ICT standard identifies the protected-load AC interface, supporting output-side attribution rather than classification by chemistry or normal utility input. It supplies no sales mix. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013201v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The ICT standard identifies the protected-load AC interface, supporting output-side attribution rather than classification by chemistry or normal utility input. It supplies no sales mix. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013201v020201p.pdf))
45. ETSI EN 300 132-2 V2.8.1 - ICT Power Supply Interface: Direct Current
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The ICT standard separately identifies the DC protected-equipment interface, supporting the DC-output boundary independently of battery chemistry. It is not a purchasing census. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013202v020801p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The ICT standard separately identifies the DC protected-equipment interface, supporting the DC-output boundary independently of battery chemistry. It is not a purchasing census. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013202v020801p.pdf))
46. Vertiv NetSure Inverter Series - Converged AC and DC Power System
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: NetSure Inverter Series identifies AC and DC loads supported through a common battery bank. This establishes a combined-output proposition, not its modeled purchasing fraction or future adoption. ([vertiv.com](https://www.vertiv.com/en-us/products-catalog/critical-power/dc-power-systems/vertiv-netsure-inverter-series/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: NetSure Inverter Series identifies AC and DC loads supported through a common battery bank. This establishes a combined-output proposition, not its modeled purchasing fraction or future adoption. ([vertiv.com](https://www.vertiv.com/en-us/products-catalog/critical-power/dc-power-systems/vertiv-netsure-inverter-series/))

47. ETSI EN 302 099 V2.2.1 - Powering of Equipment in Access Network
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Local powering uses a colocated source; allocation follows the backed source rather than receiver inventory. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Local powering uses a colocated source; allocation follows the backed source rather than receiver inventory. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Remote-source backup is distinguished from local backup, supporting the parent commercial boundary but not purchasing weights. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Remote-source backup is distinguished from local backup, supporting the parent commercial boundary but not purchasing weights. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Centralized powering originates at a telecommunications center. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Centralized powering originates at a telecommunications center. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Cluster powering uses a source outside the telecommunications center, supporting separation within Remote Powering. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Cluster powering uses a source outside the telecommunications center, supporting separation within Remote Powering. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Reverse powering is customer-origin supply, supporting source-level attribution of the battery-backed provider package. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Reverse powering is customer-origin supply, supporting source-level attribution of the battery-backed provider package. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))

48. Set Up Your Battery Backup - AT&T G.Fast Service with BGW210

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The 2021 provider document names a battery-backed package protecting G.fast customer and distribution equipment through reverse power feed. It establishes a dated source-backup proposition, not current Global quantities. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The 2021 provider document names a battery-backed package protecting G.fast customer and distribution equipment through reverse power feed. It establishes a dated source-backup proposition, not current Global quantities. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The provider advertises a xx.xx-hour service window for the particular package, supporting Day-Scale mapping without a universal premises-duration inference. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The provider advertises a xx.xx-hour service window for the particular package, supporting Day-Scale mapping without a universal premises-duration inference. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

49. DNA Tower Offers Battery Capacity in Electricity Reserve Markets with Elisa DES

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The June xx.xx 2025 announcement reports DNA Tower batteries connected to Finnish reserve markets while retaining outage continuity. This establishes a specific mixed-duty implementation, not Global attachment or guaranteed returns. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/press-releases/dna-tower-becomes-worlds-first-tower-company-to-offer-battery-capacity-in-electricity-reserve-markets-with-elisa-des))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The June xx.xx 2025 announcement reports DNA Tower batteries connected to Finnish reserve markets while retaining outage continuity. This establishes a specific mixed-duty implementation, not Global attachment or guaranteed returns. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/press-releases/dna-tower-becomes-worlds-first-tower-company-to-offer-battery-capacity-in-electricity-reserve-markets-with-elisa-des))

50. Case Elisa: Virtual Power Plant in the Telecom Industry

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The company case reports over 2,000 aggregated sites and approximately xx.xx MWh. This is an installed commercial scale check, not annual purchasing value or Global prevalence. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/customer-stories/elisacase))

21.9. United Kingdom

Table 644. United Kingdom Telecom Battery Backup System Market Size, 2017-2032 (USD Million)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
United Kingdom	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 645. United Kingdom Telecom Battery Backup System Market Size, by Offering, 2017-2032 (USD Million)

Offering	2023	2024	2025	2026	2027	2032	CAGR (%)
Battery Units and Assemblies	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Complete Backup Systems	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 646. United Kingdom Telecom Battery Backup System Market Size, by Battery Technology, 2017-2032 (USD Million)

Battery Technology	2023	2024	2025	2026	2027	2032	CAGR (%)
Aqueous Zinc-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Flow Batteries	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lithium-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Metal-Air	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Multi-Chemistry	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Sodium-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 647. United Kingdom Telecom Battery Backup System Market Size, by Lead-Acid, 2017-2032 (USD Million)

Lead-Acid	2023	2024	2025	2026	2027	2032	CAGR (%)
Flooded Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Valve-Regulated Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 648. United Kingdom Telecom Battery Backup System Market Size, by Valve-Regulated Lead-Acid, 2017-2032 (USD Million)

Valve-Regulated Lead-Acid	2023	2024	2025	2026	2027	2032	CAGR (%)
Absorbent Glass Mat	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Gel	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 649. United Kingdom Telecom Battery Backup System Market Size, by Lithium-Based, 2017-2032 (USD Million)

Lithium-Based	2023	2024	2025	2026	2027	2032	CAGR (%)
Lithium-Ion	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lithium-Metal	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 650. United Kingdom Telecom Battery Backup System Market Size, by Nickel-Based, 2017-2032 (USD Million)

Nickel-Based	2023	2024	2025	2026	2027	2032	CAGR (%)
Nickel-Cadmium	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Iron	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Metal Hydride	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Zinc	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 651. United Kingdom Telecom Battery Backup System Market Size, by Power Interface, 2017-2032 (USD Million)

Power Interface	2023	2024	2025	2026	2027	2032	CAGR (%)
AC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Combined AC/DC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
DC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 652. United Kingdom Telecom Battery Backup System Market Size, by Network Application, 2017-2032 (USD Million)

Network Application	2023	2024	2025	2026	2027	2032	CAGR (%)
Core Networks & Network Control	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Customer-Premises Connectivity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Network Interconnection & Peering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Transport & Backhaul Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Wireless Access Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Wireline Access Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 653. United Kingdom Telecom Battery Backup System Market Size, by Buyer Type, 2017-2032 (USD Million)

Buyer Type	2023	2024	2025	2026	2027	2032	CAGR (%)
Business & Institutional Connectivity Owners	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Equipment Leasing & Rental Providers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Household Connectivity Purchasers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Energy-Service Providers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Infrastructure & Tower Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecommunications Network Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 654. United Kingdom Telecom Battery Backup System Market Size, by Installation Environment, 2017-2032 (USD Million)

Installation Environment	2023	2024	2025	2026	2027	2032	CAGR (%)
Non-Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Underground Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 655. United Kingdom Telecom Battery Backup System Market Size, by Weather-Protected Locations, 2017-2032 (USD Million)

Weather-Protected Locations	2023	2024	2025	2026	2027	2032	CAGR (%)
Enclosed Locations Without Temperature Control	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Partly Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Temperature-Controlled Enclosed Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 656. United Kingdom Telecom Battery Backup System Market Size, by Non-Weather-Protected Locations, 2017-2032 (USD Million)

Non-Weather-Protected Locations	2023	2024	2025	2026	2027	2032	CAGR (%)
Open-Air Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Sheltered Non-Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 657. United Kingdom Telecom Battery Backup System Market Size, by Powering Architecture, 2017-2032 (USD Million)

Powering Architecture	2023	2024	2025	2026	2027	2032	CAGR (%)
Local Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Remote Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 658. United Kingdom Telecom Battery Backup System Market Size, by Remote Powering, 2017-2032 (USD Million)

Remote Powering	2023	2024	2025	2026	2027	2032	CAGR (%)
Centralized Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Cluster Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reverse Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 659. United Kingdom Telecom Battery Backup System Market Size, by Commercial Delivery Model, 2017-2032 (USD Million)

Commercial Delivery Model	2023	2024	2025	2026	2027	2032	CAGR (%)
Leased or Rented Equipment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Managed Backup Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Owned Equipment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 660. United Kingdom Telecom Battery Backup System Market Size, by Sales Channel, 2017-2032 (USD Million)

Sales Channel	2023	2024	2025	2026	2027	2032	CAGR (%)
Direct Manufacturer Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Distributor and Retailer Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Systems Integrator and Contractor Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Service Provider Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 661. United Kingdom Telecom Battery Backup System Market Size, by Grid Availability, 2017-2032 (USD Million)

Grid Availability	2023	2024	2025	2026	2027	2032	CAGR (%)
Off-Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reliable Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Unreliable Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 662. United Kingdom Telecom Battery Backup System Market Size, by Backup Duty, 2017-2032 (USD Million)

Backup Duty	2023	2024	2025	2026	2027	2032	CAGR (%)
Backup with Energy Management	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reserve-Only Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 663. United Kingdom Telecom Battery Backup System Market Size, by Backup Autonomy, 2017-2032 (USD Million)

Backup Autonomy	2023	2024	2025	2026	2027	2032	CAGR (%)
Day-Scale Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Extended-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Intermediate-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Short-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. China Tower - 2025 Annual Results, March 18, 2026
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The xx.xx.149m-site inventory constrains wireless activity; forecast purchasing remains modeled.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The xx.xx.149m-site inventory constrains wireless activity; forecast purchasing remains modeled.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Replacement/improvement CAPEX fell from RMB6837m to RMB5474m, qualifying automatic replacement-led growth.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Replacement/improvement CAPEX fell from RMB6837m to RMB5474m, qualifying automatic replacement-led growth.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Disclosed tower operations establish a material infrastructure purchasing setting, not a global buyer share.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Disclosed tower operations establish a material infrastructure purchasing setting, not a global buyer share.
2. Broadband Commission - The State of Broadband: Our Digital World, 2025
   - Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))

3. Battery Backup - Meriwether Lewis Electric Cooperative
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Separately available replacement batteries support a battery-only replacement route.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Separately available replacement batteries support a battery-only replacement route.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The USD100-plus-tax device is a retail comparator, not an observed 2025 first-sale realization.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The USD100-plus-tax device is a retail comparator, not an observed 2025 first-sale realization.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Customer purchase and replacement responsibilities support household-funded procurement.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Customer purchase and replacement responsibilities support household-funded procurement.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Purchased equipment does not automatically include continuing service-plan coverage.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Purchased equipment does not automatically include continuing service-plan coverage.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Local provider sales establish this route alongside manufacturer-direct purchasing.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Local provider sales establish this route alongside manufacturer-direct purchasing.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The provider advertises approximately five hours for combined voice and internet, supporting service-specific Extended classification, not an observed 2025 purchase mix. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The provider advertises approximately five hours for combined voice and internet, supporting service-specific Extended classification, not an observed 2025 purchase mix. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The same proposition advertises xx.xx-hour voice-only protection, supporting Day-Scale mapping without equating duration with a universally larger purchase basket. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The same proposition advertises xx.xx-hour voice-only protection, supporting Day-Scale mapping without equating duration with a universally larger purchase basket. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
4. EnerSys 2026 Proxy Statement and Annual Report
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Direct customer supply is disclosed within a diversified international business; telecom channel proportions are not disclosed.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Direct customer supply is disclosed within a diversified international business; telecom channel proportions are not disclosed.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Distributor supply is disclosed, supporting route occurrence rather than its modeled sales weight.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Distributor supply is disclosed, supporting route occurrence rather than its modeled sales weight.

5. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Audited 2025 telecom revenue of RMB1,xx.xx declined xx.xx%; telecom purchasing weakness is retained as counterevidence to automatic substitution-led aggregate growth. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Audited 2025 telecom revenue of RMB1,xx.xx declined xx.xx%; telecom purchasing weakness is retained as counterevidence to automatic substitution-led aggregate growth. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Telecom-specific results are separated from adjacent data-center and power-storage growth when assessing lithium substitution; the filing does not disclose the modeled Global split. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom-specific results are separated from adjacent data-center and power-storage growth when assessing lithium substitution; the filing does not disclose the modeled Global split. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))
6. Amara Raja Energy & Mobility - Q2/H1 FY2026 Earnings Presentation, November 6, 2025
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand. ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))
7. IHS Holding Limited - First-Quarter 2026 Financial Statements
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement. ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

8. Ofcom - Mobile RAN Power Resilience: Technical Report and CFI Update, February 2025
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))
   - Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Uneven existing UK backup coverage and costed multi-year alternatives constrain adoption and purchasing assumptions.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The evaluated xx.xx-minute alternative supplies a subhour commercial-planning anchor, not observed shipments. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The evaluated xx.xx-minute alternative supplies a subhour commercial-planning anchor, not observed shipments. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: One-hour and two-hour alternatives anchor the analytical Intermediate band. Aggregate scenarios include multiple years of operating costs and are not annual battery revenue. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: One-hour and two-hour alternatives anchor the analytical Intermediate band. Aggregate scenarios include multiple years of operating costs and are not annual battery revenue. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The four-hour alternative anchors the Extended band's lower boundary without establishing a Global minimum or purchasing allocation. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The four-hour alternative anchors the Extended band's lower boundary without establishing a Global minimum or purchasing allocation. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

9. Ofcom - Your Landline Is Going Digital: What You Need to Know

- Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
- Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Restricted provider-funded eligibility constrains operator-funded premises attribution and forecast adoption.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Restricted provider-funded eligibility constrains operator-funded premises attribution and forecast adoption.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Eligibility is not universal household funding; purchaser proportions remain assumptions.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Eligibility is not universal household funding; purchaser proportions remain assumptions.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Eligibility-limited provider backup and the one-hour minimum for qualifying customers constrain premises demand and anchor the Intermediate band's lower boundary. They do not establish universal adoption. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Eligibility-limited provider backup and the one-hour minimum for qualifying customers constrain premises demand and anchor the Intermediate band's lower boundary. They do not establish universal adoption. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

10. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone
    - Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue. ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
    - Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions. ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: USD45m financing and xx.xx planned site modernizations support an expansion signal, not observed backup-only service revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: USD45m financing and xx.xx planned site modernizations support an expansion signal, not observed backup-only service revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Energy-service activity supports the role; the modeled provider-as-buyer subcontract share is not established.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Energy-service activity supports the role; the modeled provider-as-buyer subcontract share is not established.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: More than xx.xx% weak/off-grid project exposure constrains service-cohort concentration, not the global grid mix.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: More than xx.xx% weak/off-grid project exposure constrains service-cohort concentration, not the global grid mix.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The project confirms disconnected-site commercial demand; its weak/off-grid combined statistic does not separate those categories.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The project confirms disconnected-site commercial demand; its weak/off-grid combined statistic does not separate those categories.
11. Fingrid - How to Participate in the Reserve Markets
    - Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue. ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Applicable owner permission and market agreements are commercial access gates. They constrain forecast mixed-duty adoption without measuring its Global percentage. ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))
12. Cellnex - Integrated Annual Report 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: UK sites and upgrade activity provide a commercial footprint, not total battery purchasing.

13. PowerSafe SBS Batteries | EnerSys
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Named telecom batteries support the battery-unit offering boundary; allocation weights are assumed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Named telecom batteries support the battery-unit offering boundary; allocation weights are assumed.
14. Vertiv NetSure M Series
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Configured enclosure, power and battery options support broader system classification, not universal bundle inclusion.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Configured enclosure, power and battery options support broader system classification, not universal bundle inclusion.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A marketed outdoor enclosure supports a protection option; global adoption and configuration proportions remain modeled.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A marketed outdoor enclosure supports a protection option; global adoption and configuration proportions remain modeled.
15. Ofcom - Network and Service Resilience Guidance for Communications Providers, June 16, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Core is a distinct, comparatively concentrated function with explicit backup expectations; global spending remains estimated.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Core is a distinct, comparatively concentrated function with explicit backup expectations; global spending remains estimated.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The stated xx.xx-xx.xx-fold site-scale distinction motivates lower-value, more numerous transport purchase equivalents.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The stated xx.xx-xx.xx-fold site-scale distinction motivates lower-value, more numerous transport purchase equivalents.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Peering and non-Internet interconnection are distinct functions; attributable backup purchase values are not disclosed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Peering and non-Internet interconnection are distinct functions; attributable backup purchase values are not disclosed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: June 2026 guidance identifies approximately four hours as good practice for active fixed-access cabinets. This supports a conditional Extended purchasing shift, not completed orders or a Global mandate. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/network-and-service-resilience-guidance-for-communications-providerspdf?v=xx.xx))
16. Technology and Tools | First Responder Network Authority
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Radio access, transport backhaul and core are separate network functions, supporting functional attribution without duplicate facility counting.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Radio access, transport backhaul and core are separate network functions, supporting functional attribution without duplicate facility counting.
17. Mobile Network Hardening Program | Australian Department of Infrastructure
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Completed battery enhancements and broader resilience projects provide a delivered regional demand signal, not a global forecast rate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Completed battery enhancements and broader resilience projects provide a delivered regional demand signal, not a global forecast rate.

18. BT - Digital Voice for Business Service Schedule, May 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Business customers bear backup-power expense, supporting a distinct institutional/business payer route rather than consumer eligibility extrapolation.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Business customers bear backup-power expense, supporting a distinct institutional/business payer route rather than consumer eligibility extrapolation.
19. Los Angeles Metro - Board Report 2024-1128, UPS Battery Replacement
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Completed and additional UPS battery replacements support continuing underground demand; mixed-load project budgets are not telecom-only revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Completed and additional UPS battery replacements support continuing underground demand; mixed-load project budgets are not telecom-only revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The transit authority's purchasing program supports an institutional own-use role, not its global spending proportion.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The transit authority's purchasing program supports an institutional own-use role, not its global spending proportion.
20. ETSI EN 300 019-1-3 V3.1.1 - Stationary Use at Weatherprotected Locations, May 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Weather-protected categories distinguish enclosure from environmental control; the standard does not measure market mix.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Weather-protected categories distinguish enclosure from environmental control; the standard does not measure market mix.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Maintained temperature control is a separate classification premise for the modeled conditional allocation.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Maintained temperature control is a separate classification premise for the modeled conditional allocation.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Enclosed locations without temperature control are distinguished from controlled locations.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Enclosed locations without temperature control are distinguished from controlled locations.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Partial weather protection is recognized separately; sales weights and future adoption remain assumed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Partial weather protection is recognized separately; sales weights and future adoption remain assumed.
21. ETSI EN 300 019-1-4 V3.1.1 - Stationary Use at Non-Weatherprotected Locations, May 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Non-weather-protected locations form a distinct classification regime, not a measured global spending pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Non-weather-protected locations form a distinct classification regime, not a measured global spending pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Sheltered non-weather-protected locations support the named conditional category.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Sheltered non-weather-protected locations support the named conditional category.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Open-air locations are separately recognized; their purchasing mix remains modeled.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Open-air locations are separately recognized; their purchasing mix remains modeled.

22. DC Power Plant / Rectifiers - UPS Rental
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Battery and complete DC-plant rentals establish delivery-category occurrence; global fees and utilization are not disclosed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Battery and complete DC-plant rentals establish delivery-category occurrence; global fees and utilization are not disclosed.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Commercial rental availability is a role premise only; modeled lessor sub-hire procurement remains unverified.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Commercial rental availability is a role premise only; modeled lessor sub-hire procurement remains unverified.
23. Helios Towers - Full Year Results 2025, March 12, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Grid-integration investment supplies a connection-improvement counterforce used conditionally in the forecast.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Grid-integration investment supplies a connection-improvement counterforce used conditionally in the forecast.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Reported xx.xx-hour average daily grid availability supports weak-grid commercial exposure, without a global classification share.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Reported xx.xx-hour average daily grid availability supports weak-grid commercial exposure, without a global classification share.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Grid integration and alternative-power investment qualify assumptions of permanently unchanged disconnected-site exposure.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Grid integration and alternative-power investment qualify assumptions of permanently unchanged disconnected-site exposure.
24. Telecommunications | Aggreko US
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Telecom battery-storage rental for temporary continuity supports delivery occurrence, not the estimated global fee scale.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom battery-storage rental for temporary continuity supports delivery occurrence, not the estimated global fee scale.
25. EnerSys PowerSafe SBS Front Terminal Batteries | Alpine Power Systems
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A named battery distributor supports the intermediary route; its listing is not a global channel-sales observation.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A named battery distributor supports the intermediary route; its listing is not a global channel-sales observation.
26. DC Power Services | Vertiv
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Cross-manufacturer projects and narrower upgrades support integration-prime and supported-replacement routes; numerical route proportions remain assumed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Cross-manufacturer projects and narrower upgrades support integration-prime and supported-replacement routes; numerical route proportions remain assumed.

27. Shuangdeng Group Co., Ltd. - Global Offering Prospectus, August 18, 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The company's own five-month 2025 lead-acid realization of RMB520.xx.xx/kWh constrains the relative-price bridge; syndicated industry claims are excluded. Forecast convergence remains assumed. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The company's own five-month 2025 lead-acid realization of RMB520.xx.xx/kWh constrains the relative-price bridge; syndicated industry claims are excluded. Forecast convergence remains assumed. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Own lithium-ion realization of RMB595.xx.xx/kWh is an input to the Lithium-Based value model, not a Global share or a Lithium-Metal sales observation. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Own lithium-ion realization of RMB595.xx.xx/kWh is an input to the Lithium-Based value model, not a Global share or a Lithium-Metal sales observation. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
28. Amara Raja Crosses 1 GWh Lithium Storage Deployment Powering India's Telecom Networks
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The April xx.xx 2026 disclosure reports approximately xx.xx GWh across xx.xx cumulative telecom lithium sites over four years. This is a commercial adoption scale check, not annual Global revenue or a supplier-share input. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The April xx.xx 2026 disclosure reports approximately xx.xx GWh across xx.xx cumulative telecom lithium sites over four years. This is a commercial adoption scale check, not annual Global revenue or a supplier-share input. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The disclosed deployment identifies lithium-ion commercialization at scale, supporting the subtype's established commercial position without directly measuring its conditional Global share. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The disclosed deployment identifies lithium-ion commercialization at scale, supporting the subtype's established commercial position without directly measuring its conditional Global share. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
29. Central Office Power Systems - EnerSys
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The central-office portfolio identifies Flooded Lead-Acid as a distinct telecom alternative, supporting the legacy-network category mapping but not its purchasing fraction. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The central-office portfolio identifies Flooded Lead-Acid as a distinct telecom alternative, supporting the legacy-network category mapping but not its purchasing fraction. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The portfolio separately identifies Valve-Regulated Lead-Acid, supporting the within-lead construction boundary used by the model. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The portfolio separately identifies Valve-Regulated Lead-Acid, supporting the within-lead construction boundary used by the model. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))

30. PowerSafe OPzV Batteries - EnerSys

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: EnerSys identifies OPzV as Gel and lists telecom applications. This supports commercial subtype mapping, not the assumed Gel/AGM volume or price mix. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-opzv/))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: EnerSys identifies OPzV as Gel and lists telecom applications. This supports commercial subtype mapping, not the assumed Gel/AGM volume or price mix. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-opzv/))

31. Bolloré - 2017 Registration Document

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The official filing identifies LMP professional outage-protection applications including telecom relays. This is a dated commercial boundary input, not evidence of 2025 telecom shipment value. ([bollore.com](https://www.bollore.com/wp-content/uploads/2018/xx.xx/bollore_ddr_2017_gb_bag-xx.xx-juin.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The official filing identifies LMP professional outage-protection applications including telecom relays. This is a dated commercial boundary input, not evidence of 2025 telecom shipment value. ([bollore.com](https://www.bollore.com/wp-content/uploads/2018/xx.xx/bollore_ddr_2017_gb_bag-xx.xx-juin.pdf))

32. Bolloré - Business Report 2025

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The 2025 report establishes continuing Lithium Metal Polymer commercial applications in electricity storage and buses, while omitting separately attributable telecom sales. It constrains the low-access expected-purchase model; no capacity-to-sales conversion is used. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The 2025 report establishes continuing Lithium Metal Polymer commercial applications in electricity storage and buses, while omitting separately attributable telecom sales. It constrains the low-access expected-purchase model; no capacity-to-sales conversion is used. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The report preserves the distinction between LMP and conventional lithium-ion, supporting the exhaustive subtype attribution rule rather than treating polymer packaging as Lithium-Metal. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The report preserves the distinction between LMP and conventional lithium-ion, supporting the exhaustive subtype attribution rule rather than treating polymer packaging as Lithium-Metal. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))

33. AT&T to Replace U-Verse Cabinet Batteries - Fierce Network, January 15, 2008

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The January xx.xx 2008 report corroborates AT&T's replacement of approximately xx.xx Avestor batteries after the supplier's closure. The obsolete stock is therefore not carried into the 2025 or 2032 purchasing numerator. ([fierce-network.com](https://www.fierce-network.com/telecom/at-t-to-replace-u-verse-cabinet-batteries))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The January xx.xx 2008 report corroborates AT&T's replacement of approximately xx.xx Avestor batteries after the supplier's closure. The obsolete stock is therefore not carried into the 2025 or 2032 purchasing numerator. ([fierce-network.com](https://www.fierce-network.com/telecom/at-t-to-replace-u-verse-cabinet-batteries))

34. PowerSafe NiCd Batteries - EnerSys
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: EnerSys identifies Nickel-Cadmium for central offices and outside plant, supporting the modeled legacy telecom cohort but not its installed attachment or replacement spending. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-nicd/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: EnerSys identifies Nickel-Cadmium for central offices and outside plant, supporting the modeled legacy telecom cohort but not its installed attachment or replacement spending. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-nicd/))
35. FDK Ni-MH Battery Is Chosen for the Cellect 600 Product of Alpha Technologies
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The October xx.xx 2015 announcement identifies NiMH in Alpha's Cellect xx.xx small-cell backup proposition. It supports a historical cohort rather than current fulfillment or assumed surviving stock. ([fdk.com](https://www.fdk.com/whatsnew-e/release20151019-e.html))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The October xx.xx 2015 announcement identifies NiMH in Alpha's Cellect xx.xx small-cell backup proposition. It supports a historical cohort rather than current fulfillment or assumed surviving stock. ([fdk.com](https://www.fdk.com/whatsnew-e/release20151019-e.html))
36. Products - Encell Technology
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Encell positions its Fused Iron Nickel-Iron battery for telecom. This supports the commercial category lead, while current purchases and attachment remain modeled. ([encell.com](https://encell.com/products/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Encell positions its Fused Iron Nickel-Iron battery for telecom. This supports the commercial category lead, while current purchases and attachment remain modeled. ([encell.com](https://encell.com/products/))
37. Telecom/5G - ZAF Energy Systems
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: ZAF positions Nickel-Zinc for telecom/5G. Its supplier proposition supports application mapping, not the modeled annual attachment or threefold forecast value multiplier. ([zafsys.com](https://zafsys.com/telecom-5g/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: ZAF positions Nickel-Zinc for telecom/5G. Its supplier proposition supports application mapping, not the modeled annual attachment or threefold forecast value multiplier. ([zafsys.com](https://zafsys.com/telecom-5g/))
38. HORIEN Salt Battery Solutions and Inlyte Energy Announce a Strategic Partnership
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: HORIEN's March xx.xx 2025 statement identifies sodium-metal-chloride telecom backup. Its separate partnership announcement is not counted as delivered telecom sales. ([horien.com](https://horien.com/wp-content/uploads/2025/xx.xx/Press-Release_HORIEN-Inlyte-International-Version.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: HORIEN's March xx.xx 2025 statement identifies sodium-metal-chloride telecom backup. Its separate partnership announcement is not counted as delivered telecom sales. ([horien.com](https://horien.com/wp-content/uploads/2025/xx.xx/Press-Release_HORIEN-Inlyte-International-Version.pdf))
39. Energy Backup - Phinergy
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Phinergy markets Aluminum-Air continuity offerings to telecom operators and tower companies. The source supports category and buyer mapping, not the modeled installed attachment or replacement numerator. ([phinergy.com](https://phinergy.com/solutions/energy-backup/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Phinergy markets Aluminum-Air continuity offerings to telecom operators and tower companies. The source supports category and buyer mapping, not the modeled installed attachment or replacement numerator. ([phinergy.com](https://phinergy.com/solutions/energy-backup/))

40. Australian Flow Batteries - RFB40X Series

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: RFB40X literature identifies telecom among stationary commercial applications. It supports the qualifying project boundary, not delivered projects, revenue or assumed attachment. ([afb.energy](https://www.afb.energy/wp-content/uploads/2025/xx.xx/Australian-Flow-Batteries-RFB40X-Series-2024.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: RFB40X literature identifies telecom among stationary commercial applications. It supports the qualifying project boundary, not delivered projects, revenue or assumed attachment. ([afb.energy](https://www.afb.energy/wp-content/uploads/2025/xx.xx/Australian-Flow-Batteries-RFB40X-Series-2024.pdf))

41. PowerReserve - Verizon Residential Accessories

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Verizon advertises an alkaline-cell voice-backup device at USD39.xx.xx excluding batteries. This supports a qualifying primary-zinc premises route and price comparator, not assumed Global attachment or first-sale realization. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Verizon advertises an alkaline-cell voice-backup device at USD39.xx.xx excluding batteries. This supports a qualifying primary-zinc premises route and price comparator, not assumed Global attachment or first-sale realization. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Advertised voice-only protection reaches xx.xx hours; internet and television protection are excluded. This supports service-specific Day-Scale classification. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Advertised voice-only protection reaches xx.xx hours; internet and television protection are excluded. This supports service-specific Day-Scale classification. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))

42. Alkaline Manganese Dioxide Handbook and Application Manual - Energizer

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The manufacturer's alkaline manganese-dioxide classification supports the zinc-family mapping for qualifying premises backup. It provides no telecom purchasing weight. ([data.energizer.com](https://data.energizer.com/pdfs/alkaline_appman.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The manufacturer's alkaline manganese-dioxide classification supports the zinc-family mapping for qualifying premises backup. It provides no telecom purchasing weight. ([data.energizer.com](https://data.energizer.com/pdfs/alkaline_appman.pdf))

43. ITU-T Work Programme - Aqueous Zinc-Based Battery Systems for Base Station Applications

- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The aqueous-zinc base-station work item is Under study with December 2027 timing. It constrains the forecast commercialization assumption but establishes neither approval nor customer purchases. ([itu.int](https://www.itu.int/itu-t/workprog/wp_item.aspx?isn=xx.xx))

44. ITU-T L.1397 - Battery System with Integrated Control and Monitoring Information Model

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The October 2025 recommendation names lithium-lead, lithium-sodium and sodium-lead combinations. This supports mixed-family classification, not inseparable pricing or Global prevalence. ([itu.int](https://www.itu.int/rec/dologin_pub.asp?id=T-REC-L.xx.xx-xx.xx-I%xx.xx%21PDF-E&lang=e&type=items))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The October 2025 recommendation names lithium-lead, lithium-sodium and sodium-lead combinations. This supports mixed-family classification, not inseparable pricing or Global prevalence. ([itu.int](https://www.itu.int/rec/dologin_pub.asp?id=T-REC-L.xx.xx-xx.xx-I%xx.xx%21PDF-E&lang=e&type=items))

45. ETSI EN 300 132-1 V2.2.1 - ICT Power Supply Interface: Alternating Current
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The ICT standard identifies the protected-load AC interface, supporting output-side attribution rather than classification by chemistry or normal utility input. It supplies no sales mix. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013201v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The ICT standard identifies the protected-load AC interface, supporting output-side attribution rather than classification by chemistry or normal utility input. It supplies no sales mix. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013201v020201p.pdf))
46. ETSI EN 300 132-2 V2.8.1 - ICT Power Supply Interface: Direct Current
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The ICT standard separately identifies the DC protected-equipment interface, supporting the DC-output boundary independently of battery chemistry. It is not a purchasing census. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013202v020801p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The ICT standard separately identifies the DC protected-equipment interface, supporting the DC-output boundary independently of battery chemistry. It is not a purchasing census. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013202v020801p.pdf))
47. Vertiv NetSure Inverter Series - Converged AC and DC Power System
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: NetSure Inverter Series identifies AC and DC loads supported through a common battery bank. This establishes a combined-output proposition, not its modeled purchasing fraction or future adoption. ([vertiv.com](https://www.vertiv.com/en-us/products-catalog/critical-power/dc-power-systems/vertiv-netsure-inverter-series/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: NetSure Inverter Series identifies AC and DC loads supported through a common battery bank. This establishes a combined-output proposition, not its modeled purchasing fraction or future adoption. ([vertiv.com](https://www.vertiv.com/en-us/products-catalog/critical-power/dc-power-systems/vertiv-netsure-inverter-series/))

48. ETSI EN 302 099 V2.2.1 - Powering of Equipment in Access Network
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Local powering uses a colocated source; allocation follows the backed source rather than receiver inventory. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Local powering uses a colocated source; allocation follows the backed source rather than receiver inventory. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Remote-source backup is distinguished from local backup, supporting the parent commercial boundary but not purchasing weights. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Remote-source backup is distinguished from local backup, supporting the parent commercial boundary but not purchasing weights. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Centralized powering originates at a telecommunications center. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Centralized powering originates at a telecommunications center. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Cluster powering uses a source outside the telecommunications center, supporting separation within Remote Powering. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Cluster powering uses a source outside the telecommunications center, supporting separation within Remote Powering. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Reverse powering is customer-origin supply, supporting source-level attribution of the battery-backed provider package. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Reverse powering is customer-origin supply, supporting source-level attribution of the battery-backed provider package. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))

49. Set Up Your Battery Backup - AT&T G.Fast Service with BGW210

    · Evidence informing base-year allocation inputs; displayed values and growth are calculated: The 2021 provider document names a battery-backed package protecting G.fast customer and distribution equipment through reverse power feed. It establishes a dated source-backup proposition, not current Global quantities. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

    · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The 2021 provider document names a battery-backed package protecting G.fast customer and distribution equipment through reverse power feed. It establishes a dated source-backup proposition, not current Global quantities. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

    · Evidence informing base-year allocation inputs; displayed values and growth are calculated: The provider advertises a xx.xx-hour service window for the particular package, supporting Day-Scale mapping without a universal premises-duration inference. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

    · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The provider advertises a xx.xx-hour service window for the particular package, supporting Day-Scale mapping without a universal premises-duration inference. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

50. DNA Tower Offers Battery Capacity in Electricity Reserve Markets with Elisa DES

    · Evidence informing base-year allocation inputs; displayed values and growth are calculated: The June xx.xx 2025 announcement reports DNA Tower batteries connected to Finnish reserve markets while retaining outage continuity. This establishes a specific mixed-duty implementation, not Global attachment or guaranteed returns. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/press-releases/dna-tower-becomes-worlds-first-tower-company-to-offer-battery-capacity-in-electricity-reserve-markets-with-elisa-des))

    · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The June xx.xx 2025 announcement reports DNA Tower batteries connected to Finnish reserve markets while retaining outage continuity. This establishes a specific mixed-duty implementation, not Global attachment or guaranteed returns. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/press-releases/dna-tower-becomes-worlds-first-tower-company-to-offer-battery-capacity-in-electricity-reserve-markets-with-elisa-des))

51. Case Elisa: Virtual Power Plant in the Telecom Industry

    · Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The company case reports over 2,000 aggregated sites and approximately xx.xx MWh. This is an installed commercial scale check, not annual purchasing value or Global prevalence. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/customer-stories/elisacase))

21.10. South Korea

Table 664. South Korea Telecom Battery Backup System Market Size, 2017-2032 (USD Million)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
South Korea	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 665. South Korea Telecom Battery Backup System Market Size, by Offering, 2017-2032 (USD Million)

Offering	2023	2024	2025	2026	2027	2032	CAGR (%)
Battery Units and Assemblies	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Complete Backup Systems	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 666. South Korea Telecom Battery Backup System Market Size, by Battery Technology, 2017-2032 (USD Million)

Battery Technology	2023	2024	2025	2026	2027	2032	CAGR (%)
Aqueous Zinc-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Flow Batteries	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lithium-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Metal-Air	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Multi-Chemistry	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Sodium-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 667. South Korea Telecom Battery Backup System Market Size, by Lead-Acid, 2017-2032 (USD Million)

Lead-Acid	2023	2024	2025	2026	2027	2032	CAGR (%)
Flooded Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Valve-Regulated Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 668. South Korea Telecom Battery Backup System Market Size, by Valve-Regulated Lead-Acid, 2017-2032 (USD Million)

Valve-Regulated Lead-Acid	2023	2024	2025	2026	2027	2032	CAGR (%)
Absorbent Glass Mat	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Gel	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 669. South Korea Telecom Battery Backup System Market Size, by Lithium-Based, 2017-2032 (USD Million)

Lithium-Based	2023	2024	2025	2026	2027	2032	CAGR (%)
Lithium-Ion	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lithium-Metal	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 670. South Korea Telecom Battery Backup System Market Size, by Nickel-Based, 2017-2032 (USD Million)

Nickel-Based	2023	2024	2025	2026	2027	2032	CAGR (%)
Nickel-Cadmium	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Iron	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Metal Hydride	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Zinc	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 671. South Korea Telecom Battery Backup System Market Size, by Power Interface, 2017-2032 (USD Million)

Power Interface	2023	2024	2025	2026	2027	2032	CAGR (%)
AC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Combined AC/DC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
DC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 672. South Korea Telecom Battery Backup System Market Size, by Network Application, 2017-2032 (USD Million)

Network Application	2023	2024	2025	2026	2027	2032	CAGR (%)
Core Networks & Network Control	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Customer-Premises Connectivity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Network Interconnection & Peering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Transport & Backhaul Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Wireless Access Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Wireline Access Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 673. South Korea Telecom Battery Backup System Market Size, by Buyer Type, 2017-2032 (USD Million)

Buyer Type	2023	2024	2025	2026	2027	2032	CAGR (%)
Business & Institutional Connectivity Owners	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Equipment Leasing & Rental Providers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Household Connectivity Purchasers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Energy-Service Providers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Infrastructure & Tower Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecommunications Network Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 674. South Korea Telecom Battery Backup System Market Size, by Installation Environment, 2017-2032 (USD Million)

Installation Environment	2023	2024	2025	2026	2027	2032	CAGR (%)
Non-Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Underground Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 675. South Korea Telecom Battery Backup System Market Size, by Weather-Protected Locations, 2017-2032 (USD Million)

Weather-Protected Locations	2023	2024	2025	2026	2027	2032	CAGR (%)
Enclosed Locations Without Temperature Control	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Partly Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Temperature-Controlled Enclosed Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 676. South Korea Telecom Battery Backup System Market Size, by Non-Weather-Protected Locations, 2017-2032 (USD Million)

Non-Weather-Protected Locations	2023	2024	2025	2026	2027	2032	CAGR (%)
Open-Air Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Sheltered Non-Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 677. South Korea Telecom Battery Backup System Market Size, by Powering Architecture, 2017-2032 (USD Million)

Powering Architecture	2023	2024	2025	2026	2027	2032	CAGR (%)
Local Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Remote Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 678. South Korea Telecom Battery Backup System Market Size, by Remote Powering, 2017-2032 (USD Million)

Remote Powering	2023	2024	2025	2026	2027	2032	CAGR (%)
Centralized Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Cluster Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reverse Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 679. South Korea Telecom Battery Backup System Market Size, by Commercial Delivery Model, 2017-2032 (USD Million)

Commercial Delivery Model	2023	2024	2025	2026	2027	2032	CAGR (%)
Leased or Rented Equipment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Managed Backup Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Owned Equipment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 680. South Korea Telecom Battery Backup System Market Size, by Sales Channel, 2017-2032 (USD Million)

Sales Channel	2023	2024	2025	2026	2027	2032	CAGR (%)
Direct Manufacturer Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Distributor and Retailer Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Systems Integrator and Contractor Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Service Provider Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 681. South Korea Telecom Battery Backup System Market Size, by Grid Availability, 2017-2032 (USD Million)

Grid Availability	2023	2024	2025	2026	2027	2032	CAGR (%)
Off-Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reliable Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Unreliable Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 682. South Korea Telecom Battery Backup System Market Size, by Backup Duty, 2017-2032 (USD Million)

Backup Duty	2023	2024	2025	2026	2027	2032	CAGR (%)
Backup with Energy Management	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reserve-Only Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 683. South Korea Telecom Battery Backup System Market Size, by Backup Autonomy, 2017-2032 (USD Million)

Backup Autonomy	2023	2024	2025	2026	2027	2032	CAGR (%)
Day-Scale Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Extended-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Intermediate-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Short-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. China Tower - 2025 Annual Results, March 18, 2026
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The xx.xx.149m-site inventory constrains wireless activity; forecast purchasing remains modeled.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The xx.xx.149m-site inventory constrains wireless activity; forecast purchasing remains modeled.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Replacement/improvement CAPEX fell from RMB6837m to RMB5474m, qualifying automatic replacement-led growth.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Replacement/improvement CAPEX fell from RMB6837m to RMB5474m, qualifying automatic replacement-led growth.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Disclosed tower operations establish a material infrastructure purchasing setting, not a global buyer share.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Disclosed tower operations establish a material infrastructure purchasing setting, not a global buyer share.
2. Broadband Commission - The State of Broadband: Our Digital World, 2025
   - Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))

3. Battery Backup - Meriwether Lewis Electric Cooperative
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Separately available replacement batteries support a battery-only replacement route.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Separately available replacement batteries support a battery-only replacement route.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The USD100-plus-tax device is a retail comparator, not an observed 2025 first-sale realization.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The USD100-plus-tax device is a retail comparator, not an observed 2025 first-sale realization.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Customer purchase and replacement responsibilities support household-funded procurement.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Customer purchase and replacement responsibilities support household-funded procurement.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Purchased equipment does not automatically include continuing service-plan coverage.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Purchased equipment does not automatically include continuing service-plan coverage.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Local provider sales establish this route alongside manufacturer-direct purchasing.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Local provider sales establish this route alongside manufacturer-direct purchasing.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The provider advertises approximately five hours for combined voice and internet, supporting service-specific Extended classification, not an observed 2025 purchase mix. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The provider advertises approximately five hours for combined voice and internet, supporting service-specific Extended classification, not an observed 2025 purchase mix. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The same proposition advertises xx.xx-hour voice-only protection, supporting Day-Scale mapping without equating duration with a universally larger purchase basket. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The same proposition advertises xx.xx-hour voice-only protection, supporting Day-Scale mapping without equating duration with a universally larger purchase basket. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
4. EnerSys 2026 Proxy Statement and Annual Report
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Direct customer supply is disclosed within a diversified international business; telecom channel proportions are not disclosed.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Direct customer supply is disclosed within a diversified international business; telecom channel proportions are not disclosed.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Distributor supply is disclosed, supporting route occurrence rather than its modeled sales weight.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Distributor supply is disclosed, supporting route occurrence rather than its modeled sales weight.

5. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: Audited 2025 telecom revenue of RMB1,xx.xx declined xx.xx%; telecom purchasing weakness is retained as counterevidence to automatic substitution-led aggregate growth. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Audited 2025 telecom revenue of RMB1,xx.xx declined xx.xx%; telecom purchasing weakness is retained as counterevidence to automatic substitution-led aggregate growth. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: Telecom-specific results are separated from adjacent data-center and power-storage growth when assessing lithium substitution; the filing does not disclose the modeled Global split. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom-specific results are separated from adjacent data-center and power-storage growth when assessing lithium substitution; the filing does not disclose the modeled Global split. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

6. Amara Raja Energy & Mobility - Q2/H1 FY2026 Earnings Presentation, November 6, 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand. ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))

7. IHS Holding Limited - First-Quarter 2026 Financial Statements

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement. ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

8. Ofcom - Mobile RAN Power Resilience: Technical Report and CFI Update, February 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The evaluated xx.xx-minute alternative supplies a subhour commercial-planning anchor, not observed shipments.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The evaluated xx.xx-minute alternative supplies a subhour commercial-planning anchor, not observed shipments.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: One-hour and two-hour alternatives anchor the analytical Intermediate band. Aggregate scenarios include multiple years of operating costs and are not annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: One-hour and two-hour alternatives anchor the analytical Intermediate band. Aggregate scenarios include multiple years of operating costs and are not annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The four-hour alternative anchors the Extended band's lower boundary without establishing a Global minimum or purchasing allocation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The four-hour alternative anchors the Extended band's lower boundary without establishing a Global minimum or purchasing allocation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

9. Ofcom - Your Landline Is Going Digital: What You Need to Know

- Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
- Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Restricted provider-funded eligibility constrains operator-funded premises attribution and forecast adoption.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Restricted provider-funded eligibility constrains operator-funded premises attribution and forecast adoption.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Eligibility is not universal household funding; purchaser proportions remain assumptions.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Eligibility is not universal household funding; purchaser proportions remain assumptions.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Eligibility-limited provider backup and the one-hour minimum for qualifying customers constrain premises demand and anchor the Intermediate band's lower boundary. They do not establish universal adoption. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Eligibility-limited provider backup and the one-hour minimum for qualifying customers constrain premises demand and anchor the Intermediate band's lower boundary. They do not establish universal adoption. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

10. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone
    - Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue. ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
    - Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions. ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: USD45m financing and xx.xx planned site modernizations support an expansion signal, not observed backup-only service revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: USD45m financing and xx.xx planned site modernizations support an expansion signal, not observed backup-only service revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Energy-service activity supports the role; the modeled provider-as-buyer subcontract share is not established.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Energy-service activity supports the role; the modeled provider-as-buyer subcontract share is not established.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: More than xx.xx% weak/off-grid project exposure constrains service-cohort concentration, not the global grid mix.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: More than xx.xx% weak/off-grid project exposure constrains service-cohort concentration, not the global grid mix.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The project confirms disconnected-site commercial demand; its weak/off-grid combined statistic does not separate those categories.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The project confirms disconnected-site commercial demand; its weak/off-grid combined statistic does not separate those categories.
11. Fingrid - How to Participate in the Reserve Markets
    - Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue. ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Applicable owner permission and market agreements are commercial access gates. They constrain forecast mixed-duty adoption without measuring its Global percentage. ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))
12. OECD - High-capacity broadband networks gain ground across OECD, October 13, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: High mature-market fibre adoption is retained as a saturation counterforce to the purchasing forecast.
13. PowerSafe SBS Batteries | EnerSys
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Named telecom batteries support the battery-unit offering boundary; allocation weights are assumed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Named telecom batteries support the battery-unit offering boundary; allocation weights are assumed.

14. Vertiv NetSure M Series
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Configured enclosure, power and battery options support broader system classification, not universal bundle inclusion.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Configured enclosure, power and battery options support broader system classification, not universal bundle inclusion.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A marketed outdoor enclosure supports a protection option; global adoption and configuration proportions remain modeled.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A marketed outdoor enclosure supports a protection option; global adoption and configuration proportions remain modeled.
15. Ofcom - Network and Service Resilience Guidance for Communications Providers, June 16, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Core is a distinct, comparatively concentrated function with explicit backup expectations; global spending remains estimated.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Core is a distinct, comparatively concentrated function with explicit backup expectations; global spending remains estimated.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The stated xx.xx-xx.xx-fold site-scale distinction motivates lower-value, more numerous transport purchase equivalents.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The stated xx.xx-xx.xx-fold site-scale distinction motivates lower-value, more numerous transport purchase equivalents.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Peering and non-Internet interconnection are distinct functions; attributable backup purchase values are not disclosed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Peering and non-Internet interconnection are distinct functions; attributable backup purchase values are not disclosed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: June 2026 guidance identifies approximately four hours as good practice for active fixed-access cabinets. This supports a conditional Extended purchasing shift, not completed orders or a Global mandate. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/network-and-service-resilience-guidance-for-communications-providerspdf?v=xx.xx))
16. Technology and Tools | First Responder Network Authority
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Radio access, transport backhaul and core are separate network functions, supporting functional attribution without duplicate facility counting.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Radio access, transport backhaul and core are separate network functions, supporting functional attribution without duplicate facility counting.
17. Mobile Network Hardening Program | Australian Department of Infrastructure
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Completed battery enhancements and broader resilience projects provide a delivered regional demand signal, not a global forecast rate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Completed battery enhancements and broader resilience projects provide a delivered regional demand signal, not a global forecast rate.
18. BT - Digital Voice for Business Service Schedule, May 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Business customers bear backup-power expense, supporting a distinct institutional/business payer route rather than consumer eligibility extrapolation.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Business customers bear backup-power expense, supporting a distinct institutional/business payer route rather than consumer eligibility extrapolation.

19. Los Angeles Metro - Board Report 2024-1128, UPS Battery Replacement
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Completed and additional UPS battery replacements support continuing underground demand; mixed-load project budgets are not telecom-only revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Completed and additional UPS battery replacements support continuing underground demand; mixed-load project budgets are not telecom-only revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The transit authority's purchasing program supports an institutional own-use role, not its global spending proportion.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The transit authority's purchasing program supports an institutional own-use role, not its global spending proportion.
20. ETSI EN 300 019-1-3 V3.1.1 - Stationary Use at Weatherprotected Locations, May 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Weather-protected categories distinguish enclosure from environmental control; the standard does not measure market mix.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Weather-protected categories distinguish enclosure from environmental control; the standard does not measure market mix.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Maintained temperature control is a separate classification premise for the modeled conditional allocation.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Maintained temperature control is a separate classification premise for the modeled conditional allocation.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Enclosed locations without temperature control are distinguished from controlled locations.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Enclosed locations without temperature control are distinguished from controlled locations.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Partial weather protection is recognized separately; sales weights and future adoption remain assumed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Partial weather protection is recognized separately; sales weights and future adoption remain assumed.
21. ETSI EN 300 019-1-4 V3.1.1 - Stationary Use at Non-Weatherprotected Locations, May 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Non-weather-protected locations form a distinct classification regime, not a measured global spending pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Non-weather-protected locations form a distinct classification regime, not a measured global spending pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Sheltered non-weather-protected locations support the named conditional category.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Sheltered non-weather-protected locations support the named conditional category.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Open-air locations are separately recognized; their purchasing mix remains modeled.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Open-air locations are separately recognized; their purchasing mix remains modeled.

22. DC Power Plant / Rectifiers - UPS Rental
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Battery and complete DC-plant rentals establish delivery-category occurrence; global fees and utilization are not disclosed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Battery and complete DC-plant rentals establish delivery-category occurrence; global fees and utilization are not disclosed.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Commercial rental availability is a role premise only; modeled lessor sub-hire procurement remains unverified.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Commercial rental availability is a role premise only; modeled lessor sub-hire procurement remains unverified.
23. Helios Towers - Full Year Results 2025, March 12, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Grid-integration investment supplies a connection-improvement counterforce used conditionally in the forecast.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Grid-integration investment supplies a connection-improvement counterforce used conditionally in the forecast.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Reported xx.xx-hour average daily grid availability supports weak-grid commercial exposure, without a global classification share.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Reported xx.xx-hour average daily grid availability supports weak-grid commercial exposure, without a global classification share.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Grid integration and alternative-power investment qualify assumptions of permanently unchanged disconnected-site exposure.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Grid integration and alternative-power investment qualify assumptions of permanently unchanged disconnected-site exposure.
24. Telecommunications | Aggreko US
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Telecom battery-storage rental for temporary continuity supports delivery occurrence, not the estimated global fee scale.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom battery-storage rental for temporary continuity supports delivery occurrence, not the estimated global fee scale.
25. EnerSys PowerSafe SBS Front Terminal Batteries | Alpine Power Systems
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A named battery distributor supports the intermediary route; its listing is not a global channel-sales observation.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A named battery distributor supports the intermediary route; its listing is not a global channel-sales observation.
26. DC Power Services | Vertiv
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Cross-manufacturer projects and narrower upgrades support integration-prime and supported-replacement routes; numerical route proportions remain assumed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Cross-manufacturer projects and narrower upgrades support integration-prime and supported-replacement routes; numerical route proportions remain assumed.

27. Shuangdeng Group Co., Ltd. - Global Offering Prospectus, August 18, 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The company's own five-month 2025 lead-acid realization of RMB520.xx.xx/kWh constrains the relative-price bridge; syndicated industry claims are excluded. Forecast convergence remains assumed. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The company's own five-month 2025 lead-acid realization of RMB520.xx.xx/kWh constrains the relative-price bridge; syndicated industry claims are excluded. Forecast convergence remains assumed. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Own lithium-ion realization of RMB595.xx.xx/kWh is an input to the Lithium-Based value model, not a Global share or a Lithium-Metal sales observation. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Own lithium-ion realization of RMB595.xx.xx/kWh is an input to the Lithium-Based value model, not a Global share or a Lithium-Metal sales observation. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
28. Amara Raja Crosses 1 GWh Lithium Storage Deployment Powering India's Telecom Networks
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The April xx.xx 2026 disclosure reports approximately xx.xx GWh across xx.xx cumulative telecom lithium sites over four years. This is a commercial adoption scale check, not annual Global revenue or a supplier-share input. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The April xx.xx 2026 disclosure reports approximately xx.xx GWh across xx.xx cumulative telecom lithium sites over four years. This is a commercial adoption scale check, not annual Global revenue or a supplier-share input. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The disclosed deployment identifies lithium-ion commercialization at scale, supporting the subtype's established commercial position without directly measuring its conditional Global share. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The disclosed deployment identifies lithium-ion commercialization at scale, supporting the subtype's established commercial position without directly measuring its conditional Global share. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
29. Central Office Power Systems - EnerSys
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The central-office portfolio identifies Flooded Lead-Acid as a distinct telecom alternative, supporting the legacy-network category mapping but not its purchasing fraction. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The central-office portfolio identifies Flooded Lead-Acid as a distinct telecom alternative, supporting the legacy-network category mapping but not its purchasing fraction. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The portfolio separately identifies Valve-Regulated Lead-Acid, supporting the within-lead construction boundary used by the model. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The portfolio separately identifies Valve-Regulated Lead-Acid, supporting the within-lead construction boundary used by the model. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))

30. PowerSafe OPzV Batteries - EnerSys

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: EnerSys identifies OPzV as Gel and lists telecom applications. This supports commercial subtype mapping, not the assumed Gel/AGM volume or price mix. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-opzv/))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: EnerSys identifies OPzV as Gel and lists telecom applications. This supports commercial subtype mapping, not the assumed Gel/AGM volume or price mix. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-opzv/))

31. Bolloré - 2017 Registration Document

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The official filing identifies LMP professional outage-protection applications including telecom relays. This is a dated commercial boundary input, not evidence of 2025 telecom shipment value. ([bollore.com](https://www.bollore.com/wp-content/uploads/2018/xx.xx/bollore_ddr_2017_gb_bag-xx.xx-juin.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The official filing identifies LMP professional outage-protection applications including telecom relays. This is a dated commercial boundary input, not evidence of 2025 telecom shipment value. ([bollore.com](https://www.bollore.com/wp-content/uploads/2018/xx.xx/bollore_ddr_2017_gb_bag-xx.xx-juin.pdf))

32. Bolloré - Business Report 2025

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The 2025 report establishes continuing Lithium Metal Polymer commercial applications in electricity storage and buses, while omitting separately attributable telecom sales. It constrains the low-access expected-purchase model; no capacity-to-sales conversion is used. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The 2025 report establishes continuing Lithium Metal Polymer commercial applications in electricity storage and buses, while omitting separately attributable telecom sales. It constrains the low-access expected-purchase model; no capacity-to-sales conversion is used. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The report preserves the distinction between LMP and conventional lithium-ion, supporting the exhaustive subtype attribution rule rather than treating polymer packaging as Lithium-Metal. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The report preserves the distinction between LMP and conventional lithium-ion, supporting the exhaustive subtype attribution rule rather than treating polymer packaging as Lithium-Metal. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))

33. AT&T to Replace U-Verse Cabinet Batteries - Fierce Network, January 15, 2008

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The January xx.xx 2008 report corroborates AT&T's replacement of approximately xx.xx Avestor batteries after the supplier's closure. The obsolete stock is therefore not carried into the 2025 or 2032 purchasing numerator. ([fierce-network.com](https://www.fierce-network.com/telecom/at-t-to-replace-u-verse-cabinet-batteries))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The January xx.xx 2008 report corroborates AT&T's replacement of approximately xx.xx Avestor batteries after the supplier's closure. The obsolete stock is therefore not carried into the 2025 or 2032 purchasing numerator. ([fierce-network.com](https://www.fierce-network.com/telecom/at-t-to-replace-u-verse-cabinet-batteries))

34. PowerSafe NiCd Batteries - EnerSys
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: EnerSys identifies Nickel-Cadmium for central offices and outside plant, supporting the modeled legacy telecom cohort but not its installed attachment or replacement spending. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-nicd/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: EnerSys identifies Nickel-Cadmium for central offices and outside plant, supporting the modeled legacy telecom cohort but not its installed attachment or replacement spending. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-nicd/))
35. FDK Ni-MH Battery Is Chosen for the Cellect 600 Product of Alpha Technologies
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The October xx.xx 2015 announcement identifies NiMH in Alpha's Cellect xx.xx small-cell backup proposition. It supports a historical cohort rather than current fulfillment or assumed surviving stock. ([fdk.com](https://www.fdk.com/whatsnew-e/release20151019-e.html))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The October xx.xx 2015 announcement identifies NiMH in Alpha's Cellect xx.xx small-cell backup proposition. It supports a historical cohort rather than current fulfillment or assumed surviving stock. ([fdk.com](https://www.fdk.com/whatsnew-e/release20151019-e.html))
36. Products - Encell Technology
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Encell positions its Fused Iron Nickel-Iron battery for telecom. This supports the commercial category lead, while current purchases and attachment remain modeled. ([encell.com](https://encell.com/products/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Encell positions its Fused Iron Nickel-Iron battery for telecom. This supports the commercial category lead, while current purchases and attachment remain modeled. ([encell.com](https://encell.com/products/))
37. Telecom/5G - ZAF Energy Systems
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: ZAF positions Nickel-Zinc for telecom/5G. Its supplier proposition supports application mapping, not the modeled annual attachment or threefold forecast value multiplier. ([zafsys.com](https://zafsys.com/telecom-5g/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: ZAF positions Nickel-Zinc for telecom/5G. Its supplier proposition supports application mapping, not the modeled annual attachment or threefold forecast value multiplier. ([zafsys.com](https://zafsys.com/telecom-5g/))
38. HORIEN Salt Battery Solutions and Inlyte Energy Announce a Strategic Partnership
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: HORIEN's March xx.xx 2025 statement identifies sodium-metal-chloride telecom backup. Its separate partnership announcement is not counted as delivered telecom sales. ([horien.com](https://horien.com/wp-content/uploads/2025/xx.xx/Press-Release_HORIEN-Inlyte-International-Version.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: HORIEN's March xx.xx 2025 statement identifies sodium-metal-chloride telecom backup. Its separate partnership announcement is not counted as delivered telecom sales. ([horien.com](https://horien.com/wp-content/uploads/2025/xx.xx/Press-Release_HORIEN-Inlyte-International-Version.pdf))
39. Energy Backup - Phinergy
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Phinergy markets Aluminum-Air continuity offerings to telecom operators and tower companies. The source supports category and buyer mapping, not the modeled installed attachment or replacement numerator. ([phinergy.com](https://phinergy.com/solutions/energy-backup/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Phinergy markets Aluminum-Air continuity offerings to telecom operators and tower companies. The source supports category and buyer mapping, not the modeled installed attachment or replacement numerator. ([phinergy.com](https://phinergy.com/solutions/energy-backup/))

40. Australian Flow Batteries - RFB40X Series

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: RFB40X literature identifies telecom among stationary commercial applications. It supports the qualifying project boundary, not delivered projects, revenue or assumed attachment. ([afb.energy](https://www.afb.energy/wp-content/uploads/2025/xx.xx/Australian-Flow-Batteries-RFB40X-Series-2024.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: RFB40X literature identifies telecom among stationary commercial applications. It supports the qualifying project boundary, not delivered projects, revenue or assumed attachment. ([afb.energy](https://www.afb.energy/wp-content/uploads/2025/xx.xx/Australian-Flow-Batteries-RFB40X-Series-2024.pdf))

41. PowerReserve - Verizon Residential Accessories

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Verizon advertises an alkaline-cell voice-backup device at USD39.xx.xx excluding batteries. This supports a qualifying primary-zinc premises route and price comparator, not assumed Global attachment or first-sale realization. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Verizon advertises an alkaline-cell voice-backup device at USD39.xx.xx excluding batteries. This supports a qualifying primary-zinc premises route and price comparator, not assumed Global attachment or first-sale realization. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Advertised voice-only protection reaches xx.xx hours; internet and television protection are excluded. This supports service-specific Day-Scale classification. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Advertised voice-only protection reaches xx.xx hours; internet and television protection are excluded. This supports service-specific Day-Scale classification. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))

42. Alkaline Manganese Dioxide Handbook and Application Manual - Energizer

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The manufacturer's alkaline manganese-dioxide classification supports the zinc-family mapping for qualifying premises backup. It provides no telecom purchasing weight. ([data.energizer.com](https://data.energizer.com/pdfs/alkaline_appman.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The manufacturer's alkaline manganese-dioxide classification supports the zinc-family mapping for qualifying premises backup. It provides no telecom purchasing weight. ([data.energizer.com](https://data.energizer.com/pdfs/alkaline_appman.pdf))

43. ITU-T Work Programme - Aqueous Zinc-Based Battery Systems for Base Station Applications

- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The aqueous-zinc base-station work item is Under study with December 2027 timing. It constrains the forecast commercialization assumption but establishes neither approval nor customer purchases. ([itu.int](https://www.itu.int/itu-t/workprog/wp_item.aspx?isn=xx.xx))

44. ITU-T L.1397 - Battery System with Integrated Control and Monitoring Information Model

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The October 2025 recommendation names lithium-lead, lithium-sodium and sodium-lead combinations. This supports mixed-family classification, not inseparable pricing or Global prevalence. ([itu.int](https://www.itu.int/rec/dologin_pub.asp?id=T-REC-L.xx.xx-xx.xx-I%xx.xx%21PDF-E&lang=e&type=items))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The October 2025 recommendation names lithium-lead, lithium-sodium and sodium-lead combinations. This supports mixed-family classification, not inseparable pricing or Global prevalence. ([itu.int](https://www.itu.int/rec/dologin_pub.asp?id=T-REC-L.xx.xx-xx.xx-I%xx.xx%21PDF-E&lang=e&type=items))

45. ETSI EN 300 132-1 V2.2.1 - ICT Power Supply Interface: Alternating Current
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The ICT standard identifies the protected-load AC interface, supporting output-side attribution rather than classification by chemistry or normal utility input. It supplies no sales mix. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013201v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The ICT standard identifies the protected-load AC interface, supporting output-side attribution rather than classification by chemistry or normal utility input. It supplies no sales mix. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013201v020201p.pdf))
46. ETSI EN 300 132-2 V2.8.1 - ICT Power Supply Interface: Direct Current
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The ICT standard separately identifies the DC protected-equipment interface, supporting the DC-output boundary independently of battery chemistry. It is not a purchasing census. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013202v020801p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The ICT standard separately identifies the DC protected-equipment interface, supporting the DC-output boundary independently of battery chemistry. It is not a purchasing census. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013202v020801p.pdf))
47. Vertiv NetSure Inverter Series - Converged AC and DC Power System
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: NetSure Inverter Series identifies AC and DC loads supported through a common battery bank. This establishes a combined-output proposition, not its modeled purchasing fraction or future adoption. ([vertiv.com](https://www.vertiv.com/en-us/products-catalog/critical-power/dc-power-systems/vertiv-netsure-inverter-series/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: NetSure Inverter Series identifies AC and DC loads supported through a common battery bank. This establishes a combined-output proposition, not its modeled purchasing fraction or future adoption. ([vertiv.com](https://www.vertiv.com/en-us/products-catalog/critical-power/dc-power-systems/vertiv-netsure-inverter-series/))

48. ETSI EN 302 099 V2.2.1 - Powering of Equipment in Access Network
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Local powering uses a colocated source; allocation follows the backed source rather than receiver inventory. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Local powering uses a colocated source; allocation follows the backed source rather than receiver inventory. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Remote-source backup is distinguished from local backup, supporting the parent commercial boundary but not purchasing weights. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Remote-source backup is distinguished from local backup, supporting the parent commercial boundary but not purchasing weights. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Centralized powering originates at a telecommunications center. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Centralized powering originates at a telecommunications center. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Cluster powering uses a source outside the telecommunications center, supporting separation within Remote Powering. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Cluster powering uses a source outside the telecommunications center, supporting separation within Remote Powering. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Reverse powering is customer-origin supply, supporting source-level attribution of the battery-backed provider package. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Reverse powering is customer-origin supply, supporting source-level attribution of the battery-backed provider package. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))

49. Set Up Your Battery Backup - AT&T G.Fast Service with BGW210

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The 2021 provider document names a battery-backed package protecting G.fast customer and distribution equipment through reverse power feed. It establishes a dated source-backup proposition, not current Global quantities. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The 2021 provider document names a battery-backed package protecting G.fast customer and distribution equipment through reverse power feed. It establishes a dated source-backup proposition, not current Global quantities. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The provider advertises a xx.xx-hour service window for the particular package, supporting Day-Scale mapping without a universal premises-duration inference. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The provider advertises a xx.xx-hour service window for the particular package, supporting Day-Scale mapping without a universal premises-duration inference. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

50. DNA Tower Offers Battery Capacity in Electricity Reserve Markets with Elisa DES

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The June xx.xx 2025 announcement reports DNA Tower batteries connected to Finnish reserve markets while retaining outage continuity. This establishes a specific mixed-duty implementation, not Global attachment or guaranteed returns. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/press-releases/dna-tower-becomes-worlds-first-tower-company-to-offer-battery-capacity-in-electricity-reserve-markets-with-elisa-des))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The June xx.xx 2025 announcement reports DNA Tower batteries connected to Finnish reserve markets while retaining outage continuity. This establishes a specific mixed-duty implementation, not Global attachment or guaranteed returns. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/press-releases/dna-tower-becomes-worlds-first-tower-company-to-offer-battery-capacity-in-electricity-reserve-markets-with-elisa-des))

51. Case Elisa: Virtual Power Plant in the Telecom Industry

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The company case reports over 2,000 aggregated sites and approximately xx.xx MWh. This is an installed commercial scale check, not annual purchasing value or Global prevalence. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/customer-stories/elisacase))

21.11. Italy

Table 684. Italy Telecom Battery Backup System Market Size, 2017-2032 (USD Million)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Italy	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 685. Italy Telecom Battery Backup System Market Size, by Offering, 2017-2032 (USD Million)

Offering	2023	2024	2025	2026	2027	2032	CAGR (%)
Battery Units and Assemblies	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Complete Backup Systems	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 686. Italy Telecom Battery Backup System Market Size, by Battery Technology, 2017-2032 (USD Million)

Battery Technology	2023	2024	2025	2026	2027	2032	CAGR (%)
Aqueous Zinc-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Flow Batteries	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lithium-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Metal-Air	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Multi-Chemistry	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Sodium-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 687. Italy Telecom Battery Backup System Market Size, by Lead-Acid, 2017-2032 (USD Million)

Lead-Acid	2023	2024	2025	2026	2027	2032	CAGR (%)
Flooded Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Valve-Regulated Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 688. Italy Telecom Battery Backup System Market Size, by Valve-Regulated Lead-Acid, 2017-2032 (USD Million)

Valve-Regulated Lead-Acid	2023	2024	2025	2026	2027	2032	CAGR (%)
Absorbent Glass Mat	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Gel	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 689. Italy Telecom Battery Backup System Market Size, by Lithium-Based, 2017-2032 (USD Million)

Lithium-Based	2023	2024	2025	2026	2027	2032	CAGR (%)
Lithium-Ion	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lithium-Metal	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 690. Italy Telecom Battery Backup System Market Size, by Nickel-Based, 2017-2032 (USD Million)

Nickel-Based	2023	2024	2025	2026	2027	2032	CAGR (%)
Nickel-Cadmium	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Iron	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Metal Hydride	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Zinc	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 691. Italy Telecom Battery Backup System Market Size, by Power Interface, 2017-2032 (USD Million)

Power Interface	2023	2024	2025	2026	2027	2032	CAGR (%)
AC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Combined AC/DC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
DC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 692. Italy Telecom Battery Backup System Market Size, by Network Application, 2017-2032 (USD Million)

Network Application	2023	2024	2025	2026	2027	2032	CAGR (%)
Core Networks & Network Control	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Customer-Premises Connectivity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Network Interconnection & Peering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Transport & Backhaul Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Wireless Access Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Wireline Access Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 693. Italy Telecom Battery Backup System Market Size, by Buyer Type, 2017-2032 (USD Million)

Buyer Type	2023	2024	2025	2026	2027	2032	CAGR (%)
Business & Institutional Connectivity Owners	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Equipment Leasing & Rental Providers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Household Connectivity Purchasers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Energy-Service Providers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Infrastructure & Tower Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecommunications Network Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 694. Italy Telecom Battery Backup System Market Size, by Installation Environment, 2017-2032 (USD Million)

Installation Environment	2023	2024	2025	2026	2027	2032	CAGR (%)
Non-Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Underground Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 695. Italy Telecom Battery Backup System Market Size, by Weather-Protected Locations, 2017-2032 (USD Million)

Weather-Protected Locations	2023	2024	2025	2026	2027	2032	CAGR (%)
Enclosed Locations Without Temperature Control	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Partly Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Temperature-Controlled Enclosed Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 696. Italy Telecom Battery Backup System Market Size, by Non-Weather-Protected Locations, 2017-2032 (USD Million)

Non-Weather-Protected Locations	2023	2024	2025	2026	2027	2032	CAGR (%)
Open-Air Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Sheltered Non-Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 697. Italy Telecom Battery Backup System Market Size, by Powering Architecture, 2017-2032 (USD Million)

Powering Architecture	2023	2024	2025	2026	2027	2032	CAGR (%)
Local Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Remote Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 698. Italy Telecom Battery Backup System Market Size, by Remote Powering, 2017-2032 (USD Million)

Remote Powering	2023	2024	2025	2026	2027	2032	CAGR (%)
Centralized Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Cluster Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reverse Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 699. Italy Telecom Battery Backup System Market Size, by Commercial Delivery Model, 2017-2032 (USD Million)

Commercial Delivery Model	2023	2024	2025	2026	2027	2032	CAGR (%)
Leased or Rented Equipment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Managed Backup Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Owned Equipment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 700. Italy Telecom Battery Backup System Market Size, by Sales Channel, 2017-2032 (USD Million)

Sales Channel	2023	2024	2025	2026	2027	2032	CAGR (%)
Direct Manufacturer Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Distributor and Retailer Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Systems Integrator and Contractor Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Service Provider Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 701. Italy Telecom Battery Backup System Market Size, by Grid Availability, 2017-2032 (USD Million)

Grid Availability	2023	2024	2025	2026	2027	2032	CAGR (%)
Off-Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reliable Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Unreliable Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 702. Italy Telecom Battery Backup System Market Size, by Backup Duty, 2017-2032 (USD Million)

Backup Duty	2023	2024	2025	2026	2027	2032	CAGR (%)
Backup with Energy Management	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reserve-Only Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 703. Italy Telecom Battery Backup System Market Size, by Backup Autonomy, 2017-2032 (USD Million)

Backup Autonomy	2023	2024	2025	2026	2027	2032	CAGR (%)
Day-Scale Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Extended-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Intermediate-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Short-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. China Tower - 2025 Annual Results, March 18, 2026
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The xx.xx.149m-site inventory constrains wireless activity; forecast purchasing remains modeled.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The xx.xx.149m-site inventory constrains wireless activity; forecast purchasing remains modeled.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Replacement/improvement CAPEX fell from RMB6837m to RMB5474m, qualifying automatic replacement-led growth.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Replacement/improvement CAPEX fell from RMB6837m to RMB5474m, qualifying automatic replacement-led growth.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Disclosed tower operations establish a material infrastructure purchasing setting, not a global buyer share.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Disclosed tower operations establish a material infrastructure purchasing setting, not a global buyer share.
2. Broadband Commission - The State of Broadband: Our Digital World, 2025
   - Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))

3. Battery Backup - Meriwether Lewis Electric Cooperative
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Separately available replacement batteries support a battery-only replacement route.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Separately available replacement batteries support a battery-only replacement route.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The USD100-plus-tax device is a retail comparator, not an observed 2025 first-sale realization.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The USD100-plus-tax device is a retail comparator, not an observed 2025 first-sale realization.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Customer purchase and replacement responsibilities support household-funded procurement.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Customer purchase and replacement responsibilities support household-funded procurement.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Purchased equipment does not automatically include continuing service-plan coverage.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Purchased equipment does not automatically include continuing service-plan coverage.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Local provider sales establish this route alongside manufacturer-direct purchasing.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Local provider sales establish this route alongside manufacturer-direct purchasing.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The provider advertises approximately five hours for combined voice and internet, supporting service-specific Extended classification, not an observed 2025 purchase mix. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The provider advertises approximately five hours for combined voice and internet, supporting service-specific Extended classification, not an observed 2025 purchase mix. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The same proposition advertises xx.xx-hour voice-only protection, supporting Day-Scale mapping without equating duration with a universally larger purchase basket. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The same proposition advertises xx.xx-hour voice-only protection, supporting Day-Scale mapping without equating duration with a universally larger purchase basket. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
4. EnerSys 2026 Proxy Statement and Annual Report
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Direct customer supply is disclosed within a diversified international business; telecom channel proportions are not disclosed.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Direct customer supply is disclosed within a diversified international business; telecom channel proportions are not disclosed.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Distributor supply is disclosed, supporting route occurrence rather than its modeled sales weight.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Distributor supply is disclosed, supporting route occurrence rather than its modeled sales weight.

5. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: Audited 2025 telecom revenue of RMB1,xx.xx declined xx.xx%; telecom purchasing weakness is retained as counterevidence to automatic substitution-led aggregate growth. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Audited 2025 telecom revenue of RMB1,xx.xx declined xx.xx%; telecom purchasing weakness is retained as counterevidence to automatic substitution-led aggregate growth. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: Telecom-specific results are separated from adjacent data-center and power-storage growth when assessing lithium substitution; the filing does not disclose the modeled Global split. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom-specific results are separated from adjacent data-center and power-storage growth when assessing lithium substitution; the filing does not disclose the modeled Global split. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

6. Amara Raja Energy & Mobility - Q2/H1 FY2026 Earnings Presentation, November 6, 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand. ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))

7. IHS Holding Limited - First-Quarter 2026 Financial Statements

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement. ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

8. Ofcom - Mobile RAN Power Resilience: Technical Report and CFI Update, February 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The evaluated xx.xx-minute alternative supplies a subhour commercial-planning anchor, not observed shipments.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The evaluated xx.xx-minute alternative supplies a subhour commercial-planning anchor, not observed shipments.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: One-hour and two-hour alternatives anchor the analytical Intermediate band. Aggregate scenarios include multiple years of operating costs and are not annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: One-hour and two-hour alternatives anchor the analytical Intermediate band. Aggregate scenarios include multiple years of operating costs and are not annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The four-hour alternative anchors the Extended band's lower boundary without establishing a Global minimum or purchasing allocation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The four-hour alternative anchors the Extended band's lower boundary without establishing a Global minimum or purchasing allocation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

9. Ofcom - Your Landline Is Going Digital: What You Need to Know

- Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
- Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Restricted provider-funded eligibility constrains operator-funded premises attribution and forecast adoption.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Restricted provider-funded eligibility constrains operator-funded premises attribution and forecast adoption.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Eligibility is not universal household funding; purchaser proportions remain assumptions.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Eligibility is not universal household funding; purchaser proportions remain assumptions.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Eligibility-limited provider backup and the one-hour minimum for qualifying customers constrain premises demand and anchor the Intermediate band's lower boundary. They do not establish universal adoption. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Eligibility-limited provider backup and the one-hour minimum for qualifying customers constrain premises demand and anchor the Intermediate band's lower boundary. They do not establish universal adoption. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

10. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone
    - Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue. ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
    - Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions. ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: USD45m financing and xx.xx planned site modernizations support an expansion signal, not observed backup-only service revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: USD45m financing and xx.xx planned site modernizations support an expansion signal, not observed backup-only service revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Energy-service activity supports the role; the modeled provider-as-buyer subcontract share is not established.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Energy-service activity supports the role; the modeled provider-as-buyer subcontract share is not established.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: More than xx.xx% weak/off-grid project exposure constrains service-cohort concentration, not the global grid mix.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: More than xx.xx% weak/off-grid project exposure constrains service-cohort concentration, not the global grid mix.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The project confirms disconnected-site commercial demand; its weak/off-grid combined statistic does not separate those categories.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The project confirms disconnected-site commercial demand; its weak/off-grid combined statistic does not separate those categories.
11. Fingrid - How to Participate in the Reserve Markets
    - Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue. ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Applicable owner permission and market agreements are commercial access gates. They constrain forecast mixed-duty adoption without measuring its Global percentage. ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))
12. Cellnex - Integrated Annual Report 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Italian telecom site portfolio constrains the national network pool.

13. PowerSafe SBS Batteries | EnerSys
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Named telecom batteries support the battery-unit offering boundary; allocation weights are assumed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Named telecom batteries support the battery-unit offering boundary; allocation weights are assumed.
14. Vertiv NetSure M Series
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Configured enclosure, power and battery options support broader system classification, not universal bundle inclusion.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Configured enclosure, power and battery options support broader system classification, not universal bundle inclusion.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A marketed outdoor enclosure supports a protection option; global adoption and configuration proportions remain modeled.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A marketed outdoor enclosure supports a protection option; global adoption and configuration proportions remain modeled.
15. Ofcom - Network and Service Resilience Guidance for Communications Providers, June 16, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Core is a distinct, comparatively concentrated function with explicit backup expectations; global spending remains estimated.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Core is a distinct, comparatively concentrated function with explicit backup expectations; global spending remains estimated.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The stated xx.xx-xx.xx-fold site-scale distinction motivates lower-value, more numerous transport purchase equivalents.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The stated xx.xx-xx.xx-fold site-scale distinction motivates lower-value, more numerous transport purchase equivalents.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Peering and non-Internet interconnection are distinct functions; attributable backup purchase values are not disclosed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Peering and non-Internet interconnection are distinct functions; attributable backup purchase values are not disclosed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: June 2026 guidance identifies approximately four hours as good practice for active fixed-access cabinets. This supports a conditional Extended purchasing shift, not completed orders or a Global mandate. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/network-and-service-resilience-guidance-for-communications-providerspdf?v=xx.xx))
16. Technology and Tools | First Responder Network Authority
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Radio access, transport backhaul and core are separate network functions, supporting functional attribution without duplicate facility counting.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Radio access, transport backhaul and core are separate network functions, supporting functional attribution without duplicate facility counting.
17. Mobile Network Hardening Program | Australian Department of Infrastructure
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Completed battery enhancements and broader resilience projects provide a delivered regional demand signal, not a global forecast rate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Completed battery enhancements and broader resilience projects provide a delivered regional demand signal, not a global forecast rate.

18. BT - Digital Voice for Business Service Schedule, May 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Business customers bear backup-power expense, supporting a distinct institutional/business payer route rather than consumer eligibility extrapolation.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Business customers bear backup-power expense, supporting a distinct institutional/business payer route rather than consumer eligibility extrapolation.
19. Los Angeles Metro - Board Report 2024-1128, UPS Battery Replacement
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Completed and additional UPS battery replacements support continuing underground demand; mixed-load project budgets are not telecom-only revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Completed and additional UPS battery replacements support continuing underground demand; mixed-load project budgets are not telecom-only revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The transit authority's purchasing program supports an institutional own-use role, not its global spending proportion.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The transit authority's purchasing program supports an institutional own-use role, not its global spending proportion.
20. ETSI EN 300 019-1-3 V3.1.1 - Stationary Use at Weatherprotected Locations, May 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Weather-protected categories distinguish enclosure from environmental control; the standard does not measure market mix.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Weather-protected categories distinguish enclosure from environmental control; the standard does not measure market mix.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Maintained temperature control is a separate classification premise for the modeled conditional allocation.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Maintained temperature control is a separate classification premise for the modeled conditional allocation.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Enclosed locations without temperature control are distinguished from controlled locations.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Enclosed locations without temperature control are distinguished from controlled locations.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Partial weather protection is recognized separately; sales weights and future adoption remain assumed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Partial weather protection is recognized separately; sales weights and future adoption remain assumed.
21. ETSI EN 300 019-1-4 V3.1.1 - Stationary Use at Non-Weatherprotected Locations, May 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Non-weather-protected locations form a distinct classification regime, not a measured global spending pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Non-weather-protected locations form a distinct classification regime, not a measured global spending pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Sheltered non-weather-protected locations support the named conditional category.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Sheltered non-weather-protected locations support the named conditional category.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Open-air locations are separately recognized; their purchasing mix remains modeled.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Open-air locations are separately recognized; their purchasing mix remains modeled.

22. DC Power Plant / Rectifiers - UPS Rental
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Battery and complete DC-plant rentals establish delivery-category occurrence; global fees and utilization are not disclosed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Battery and complete DC-plant rentals establish delivery-category occurrence; global fees and utilization are not disclosed.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Commercial rental availability is a role premise only; modeled lessor sub-hire procurement remains unverified.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Commercial rental availability is a role premise only; modeled lessor sub-hire procurement remains unverified.
23. Helios Towers - Full Year Results 2025, March 12, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Grid-integration investment supplies a connection-improvement counterforce used conditionally in the forecast.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Grid-integration investment supplies a connection-improvement counterforce used conditionally in the forecast.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Reported xx.xx-hour average daily grid availability supports weak-grid commercial exposure, without a global classification share.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Reported xx.xx-hour average daily grid availability supports weak-grid commercial exposure, without a global classification share.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Grid integration and alternative-power investment qualify assumptions of permanently unchanged disconnected-site exposure.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Grid integration and alternative-power investment qualify assumptions of permanently unchanged disconnected-site exposure.
24. Telecommunications | Aggreko US
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Telecom battery-storage rental for temporary continuity supports delivery occurrence, not the estimated global fee scale.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom battery-storage rental for temporary continuity supports delivery occurrence, not the estimated global fee scale.
25. EnerSys PowerSafe SBS Front Terminal Batteries | Alpine Power Systems
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A named battery distributor supports the intermediary route; its listing is not a global channel-sales observation.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A named battery distributor supports the intermediary route; its listing is not a global channel-sales observation.
26. DC Power Services | Vertiv
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Cross-manufacturer projects and narrower upgrades support integration-prime and supported-replacement routes; numerical route proportions remain assumed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Cross-manufacturer projects and narrower upgrades support integration-prime and supported-replacement routes; numerical route proportions remain assumed.

27. Shuangdeng Group Co., Ltd. - Global Offering Prospectus, August 18, 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The company's own five-month 2025 lead-acid realization of RMB520.xx.xx/kWh constrains the relative-price bridge; syndicated industry claims are excluded. Forecast convergence remains assumed. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The company's own five-month 2025 lead-acid realization of RMB520.xx.xx/kWh constrains the relative-price bridge; syndicated industry claims are excluded. Forecast convergence remains assumed. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Own lithium-ion realization of RMB595.xx.xx/kWh is an input to the Lithium-Based value model, not a Global share or a Lithium-Metal sales observation. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Own lithium-ion realization of RMB595.xx.xx/kWh is an input to the Lithium-Based value model, not a Global share or a Lithium-Metal sales observation. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
28. Amara Raja Crosses 1 GWh Lithium Storage Deployment Powering India's Telecom Networks
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The April xx.xx 2026 disclosure reports approximately xx.xx GWh across xx.xx cumulative telecom lithium sites over four years. This is a commercial adoption scale check, not annual Global revenue or a supplier-share input. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The April xx.xx 2026 disclosure reports approximately xx.xx GWh across xx.xx cumulative telecom lithium sites over four years. This is a commercial adoption scale check, not annual Global revenue or a supplier-share input. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The disclosed deployment identifies lithium-ion commercialization at scale, supporting the subtype's established commercial position without directly measuring its conditional Global share. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The disclosed deployment identifies lithium-ion commercialization at scale, supporting the subtype's established commercial position without directly measuring its conditional Global share. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
29. Central Office Power Systems - EnerSys
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The central-office portfolio identifies Flooded Lead-Acid as a distinct telecom alternative, supporting the legacy-network category mapping but not its purchasing fraction. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The central-office portfolio identifies Flooded Lead-Acid as a distinct telecom alternative, supporting the legacy-network category mapping but not its purchasing fraction. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The portfolio separately identifies Valve-Regulated Lead-Acid, supporting the within-lead construction boundary used by the model. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The portfolio separately identifies Valve-Regulated Lead-Acid, supporting the within-lead construction boundary used by the model. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))

30. PowerSafe OPzV Batteries - EnerSys

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: EnerSys identifies OPzV as Gel and lists telecom applications. This supports commercial subtype mapping, not the assumed Gel/AGM volume or price mix. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-opzv/))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: EnerSys identifies OPzV as Gel and lists telecom applications. This supports commercial subtype mapping, not the assumed Gel/AGM volume or price mix. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-opzv/))

31. Bolloré - 2017 Registration Document

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The official filing identifies LMP professional outage-protection applications including telecom relays. This is a dated commercial boundary input, not evidence of 2025 telecom shipment value. ([bollore.com](https://www.bollore.com/wp-content/uploads/2018/xx.xx/bollore_ddr_2017_gb_bag-xx.xx-juin.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The official filing identifies LMP professional outage-protection applications including telecom relays. This is a dated commercial boundary input, not evidence of 2025 telecom shipment value. ([bollore.com](https://www.bollore.com/wp-content/uploads/2018/xx.xx/bollore_ddr_2017_gb_bag-xx.xx-juin.pdf))

32. Bolloré - Business Report 2025

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The 2025 report establishes continuing Lithium Metal Polymer commercial applications in electricity storage and buses, while omitting separately attributable telecom sales. It constrains the low-access expected-purchase model; no capacity-to-sales conversion is used. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The 2025 report establishes continuing Lithium Metal Polymer commercial applications in electricity storage and buses, while omitting separately attributable telecom sales. It constrains the low-access expected-purchase model; no capacity-to-sales conversion is used. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The report preserves the distinction between LMP and conventional lithium-ion, supporting the exhaustive subtype attribution rule rather than treating polymer packaging as Lithium-Metal. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The report preserves the distinction between LMP and conventional lithium-ion, supporting the exhaustive subtype attribution rule rather than treating polymer packaging as Lithium-Metal. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))

33. AT&T to Replace U-Verse Cabinet Batteries - Fierce Network, January 15, 2008

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The January xx.xx 2008 report corroborates AT&T's replacement of approximately xx.xx Avestor batteries after the supplier's closure. The obsolete stock is therefore not carried into the 2025 or 2032 purchasing numerator. ([fierce-network.com](https://www.fierce-network.com/telecom/at-t-to-replace-u-verse-cabinet-batteries))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The January xx.xx 2008 report corroborates AT&T's replacement of approximately xx.xx Avestor batteries after the supplier's closure. The obsolete stock is therefore not carried into the 2025 or 2032 purchasing numerator. ([fierce-network.com](https://www.fierce-network.com/telecom/at-t-to-replace-u-verse-cabinet-batteries))

34. PowerSafe NiCd Batteries - EnerSys
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: EnerSys identifies Nickel-Cadmium for central offices and outside plant, supporting the modeled legacy telecom cohort but not its installed attachment or replacement spending. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-nicd/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: EnerSys identifies Nickel-Cadmium for central offices and outside plant, supporting the modeled legacy telecom cohort but not its installed attachment or replacement spending. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-nicd/))
35. FDK Ni-MH Battery Is Chosen for the Cellect 600 Product of Alpha Technologies
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The October xx.xx 2015 announcement identifies NiMH in Alpha's Cellect xx.xx small-cell backup proposition. It supports a historical cohort rather than current fulfillment or assumed surviving stock. ([fdk.com](https://www.fdk.com/whatsnew-e/release20151019-e.html))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The October xx.xx 2015 announcement identifies NiMH in Alpha's Cellect xx.xx small-cell backup proposition. It supports a historical cohort rather than current fulfillment or assumed surviving stock. ([fdk.com](https://www.fdk.com/whatsnew-e/release20151019-e.html))
36. Products - Encell Technology
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Encell positions its Fused Iron Nickel-Iron battery for telecom. This supports the commercial category lead, while current purchases and attachment remain modeled. ([encell.com](https://encell.com/products/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Encell positions its Fused Iron Nickel-Iron battery for telecom. This supports the commercial category lead, while current purchases and attachment remain modeled. ([encell.com](https://encell.com/products/))
37. Telecom/5G - ZAF Energy Systems
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: ZAF positions Nickel-Zinc for telecom/5G. Its supplier proposition supports application mapping, not the modeled annual attachment or threefold forecast value multiplier. ([zafsys.com](https://zafsys.com/telecom-5g/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: ZAF positions Nickel-Zinc for telecom/5G. Its supplier proposition supports application mapping, not the modeled annual attachment or threefold forecast value multiplier. ([zafsys.com](https://zafsys.com/telecom-5g/))
38. HORIEN Salt Battery Solutions and Inlyte Energy Announce a Strategic Partnership
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: HORIEN's March xx.xx 2025 statement identifies sodium-metal-chloride telecom backup. Its separate partnership announcement is not counted as delivered telecom sales. ([horien.com](https://horien.com/wp-content/uploads/2025/xx.xx/Press-Release_HORIEN-Inlyte-International-Version.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: HORIEN's March xx.xx 2025 statement identifies sodium-metal-chloride telecom backup. Its separate partnership announcement is not counted as delivered telecom sales. ([horien.com](https://horien.com/wp-content/uploads/2025/xx.xx/Press-Release_HORIEN-Inlyte-International-Version.pdf))
39. Energy Backup - Phinergy
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Phinergy markets Aluminum-Air continuity offerings to telecom operators and tower companies. The source supports category and buyer mapping, not the modeled installed attachment or replacement numerator. ([phinergy.com](https://phinergy.com/solutions/energy-backup/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Phinergy markets Aluminum-Air continuity offerings to telecom operators and tower companies. The source supports category and buyer mapping, not the modeled installed attachment or replacement numerator. ([phinergy.com](https://phinergy.com/solutions/energy-backup/))

40. Australian Flow Batteries - RFB40X Series

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: RFB40X literature identifies telecom among stationary commercial applications. It supports the qualifying project boundary, not delivered projects, revenue or assumed attachment. ([afb.energy](https://www.afb.energy/wp-content/uploads/2025/xx.xx/Australian-Flow-Batteries-RFB40X-Series-2024.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: RFB40X literature identifies telecom among stationary commercial applications. It supports the qualifying project boundary, not delivered projects, revenue or assumed attachment. ([afb.energy](https://www.afb.energy/wp-content/uploads/2025/xx.xx/Australian-Flow-Batteries-RFB40X-Series-2024.pdf))

41. PowerReserve - Verizon Residential Accessories

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Verizon advertises an alkaline-cell voice-backup device at USD39.xx.xx excluding batteries. This supports a qualifying primary-zinc premises route and price comparator, not assumed Global attachment or first-sale realization. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Verizon advertises an alkaline-cell voice-backup device at USD39.xx.xx excluding batteries. This supports a qualifying primary-zinc premises route and price comparator, not assumed Global attachment or first-sale realization. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Advertised voice-only protection reaches xx.xx hours; internet and television protection are excluded. This supports service-specific Day-Scale classification. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Advertised voice-only protection reaches xx.xx hours; internet and television protection are excluded. This supports service-specific Day-Scale classification. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))

42. Alkaline Manganese Dioxide Handbook and Application Manual - Energizer

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The manufacturer's alkaline manganese-dioxide classification supports the zinc-family mapping for qualifying premises backup. It provides no telecom purchasing weight. ([data.energizer.com](https://data.energizer.com/pdfs/alkaline_appman.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The manufacturer's alkaline manganese-dioxide classification supports the zinc-family mapping for qualifying premises backup. It provides no telecom purchasing weight. ([data.energizer.com](https://data.energizer.com/pdfs/alkaline_appman.pdf))

43. ITU-T Work Programme - Aqueous Zinc-Based Battery Systems for Base Station Applications

- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The aqueous-zinc base-station work item is Under study with December 2027 timing. It constrains the forecast commercialization assumption but establishes neither approval nor customer purchases. ([itu.int](https://www.itu.int/itu-t/workprog/wp_item.aspx?isn=xx.xx))

44. ITU-T L.1397 - Battery System with Integrated Control and Monitoring Information Model

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The October 2025 recommendation names lithium-lead, lithium-sodium and sodium-lead combinations. This supports mixed-family classification, not inseparable pricing or Global prevalence. ([itu.int](https://www.itu.int/rec/dologin_pub.asp?id=T-REC-L.xx.xx-xx.xx-I%xx.xx%21PDF-E&lang=e&type=items))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The October 2025 recommendation names lithium-lead, lithium-sodium and sodium-lead combinations. This supports mixed-family classification, not inseparable pricing or Global prevalence. ([itu.int](https://www.itu.int/rec/dologin_pub.asp?id=T-REC-L.xx.xx-xx.xx-I%xx.xx%21PDF-E&lang=e&type=items))

45. ETSI EN 300 132-1 V2.2.1 - ICT Power Supply Interface: Alternating Current
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The ICT standard identifies the protected-load AC interface, supporting output-side attribution rather than classification by chemistry or normal utility input. It supplies no sales mix. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013201v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The ICT standard identifies the protected-load AC interface, supporting output-side attribution rather than classification by chemistry or normal utility input. It supplies no sales mix. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013201v020201p.pdf))
46. ETSI EN 300 132-2 V2.8.1 - ICT Power Supply Interface: Direct Current
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The ICT standard separately identifies the DC protected-equipment interface, supporting the DC-output boundary independently of battery chemistry. It is not a purchasing census. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013202v020801p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The ICT standard separately identifies the DC protected-equipment interface, supporting the DC-output boundary independently of battery chemistry. It is not a purchasing census. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013202v020801p.pdf))
47. Vertiv NetSure Inverter Series - Converged AC and DC Power System
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: NetSure Inverter Series identifies AC and DC loads supported through a common battery bank. This establishes a combined-output proposition, not its modeled purchasing fraction or future adoption. ([vertiv.com](https://www.vertiv.com/en-us/products-catalog/critical-power/dc-power-systems/vertiv-netsure-inverter-series/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: NetSure Inverter Series identifies AC and DC loads supported through a common battery bank. This establishes a combined-output proposition, not its modeled purchasing fraction or future adoption. ([vertiv.com](https://www.vertiv.com/en-us/products-catalog/critical-power/dc-power-systems/vertiv-netsure-inverter-series/))

48. ETSI EN 302 099 V2.2.1 - Powering of Equipment in Access Network
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Local powering uses a colocated source; allocation follows the backed source rather than receiver inventory. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Local powering uses a colocated source; allocation follows the backed source rather than receiver inventory. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Remote-source backup is distinguished from local backup, supporting the parent commercial boundary but not purchasing weights. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Remote-source backup is distinguished from local backup, supporting the parent commercial boundary but not purchasing weights. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Centralized powering originates at a telecommunications center. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Centralized powering originates at a telecommunications center. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Cluster powering uses a source outside the telecommunications center, supporting separation within Remote Powering. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Cluster powering uses a source outside the telecommunications center, supporting separation within Remote Powering. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Reverse powering is customer-origin supply, supporting source-level attribution of the battery-backed provider package. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Reverse powering is customer-origin supply, supporting source-level attribution of the battery-backed provider package. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))

49. Set Up Your Battery Backup - AT&T G.Fast Service with BGW210

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The 2021 provider document names a battery-backed package protecting G.fast customer and distribution equipment through reverse power feed. It establishes a dated source-backup proposition, not current Global quantities. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The 2021 provider document names a battery-backed package protecting G.fast customer and distribution equipment through reverse power feed. It establishes a dated source-backup proposition, not current Global quantities. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The provider advertises a xx.xx-hour service window for the particular package, supporting Day-Scale mapping without a universal premises-duration inference. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The provider advertises a xx.xx-hour service window for the particular package, supporting Day-Scale mapping without a universal premises-duration inference. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

50. DNA Tower Offers Battery Capacity in Electricity Reserve Markets with Elisa DES

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The June xx.xx 2025 announcement reports DNA Tower batteries connected to Finnish reserve markets while retaining outage continuity. This establishes a specific mixed-duty implementation, not Global attachment or guaranteed returns. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/press-releases/dna-tower-becomes-worlds-first-tower-company-to-offer-battery-capacity-in-electricity-reserve-markets-with-elisa-des))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The June xx.xx 2025 announcement reports DNA Tower batteries connected to Finnish reserve markets while retaining outage continuity. This establishes a specific mixed-duty implementation, not Global attachment or guaranteed returns. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/press-releases/dna-tower-becomes-worlds-first-tower-company-to-offer-battery-capacity-in-electricity-reserve-markets-with-elisa-des))

51. Case Elisa: Virtual Power Plant in the Telecom Industry

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The company case reports over 2,000 aggregated sites and approximately xx.xx MWh. This is an installed commercial scale check, not annual purchasing value or Global prevalence. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/customer-stories/elisacase))

21.12. Mexico

Table 704. Mexico Telecom Battery Backup System Market Size, 2017-2032 (USD Million)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Mexico	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 705. Mexico Telecom Battery Backup System Market Size, by Offering, 2017-2032 (USD Million)

Offering	2023	2024	2025	2026	2027	2032	CAGR (%)
Battery Units and Assemblies	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Complete Backup Systems	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 706. Mexico Telecom Battery Backup System Market Size, by Battery Technology, 2017-2032 (USD Million)

Battery Technology	2023	2024	2025	2026	2027	2032	CAGR (%)
Aqueous Zinc-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Flow Batteries	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lithium-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Metal-Air	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Multi-Chemistry	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Sodium-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 707. Mexico Telecom Battery Backup System Market Size, by Lead-Acid, 2017-2032 (USD Million)

Lead-Acid	2023	2024	2025	2026	2027	2032	CAGR (%)
Flooded Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Valve-Regulated Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 708. Mexico Telecom Battery Backup System Market Size, by Valve-Regulated Lead-Acid, 2017-2032 (USD Million)

Valve-Regulated Lead-Acid	2023	2024	2025	2026	2027	2032	CAGR (%)
Absorbent Glass Mat	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Gel	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 709. Mexico Telecom Battery Backup System Market Size, by Lithium-Based, 2017-2032 (USD Million)

Lithium-Based	2023	2024	2025	2026	2027	2032	CAGR (%)
Lithium-Ion	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lithium-Metal	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 710. Mexico Telecom Battery Backup System Market Size, by Nickel-Based, 2017-2032 (USD Million)

Nickel-Based	2023	2024	2025	2026	2027	2032	CAGR (%)
Nickel-Cadmium	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Iron	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Metal Hydride	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Zinc	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 711. Mexico Telecom Battery Backup System Market Size, by Power Interface, 2017-2032 (USD Million)

Power Interface	2023	2024	2025	2026	2027	2032	CAGR (%)
AC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Combined AC/DC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
DC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 712. Mexico Telecom Battery Backup System Market Size, by Network Application, 2017-2032 (USD Million)

Network Application	2023	2024	2025	2026	2027	2032	CAGR (%)
Core Networks & Network Control	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Customer-Premises Connectivity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Network Interconnection & Peering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Transport & Backhaul Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Wireless Access Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Wireline Access Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 713. Mexico Telecom Battery Backup System Market Size, by Buyer Type, 2017-2032 (USD Million)

Buyer Type	2023	2024	2025	2026	2027	2032	CAGR (%)
Business & Institutional Connectivity Owners	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Equipment Leasing & Rental Providers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Household Connectivity Purchasers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Energy-Service Providers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Infrastructure & Tower Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecommunications Network Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 714. Mexico Telecom Battery Backup System Market Size, by Installation Environment, 2017-2032 (USD Million)

Installation Environment	2023	2024	2025	2026	2027	2032	CAGR (%)
Non-Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Underground Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 715. Mexico Telecom Battery Backup System Market Size, by Weather-Protected Locations, 2017-2032 (USD Million)

Weather-Protected Locations	2023	2024	2025	2026	2027	2032	CAGR (%)
Enclosed Locations Without Temperature Control	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Partly Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Temperature-Controlled Enclosed Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 716. Mexico Telecom Battery Backup System Market Size, by Non-Weather-Protected Locations, 2017-2032 (USD Million)

Non-Weather-Protected Locations	2023	2024	2025	2026	2027	2032	CAGR (%)
Open-Air Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Sheltered Non-Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 717. Mexico Telecom Battery Backup System Market Size, by Powering Architecture, 2017-2032 (USD Million)

Powering Architecture	2023	2024	2025	2026	2027	2032	CAGR (%)
Local Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Remote Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 718. Mexico Telecom Battery Backup System Market Size, by Remote Powering, 2017-2032 (USD Million)

Remote Powering	2023	2024	2025	2026	2027	2032	CAGR (%)
Centralized Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Cluster Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reverse Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 719. Mexico Telecom Battery Backup System Market Size, by Commercial Delivery Model, 2017-2032 (USD Million)

Commercial Delivery Model	2023	2024	2025	2026	2027	2032	CAGR (%)
Leased or Rented Equipment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Managed Backup Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Owned Equipment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 720. Mexico Telecom Battery Backup System Market Size, by Sales Channel, 2017-2032 (USD Million)

Sales Channel	2023	2024	2025	2026	2027	2032	CAGR (%)
Direct Manufacturer Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Distributor and Retailer Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Systems Integrator and Contractor Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Service Provider Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 721. Mexico Telecom Battery Backup System Market Size, by Grid Availability, 2017-2032 (USD Million)

Grid Availability	2023	2024	2025	2026	2027	2032	CAGR (%)
Off-Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reliable Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Unreliable Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 722. Mexico Telecom Battery Backup System Market Size, by Backup Duty, 2017-2032 (USD Million)

Backup Duty	2023	2024	2025	2026	2027	2032	CAGR (%)
Backup with Energy Management	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reserve-Only Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 723. Mexico Telecom Battery Backup System Market Size, by Backup Autonomy, 2017-2032 (USD Million)

Backup Autonomy	2023	2024	2025	2026	2027	2032	CAGR (%)
Day-Scale Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Extended-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Intermediate-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Short-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. China Tower - 2025 Annual Results, March 18, 2026

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The xx.xx.149m-site inventory constrains wireless activity; forecast purchasing remains modeled.

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The xx.xx.149m-site inventory constrains wireless activity; forecast purchasing remains modeled.

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: Replacement/improvement CAPEX fell from RMB6837m to RMB5474m, qualifying automatic replacement-led growth.

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Replacement/improvement CAPEX fell from RMB6837m to RMB5474m, qualifying automatic replacement-led growth.

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: Disclosed tower operations establish a material infrastructure purchasing setting, not a global buyer share.

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Disclosed tower operations establish a material infrastructure purchasing setting, not a global buyer share.

2. Broadband Commission - The State of Broadband: Our Digital World, 2025

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))

3. Battery Backup - Meriwether Lewis Electric Cooperative
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Separately available replacement batteries support a battery-only replacement route.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Separately available replacement batteries support a battery-only replacement route.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The USD100-plus-tax device is a retail comparator, not an observed 2025 first-sale realization.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The USD100-plus-tax device is a retail comparator, not an observed 2025 first-sale realization.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Customer purchase and replacement responsibilities support household-funded procurement.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Customer purchase and replacement responsibilities support household-funded procurement.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Purchased equipment does not automatically include continuing service-plan coverage.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Purchased equipment does not automatically include continuing service-plan coverage.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Local provider sales establish this route alongside manufacturer-direct purchasing.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Local provider sales establish this route alongside manufacturer-direct purchasing.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The provider advertises approximately five hours for combined voice and internet, supporting service-specific Extended classification, not an observed 2025 purchase mix. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The provider advertises approximately five hours for combined voice and internet, supporting service-specific Extended classification, not an observed 2025 purchase mix. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The same proposition advertises xx.xx-hour voice-only protection, supporting Day-Scale mapping without equating duration with a universally larger purchase basket. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The same proposition advertises xx.xx-hour voice-only protection, supporting Day-Scale mapping without equating duration with a universally larger purchase basket. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
4. EnerSys 2026 Proxy Statement and Annual Report
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Direct customer supply is disclosed within a diversified international business; telecom channel proportions are not disclosed.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Direct customer supply is disclosed within a diversified international business; telecom channel proportions are not disclosed.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Distributor supply is disclosed, supporting route occurrence rather than its modeled sales weight.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Distributor supply is disclosed, supporting route occurrence rather than its modeled sales weight.

5. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: Audited 2025 telecom revenue of RMB1,xx.xx declined xx.xx%; telecom purchasing weakness is retained as counterevidence to automatic substitution-led aggregate growth. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Audited 2025 telecom revenue of RMB1,xx.xx declined xx.xx%; telecom purchasing weakness is retained as counterevidence to automatic substitution-led aggregate growth. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: Telecom-specific results are separated from adjacent data-center and power-storage growth when assessing lithium substitution; the filing does not disclose the modeled Global split. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom-specific results are separated from adjacent data-center and power-storage growth when assessing lithium substitution; the filing does not disclose the modeled Global split. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

6. Amara Raja Energy & Mobility - Q2/H1 FY2026 Earnings Presentation, November 6, 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand. ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))

7. IHS Holding Limited - First-Quarter 2026 Financial Statements

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement. ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

8. Ofcom - Mobile RAN Power Resilience: Technical Report and CFI Update, February 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The evaluated xx.xx-minute alternative supplies a subhour commercial-planning anchor, not observed shipments.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The evaluated xx.xx-minute alternative supplies a subhour commercial-planning anchor, not observed shipments.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: One-hour and two-hour alternatives anchor the analytical Intermediate band. Aggregate scenarios include multiple years of operating costs and are not annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: One-hour and two-hour alternatives anchor the analytical Intermediate band. Aggregate scenarios include multiple years of operating costs and are not annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The four-hour alternative anchors the Extended band's lower boundary without establishing a Global minimum or purchasing allocation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The four-hour alternative anchors the Extended band's lower boundary without establishing a Global minimum or purchasing allocation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

9. Ofcom - Your Landline Is Going Digital: What You Need to Know

- Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
- Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Restricted provider-funded eligibility constrains operator-funded premises attribution and forecast adoption.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Restricted provider-funded eligibility constrains operator-funded premises attribution and forecast adoption.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Eligibility is not universal household funding; purchaser proportions remain assumptions.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Eligibility is not universal household funding; purchaser proportions remain assumptions.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Eligibility-limited provider backup and the one-hour minimum for qualifying customers constrain premises demand and anchor the Intermediate band's lower boundary. They do not establish universal adoption. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Eligibility-limited provider backup and the one-hour minimum for qualifying customers constrain premises demand and anchor the Intermediate band's lower boundary. They do not establish universal adoption. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

10. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone
    - Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue. ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
    - Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions. ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: USD45m financing and xx.xx planned site modernizations support an expansion signal, not observed backup-only service revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: USD45m financing and xx.xx planned site modernizations support an expansion signal, not observed backup-only service revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Energy-service activity supports the role; the modeled provider-as-buyer subcontract share is not established.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Energy-service activity supports the role; the modeled provider-as-buyer subcontract share is not established.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: More than xx.xx% weak/off-grid project exposure constrains service-cohort concentration, not the global grid mix.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: More than xx.xx% weak/off-grid project exposure constrains service-cohort concentration, not the global grid mix.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The project confirms disconnected-site commercial demand; its weak/off-grid combined statistic does not separate those categories.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The project confirms disconnected-site commercial demand; its weak/off-grid combined statistic does not separate those categories.
11. Fingrid - How to Participate in the Reserve Markets
    - Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue. ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Applicable owner permission and market agreements are commercial access gates. They constrain forecast mixed-duty adoption without measuring its Global percentage. ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))
12. American Tower Corporation - Annual Report on Form 10-K for 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Mexican tower inventory constrains the local network-stock bridge.

13. PowerSafe SBS Batteries | EnerSys
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Named telecom batteries support the battery-unit offering boundary; allocation weights are assumed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Named telecom batteries support the battery-unit offering boundary; allocation weights are assumed.
14. Vertiv NetSure M Series
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Configured enclosure, power and battery options support broader system classification, not universal bundle inclusion.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Configured enclosure, power and battery options support broader system classification, not universal bundle inclusion.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A marketed outdoor enclosure supports a protection option; global adoption and configuration proportions remain modeled.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A marketed outdoor enclosure supports a protection option; global adoption and configuration proportions remain modeled.
15. Ofcom - Network and Service Resilience Guidance for Communications Providers, June 16, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Core is a distinct, comparatively concentrated function with explicit backup expectations; global spending remains estimated.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Core is a distinct, comparatively concentrated function with explicit backup expectations; global spending remains estimated.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The stated xx.xx-xx.xx-fold site-scale distinction motivates lower-value, more numerous transport purchase equivalents.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The stated xx.xx-xx.xx-fold site-scale distinction motivates lower-value, more numerous transport purchase equivalents.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Peering and non-Internet interconnection are distinct functions; attributable backup purchase values are not disclosed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Peering and non-Internet interconnection are distinct functions; attributable backup purchase values are not disclosed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: June 2026 guidance identifies approximately four hours as good practice for active fixed-access cabinets. This supports a conditional Extended purchasing shift, not completed orders or a Global mandate. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/network-and-service-resilience-guidance-for-communications-providerspdf?v=xx.xx))
16. Technology and Tools | First Responder Network Authority
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Radio access, transport backhaul and core are separate network functions, supporting functional attribution without duplicate facility counting.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Radio access, transport backhaul and core are separate network functions, supporting functional attribution without duplicate facility counting.
17. Mobile Network Hardening Program | Australian Department of Infrastructure
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Completed battery enhancements and broader resilience projects provide a delivered regional demand signal, not a global forecast rate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Completed battery enhancements and broader resilience projects provide a delivered regional demand signal, not a global forecast rate.

18. BT - Digital Voice for Business Service Schedule, May 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Business customers bear backup-power expense, supporting a distinct institutional/business payer route rather than consumer eligibility extrapolation.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Business customers bear backup-power expense, supporting a distinct institutional/business payer route rather than consumer eligibility extrapolation.
19. Los Angeles Metro - Board Report 2024-1128, UPS Battery Replacement
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Completed and additional UPS battery replacements support continuing underground demand; mixed-load project budgets are not telecom-only revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Completed and additional UPS battery replacements support continuing underground demand; mixed-load project budgets are not telecom-only revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The transit authority's purchasing program supports an institutional own-use role, not its global spending proportion.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The transit authority's purchasing program supports an institutional own-use role, not its global spending proportion.
20. ETSI EN 300 019-1-3 V3.1.1 - Stationary Use at Weatherprotected Locations, May 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Weather-protected categories distinguish enclosure from environmental control; the standard does not measure market mix.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Weather-protected categories distinguish enclosure from environmental control; the standard does not measure market mix.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Maintained temperature control is a separate classification premise for the modeled conditional allocation.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Maintained temperature control is a separate classification premise for the modeled conditional allocation.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Enclosed locations without temperature control are distinguished from controlled locations.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Enclosed locations without temperature control are distinguished from controlled locations.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Partial weather protection is recognized separately; sales weights and future adoption remain assumed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Partial weather protection is recognized separately; sales weights and future adoption remain assumed.
21. ETSI EN 300 019-1-4 V3.1.1 - Stationary Use at Non-Weatherprotected Locations, May 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Non-weather-protected locations form a distinct classification regime, not a measured global spending pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Non-weather-protected locations form a distinct classification regime, not a measured global spending pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Sheltered non-weather-protected locations support the named conditional category.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Sheltered non-weather-protected locations support the named conditional category.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Open-air locations are separately recognized; their purchasing mix remains modeled.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Open-air locations are separately recognized; their purchasing mix remains modeled.

22. DC Power Plant / Rectifiers - UPS Rental
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Battery and complete DC-plant rentals establish delivery-category occurrence; global fees and utilization are not disclosed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Battery and complete DC-plant rentals establish delivery-category occurrence; global fees and utilization are not disclosed.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Commercial rental availability is a role premise only; modeled lessor sub-hire procurement remains unverified.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Commercial rental availability is a role premise only; modeled lessor sub-hire procurement remains unverified.
23. Helios Towers - Full Year Results 2025, March 12, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Grid-integration investment supplies a connection-improvement counterforce used conditionally in the forecast.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Grid-integration investment supplies a connection-improvement counterforce used conditionally in the forecast.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Reported xx.xx-hour average daily grid availability supports weak-grid commercial exposure, without a global classification share.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Reported xx.xx-hour average daily grid availability supports weak-grid commercial exposure, without a global classification share.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Grid integration and alternative-power investment qualify assumptions of permanently unchanged disconnected-site exposure.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Grid integration and alternative-power investment qualify assumptions of permanently unchanged disconnected-site exposure.
24. Telecommunications | Aggreko US
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Telecom battery-storage rental for temporary continuity supports delivery occurrence, not the estimated global fee scale.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom battery-storage rental for temporary continuity supports delivery occurrence, not the estimated global fee scale.
25. EnerSys PowerSafe SBS Front Terminal Batteries | Alpine Power Systems
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A named battery distributor supports the intermediary route; its listing is not a global channel-sales observation.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A named battery distributor supports the intermediary route; its listing is not a global channel-sales observation.
26. DC Power Services | Vertiv
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Cross-manufacturer projects and narrower upgrades support integration-prime and supported-replacement routes; numerical route proportions remain assumed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Cross-manufacturer projects and narrower upgrades support integration-prime and supported-replacement routes; numerical route proportions remain assumed.

27. Shuangdeng Group Co., Ltd. - Global Offering Prospectus, August 18, 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The company's own five-month 2025 lead-acid realization of RMB520.xx.xx/kWh constrains the relative-price bridge; syndicated industry claims are excluded. Forecast convergence remains assumed. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The company's own five-month 2025 lead-acid realization of RMB520.xx.xx/kWh constrains the relative-price bridge; syndicated industry claims are excluded. Forecast convergence remains assumed. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Own lithium-ion realization of RMB595.xx.xx/kWh is an input to the Lithium-Based value model, not a Global share or a Lithium-Metal sales observation. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Own lithium-ion realization of RMB595.xx.xx/kWh is an input to the Lithium-Based value model, not a Global share or a Lithium-Metal sales observation. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
28. Amara Raja Crosses 1 GWh Lithium Storage Deployment Powering India's Telecom Networks
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The April xx.xx 2026 disclosure reports approximately xx.xx GWh across xx.xx cumulative telecom lithium sites over four years. This is a commercial adoption scale check, not annual Global revenue or a supplier-share input. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The April xx.xx 2026 disclosure reports approximately xx.xx GWh across xx.xx cumulative telecom lithium sites over four years. This is a commercial adoption scale check, not annual Global revenue or a supplier-share input. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The disclosed deployment identifies lithium-ion commercialization at scale, supporting the subtype's established commercial position without directly measuring its conditional Global share. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The disclosed deployment identifies lithium-ion commercialization at scale, supporting the subtype's established commercial position without directly measuring its conditional Global share. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
29. Central Office Power Systems - EnerSys
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The central-office portfolio identifies Flooded Lead-Acid as a distinct telecom alternative, supporting the legacy-network category mapping but not its purchasing fraction. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The central-office portfolio identifies Flooded Lead-Acid as a distinct telecom alternative, supporting the legacy-network category mapping but not its purchasing fraction. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The portfolio separately identifies Valve-Regulated Lead-Acid, supporting the within-lead construction boundary used by the model. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The portfolio separately identifies Valve-Regulated Lead-Acid, supporting the within-lead construction boundary used by the model. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))

30. PowerSafe OPzV Batteries - EnerSys

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: EnerSys identifies OPzV as Gel and lists telecom applications. This supports commercial subtype mapping, not the assumed Gel/AGM volume or price mix. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-opzv/))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: EnerSys identifies OPzV as Gel and lists telecom applications. This supports commercial subtype mapping, not the assumed Gel/AGM volume or price mix. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-opzv/))

31. Bolloré - 2017 Registration Document

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The official filing identifies LMP professional outage-protection applications including telecom relays. This is a dated commercial boundary input, not evidence of 2025 telecom shipment value. ([bollore.com](https://www.bollore.com/wp-content/uploads/2018/xx.xx/bollore_ddr_2017_gb_bag-xx.xx-juin.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The official filing identifies LMP professional outage-protection applications including telecom relays. This is a dated commercial boundary input, not evidence of 2025 telecom shipment value. ([bollore.com](https://www.bollore.com/wp-content/uploads/2018/xx.xx/bollore_ddr_2017_gb_bag-xx.xx-juin.pdf))

32. Bolloré - Business Report 2025

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The 2025 report establishes continuing Lithium Metal Polymer commercial applications in electricity storage and buses, while omitting separately attributable telecom sales. It constrains the low-access expected-purchase model; no capacity-to-sales conversion is used. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The 2025 report establishes continuing Lithium Metal Polymer commercial applications in electricity storage and buses, while omitting separately attributable telecom sales. It constrains the low-access expected-purchase model; no capacity-to-sales conversion is used. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The report preserves the distinction between LMP and conventional lithium-ion, supporting the exhaustive subtype attribution rule rather than treating polymer packaging as Lithium-Metal. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The report preserves the distinction between LMP and conventional lithium-ion, supporting the exhaustive subtype attribution rule rather than treating polymer packaging as Lithium-Metal. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))

33. AT&T to Replace U-Verse Cabinet Batteries - Fierce Network, January 15, 2008

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The January xx.xx 2008 report corroborates AT&T's replacement of approximately xx.xx Avestor batteries after the supplier's closure. The obsolete stock is therefore not carried into the 2025 or 2032 purchasing numerator. ([fierce-network.com](https://www.fierce-network.com/telecom/at-t-to-replace-u-verse-cabinet-batteries))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The January xx.xx 2008 report corroborates AT&T's replacement of approximately xx.xx Avestor batteries after the supplier's closure. The obsolete stock is therefore not carried into the 2025 or 2032 purchasing numerator. ([fierce-network.com](https://www.fierce-network.com/telecom/at-t-to-replace-u-verse-cabinet-batteries))

34. PowerSafe NiCd Batteries - EnerSys
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: EnerSys identifies Nickel-Cadmium for central offices and outside plant, supporting the modeled legacy telecom cohort but not its installed attachment or replacement spending. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-nicd/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: EnerSys identifies Nickel-Cadmium for central offices and outside plant, supporting the modeled legacy telecom cohort but not its installed attachment or replacement spending. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-nicd/))
35. FDK Ni-MH Battery Is Chosen for the Cellect 600 Product of Alpha Technologies
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The October xx.xx 2015 announcement identifies NiMH in Alpha's Cellect xx.xx small-cell backup proposition. It supports a historical cohort rather than current fulfillment or assumed surviving stock. ([fdk.com](https://www.fdk.com/whatsnew-e/release20151019-e.html))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The October xx.xx 2015 announcement identifies NiMH in Alpha's Cellect xx.xx small-cell backup proposition. It supports a historical cohort rather than current fulfillment or assumed surviving stock. ([fdk.com](https://www.fdk.com/whatsnew-e/release20151019-e.html))
36. Products - Encell Technology
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Encell positions its Fused Iron Nickel-Iron battery for telecom. This supports the commercial category lead, while current purchases and attachment remain modeled. ([encell.com](https://encell.com/products/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Encell positions its Fused Iron Nickel-Iron battery for telecom. This supports the commercial category lead, while current purchases and attachment remain modeled. ([encell.com](https://encell.com/products/))
37. Telecom/5G - ZAF Energy Systems
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: ZAF positions Nickel-Zinc for telecom/5G. Its supplier proposition supports application mapping, not the modeled annual attachment or threefold forecast value multiplier. ([zafsys.com](https://zafsys.com/telecom-5g/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: ZAF positions Nickel-Zinc for telecom/5G. Its supplier proposition supports application mapping, not the modeled annual attachment or threefold forecast value multiplier. ([zafsys.com](https://zafsys.com/telecom-5g/))
38. HORIEN Salt Battery Solutions and Inlyte Energy Announce a Strategic Partnership
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: HORIEN's March xx.xx 2025 statement identifies sodium-metal-chloride telecom backup. Its separate partnership announcement is not counted as delivered telecom sales. ([horien.com](https://horien.com/wp-content/uploads/2025/xx.xx/Press-Release_HORIEN-Inlyte-International-Version.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: HORIEN's March xx.xx 2025 statement identifies sodium-metal-chloride telecom backup. Its separate partnership announcement is not counted as delivered telecom sales. ([horien.com](https://horien.com/wp-content/uploads/2025/xx.xx/Press-Release_HORIEN-Inlyte-International-Version.pdf))
39. Energy Backup - Phinergy
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Phinergy markets Aluminum-Air continuity offerings to telecom operators and tower companies. The source supports category and buyer mapping, not the modeled installed attachment or replacement numerator. ([phinergy.com](https://phinergy.com/solutions/energy-backup/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Phinergy markets Aluminum-Air continuity offerings to telecom operators and tower companies. The source supports category and buyer mapping, not the modeled installed attachment or replacement numerator. ([phinergy.com](https://phinergy.com/solutions/energy-backup/))

40. Australian Flow Batteries - RFB40X Series

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: RFB40X literature identifies telecom among stationary commercial applications. It supports the qualifying project boundary, not delivered projects, revenue or assumed attachment. ([afb.energy](https://www.afb.energy/wp-content/uploads/2025/xx.xx/Australian-Flow-Batteries-RFB40X-Series-2024.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: RFB40X literature identifies telecom among stationary commercial applications. It supports the qualifying project boundary, not delivered projects, revenue or assumed attachment. ([afb.energy](https://www.afb.energy/wp-content/uploads/2025/xx.xx/Australian-Flow-Batteries-RFB40X-Series-2024.pdf))

41. PowerReserve - Verizon Residential Accessories

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Verizon advertises an alkaline-cell voice-backup device at USD39.xx.xx excluding batteries. This supports a qualifying primary-zinc premises route and price comparator, not assumed Global attachment or first-sale realization. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Verizon advertises an alkaline-cell voice-backup device at USD39.xx.xx excluding batteries. This supports a qualifying primary-zinc premises route and price comparator, not assumed Global attachment or first-sale realization. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Advertised voice-only protection reaches xx.xx hours; internet and television protection are excluded. This supports service-specific Day-Scale classification. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Advertised voice-only protection reaches xx.xx hours; internet and television protection are excluded. This supports service-specific Day-Scale classification. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))

42. Alkaline Manganese Dioxide Handbook and Application Manual - Energizer

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The manufacturer's alkaline manganese-dioxide classification supports the zinc-family mapping for qualifying premises backup. It provides no telecom purchasing weight. ([data.energizer.com](https://data.energizer.com/pdfs/alkaline_appman.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The manufacturer's alkaline manganese-dioxide classification supports the zinc-family mapping for qualifying premises backup. It provides no telecom purchasing weight. ([data.energizer.com](https://data.energizer.com/pdfs/alkaline_appman.pdf))

43. ITU-T Work Programme - Aqueous Zinc-Based Battery Systems for Base Station Applications

- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The aqueous-zinc base-station work item is Under study with December 2027 timing. It constrains the forecast commercialization assumption but establishes neither approval nor customer purchases. ([itu.int](https://www.itu.int/itu-t/workprog/wp_item.aspx?isn=xx.xx))

44. ITU-T L.1397 - Battery System with Integrated Control and Monitoring Information Model

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The October 2025 recommendation names lithium-lead, lithium-sodium and sodium-lead combinations. This supports mixed-family classification, not inseparable pricing or Global prevalence. ([itu.int](https://www.itu.int/rec/dologin_pub.asp?id=T-REC-L.xx.xx-xx.xx-I%xx.xx%21PDF-E&lang=e&type=items))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The October 2025 recommendation names lithium-lead, lithium-sodium and sodium-lead combinations. This supports mixed-family classification, not inseparable pricing or Global prevalence. ([itu.int](https://www.itu.int/rec/dologin_pub.asp?id=T-REC-L.xx.xx-xx.xx-I%xx.xx%21PDF-E&lang=e&type=items))

45. ETSI EN 300 132-1 V2.2.1 - ICT Power Supply Interface: Alternating Current
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The ICT standard identifies the protected-load AC interface, supporting output-side attribution rather than classification by chemistry or normal utility input. It supplies no sales mix. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013201v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The ICT standard identifies the protected-load AC interface, supporting output-side attribution rather than classification by chemistry or normal utility input. It supplies no sales mix. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013201v020201p.pdf))
46. ETSI EN 300 132-2 V2.8.1 - ICT Power Supply Interface: Direct Current
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The ICT standard separately identifies the DC protected-equipment interface, supporting the DC-output boundary independently of battery chemistry. It is not a purchasing census. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013202v020801p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The ICT standard separately identifies the DC protected-equipment interface, supporting the DC-output boundary independently of battery chemistry. It is not a purchasing census. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013202v020801p.pdf))
47. Vertiv NetSure Inverter Series - Converged AC and DC Power System
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: NetSure Inverter Series identifies AC and DC loads supported through a common battery bank. This establishes a combined-output proposition, not its modeled purchasing fraction or future adoption. ([vertiv.com](https://www.vertiv.com/en-us/products-catalog/critical-power/dc-power-systems/vertiv-netsure-inverter-series/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: NetSure Inverter Series identifies AC and DC loads supported through a common battery bank. This establishes a combined-output proposition, not its modeled purchasing fraction or future adoption. ([vertiv.com](https://www.vertiv.com/en-us/products-catalog/critical-power/dc-power-systems/vertiv-netsure-inverter-series/))

48. ETSI EN 302 099 V2.2.1 - Powering of Equipment in Access Network
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Local powering uses a colocated source; allocation follows the backed source rather than receiver inventory. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Local powering uses a colocated source; allocation follows the backed source rather than receiver inventory. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Remote-source backup is distinguished from local backup, supporting the parent commercial boundary but not purchasing weights. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Remote-source backup is distinguished from local backup, supporting the parent commercial boundary but not purchasing weights. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Centralized powering originates at a telecommunications center. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Centralized powering originates at a telecommunications center. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Cluster powering uses a source outside the telecommunications center, supporting separation within Remote Powering. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Cluster powering uses a source outside the telecommunications center, supporting separation within Remote Powering. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Reverse powering is customer-origin supply, supporting source-level attribution of the battery-backed provider package. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Reverse powering is customer-origin supply, supporting source-level attribution of the battery-backed provider package. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))

49. Set Up Your Battery Backup - AT&T G.Fast Service with BGW210

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The 2021 provider document names a battery-backed package protecting G.fast customer and distribution equipment through reverse power feed. It establishes a dated source-backup proposition, not current Global quantities. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The 2021 provider document names a battery-backed package protecting G.fast customer and distribution equipment through reverse power feed. It establishes a dated source-backup proposition, not current Global quantities. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The provider advertises a xx.xx-hour service window for the particular package, supporting Day-Scale mapping without a universal premises-duration inference. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The provider advertises a xx.xx-hour service window for the particular package, supporting Day-Scale mapping without a universal premises-duration inference. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

50. DNA Tower Offers Battery Capacity in Electricity Reserve Markets with Elisa DES

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The June xx.xx 2025 announcement reports DNA Tower batteries connected to Finnish reserve markets while retaining outage continuity. This establishes a specific mixed-duty implementation, not Global attachment or guaranteed returns. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/press-releases/dna-tower-becomes-worlds-first-tower-company-to-offer-battery-capacity-in-electricity-reserve-markets-with-elisa-des))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The June xx.xx 2025 announcement reports DNA Tower batteries connected to Finnish reserve markets while retaining outage continuity. This establishes a specific mixed-duty implementation, not Global attachment or guaranteed returns. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/press-releases/dna-tower-becomes-worlds-first-tower-company-to-offer-battery-capacity-in-electricity-reserve-markets-with-elisa-des))

51. Case Elisa: Virtual Power Plant in the Telecom Industry

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The company case reports over 2,000 aggregated sites and approximately xx.xx MWh. This is an installed commercial scale check, not annual purchasing value or Global prevalence. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/customer-stories/elisacase))

21.13. Canada

Table 724. Canada Telecom Battery Backup System Market Size, 2017-2032 (USD Million)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Canada	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 725. Canada Telecom Battery Backup System Market Size, by Offering, 2017-2032 (USD Million)

Offering	2023	2024	2025	2026	2027	2032	CAGR (%)
Battery Units and Assemblies	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Complete Backup Systems	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 726. Canada Telecom Battery Backup System Market Size, by Battery Technology, 2017-2032 (USD Million)

Battery Technology	2023	2024	2025	2026	2027	2032	CAGR (%)
Aqueous Zinc-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Flow Batteries	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lithium-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Metal-Air	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Multi-Chemistry	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Sodium-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 727. Canada Telecom Battery Backup System Market Size, by Lead-Acid, 2017-2032 (USD Million)

Lead-Acid	2023	2024	2025	2026	2027	2032	CAGR (%)
Flooded Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Valve-Regulated Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 728. Canada Telecom Battery Backup System Market Size, by Valve-Regulated Lead-Acid, 2017-2032 (USD Million)

Valve-Regulated Lead-Acid	2023	2024	2025	2026	2027	2032	CAGR (%)
Absorbent Glass Mat	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Gel	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 729. Canada Telecom Battery Backup System Market Size, by Lithium-Based, 2017-2032 (USD Million)

Lithium-Based	2023	2024	2025	2026	2027	2032	CAGR (%)
Lithium-Ion	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lithium-Metal	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 730. Canada Telecom Battery Backup System Market Size, by Nickel-Based, 2017-2032 (USD Million)

Nickel-Based	2023	2024	2025	2026	2027	2032	CAGR (%)
Nickel-Cadmium	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Iron	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Metal Hydride	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Zinc	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 731. Canada Telecom Battery Backup System Market Size, by Power Interface, 2017-2032 (USD Million)

Power Interface	2023	2024	2025	2026	2027	2032	CAGR (%)
AC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Combined AC/DC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
DC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 732. Canada Telecom Battery Backup System Market Size, by Network Application, 2017-2032 (USD Million)

Network Application	2023	2024	2025	2026	2027	2032	CAGR (%)
Core Networks & Network Control	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Customer-Premises Connectivity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Network Interconnection & Peering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Transport & Backhaul Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Wireless Access Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Wireline Access Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 733. Canada Telecom Battery Backup System Market Size, by Buyer Type, 2017-2032 (USD Million)

Buyer Type	2023	2024	2025	2026	2027	2032	CAGR (%)
Business & Institutional Connectivity Owners	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Equipment Leasing & Rental Providers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Household Connectivity Purchasers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Energy-Service Providers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Infrastructure & Tower Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecommunications Network Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 734. Canada Telecom Battery Backup System Market Size, by Installation Environment, 2017-2032 (USD Million)

Installation Environment	2023	2024	2025	2026	2027	2032	CAGR (%)
Non-Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Underground Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 735. Canada Telecom Battery Backup System Market Size, by Weather-Protected Locations, 2017-2032 (USD Million)

Weather-Protected Locations	2023	2024	2025	2026	2027	2032	CAGR (%)
Enclosed Locations Without Temperature Control	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Partly Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Temperature-Controlled Enclosed Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 736. Canada Telecom Battery Backup System Market Size, by Non-Weather-Protected Locations, 2017-2032 (USD Million)

Non-Weather-Protected Locations	2023	2024	2025	2026	2027	2032	CAGR (%)
Open-Air Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Sheltered Non-Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 737. Canada Telecom Battery Backup System Market Size, by Powering Architecture, 2017-2032 (USD Million)

Powering Architecture	2023	2024	2025	2026	2027	2032	CAGR (%)
Local Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Remote Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 738. Canada Telecom Battery Backup System Market Size, by Remote Powering, 2017-2032 (USD Million)

Remote Powering	2023	2024	2025	2026	2027	2032	CAGR (%)
Centralized Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Cluster Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reverse Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 739. Canada Telecom Battery Backup System Market Size, by Commercial Delivery Model, 2017-2032 (USD Million)

Commercial Delivery Model	2023	2024	2025	2026	2027	2032	CAGR (%)
Leased or Rented Equipment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Managed Backup Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Owned Equipment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 740. Canada Telecom Battery Backup System Market Size, by Sales Channel, 2017-2032 (USD Million)

Sales Channel	2023	2024	2025	2026	2027	2032	CAGR (%)
Direct Manufacturer Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Distributor and Retailer Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Systems Integrator and Contractor Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Service Provider Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 741. Canada Telecom Battery Backup System Market Size, by Grid Availability, 2017-2032 (USD Million)

Grid Availability	2023	2024	2025	2026	2027	2032	CAGR (%)
Off-Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reliable Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Unreliable Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 742. Canada Telecom Battery Backup System Market Size, by Backup Duty, 2017-2032 (USD Million)

Backup Duty	2023	2024	2025	2026	2027	2032	CAGR (%)
Backup with Energy Management	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reserve-Only Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 743. Canada Telecom Battery Backup System Market Size, by Backup Autonomy, 2017-2032 (USD Million)

Backup Autonomy	2023	2024	2025	2026	2027	2032	CAGR (%)
Day-Scale Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Extended-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Intermediate-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Short-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. China Tower - 2025 Annual Results, March 18, 2026
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The xx.xx.149m-site inventory constrains wireless activity; forecast purchasing remains modeled.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The xx.xx.149m-site inventory constrains wireless activity; forecast purchasing remains modeled.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Replacement/improvement CAPEX fell from RMB6837m to RMB5474m, qualifying automatic replacement-led growth.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Replacement/improvement CAPEX fell from RMB6837m to RMB5474m, qualifying automatic replacement-led growth.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Disclosed tower operations establish a material infrastructure purchasing setting, not a global buyer share.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Disclosed tower operations establish a material infrastructure purchasing setting, not a global buyer share.
2. Broadband Commission - The State of Broadband: Our Digital World, 2025
   - Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))

3. Battery Backup - Meriwether Lewis Electric Cooperative
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Separately available replacement batteries support a battery-only replacement route.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Separately available replacement batteries support a battery-only replacement route.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The USD100-plus-tax device is a retail comparator, not an observed 2025 first-sale realization.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The USD100-plus-tax device is a retail comparator, not an observed 2025 first-sale realization.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Customer purchase and replacement responsibilities support household-funded procurement.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Customer purchase and replacement responsibilities support household-funded procurement.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Purchased equipment does not automatically include continuing service-plan coverage.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Purchased equipment does not automatically include continuing service-plan coverage.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Local provider sales establish this route alongside manufacturer-direct purchasing.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Local provider sales establish this route alongside manufacturer-direct purchasing.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The provider advertises approximately five hours for combined voice and internet, supporting service-specific Extended classification, not an observed 2025 purchase mix. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The provider advertises approximately five hours for combined voice and internet, supporting service-specific Extended classification, not an observed 2025 purchase mix. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The same proposition advertises xx.xx-hour voice-only protection, supporting Day-Scale mapping without equating duration with a universally larger purchase basket. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The same proposition advertises xx.xx-hour voice-only protection, supporting Day-Scale mapping without equating duration with a universally larger purchase basket. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
4. EnerSys 2026 Proxy Statement and Annual Report
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Direct customer supply is disclosed within a diversified international business; telecom channel proportions are not disclosed.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Direct customer supply is disclosed within a diversified international business; telecom channel proportions are not disclosed.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Distributor supply is disclosed, supporting route occurrence rather than its modeled sales weight.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Distributor supply is disclosed, supporting route occurrence rather than its modeled sales weight.

5. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: Audited 2025 telecom revenue of RMB1,xx.xx declined xx.xx%; telecom purchasing weakness is retained as counterevidence to automatic substitution-led aggregate growth. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Audited 2025 telecom revenue of RMB1,xx.xx declined xx.xx%; telecom purchasing weakness is retained as counterevidence to automatic substitution-led aggregate growth. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: Telecom-specific results are separated from adjacent data-center and power-storage growth when assessing lithium substitution; the filing does not disclose the modeled Global split. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom-specific results are separated from adjacent data-center and power-storage growth when assessing lithium substitution; the filing does not disclose the modeled Global split. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

6. Amara Raja Energy & Mobility - Q2/H1 FY2026 Earnings Presentation, November 6, 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand. ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))

7. IHS Holding Limited - First-Quarter 2026 Financial Statements

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement. ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

8. Ofcom - Mobile RAN Power Resilience: Technical Report and CFI Update, February 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The evaluated xx.xx-minute alternative supplies a subhour commercial-planning anchor, not observed shipments.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The evaluated xx.xx-minute alternative supplies a subhour commercial-planning anchor, not observed shipments.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: One-hour and two-hour alternatives anchor the analytical Intermediate band. Aggregate scenarios include multiple years of operating costs and are not annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: One-hour and two-hour alternatives anchor the analytical Intermediate band. Aggregate scenarios include multiple years of operating costs and are not annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The four-hour alternative anchors the Extended band's lower boundary without establishing a Global minimum or purchasing allocation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The four-hour alternative anchors the Extended band's lower boundary without establishing a Global minimum or purchasing allocation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

9. Ofcom - Your Landline Is Going Digital: What You Need to Know

- Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
- Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Restricted provider-funded eligibility constrains operator-funded premises attribution and forecast adoption.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Restricted provider-funded eligibility constrains operator-funded premises attribution and forecast adoption.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Eligibility is not universal household funding; purchaser proportions remain assumptions.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Eligibility is not universal household funding; purchaser proportions remain assumptions.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Eligibility-limited provider backup and the one-hour minimum for qualifying customers constrain premises demand and anchor the Intermediate band's lower boundary. They do not establish universal adoption. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Eligibility-limited provider backup and the one-hour minimum for qualifying customers constrain premises demand and anchor the Intermediate band's lower boundary. They do not establish universal adoption. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

10. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone
    - Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue. ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
    - Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions. ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: USD45m financing and xx.xx planned site modernizations support an expansion signal, not observed backup-only service revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: USD45m financing and xx.xx planned site modernizations support an expansion signal, not observed backup-only service revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Energy-service activity supports the role; the modeled provider-as-buyer subcontract share is not established.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Energy-service activity supports the role; the modeled provider-as-buyer subcontract share is not established.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: More than xx.xx% weak/off-grid project exposure constrains service-cohort concentration, not the global grid mix.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: More than xx.xx% weak/off-grid project exposure constrains service-cohort concentration, not the global grid mix.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The project confirms disconnected-site commercial demand; its weak/off-grid combined statistic does not separate those categories.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The project confirms disconnected-site commercial demand; its weak/off-grid combined statistic does not separate those categories.
11. Fingrid - How to Participate in the Reserve Markets
    - Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue. ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Applicable owner permission and market agreements are commercial access gates. They constrain forecast mixed-duty adoption without measuring its Global percentage. ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))
12. CRTC - Request for Information on Telecommunications Network Resiliency, May 12, 2026
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The information request seeks evidence on possible backup requirements and customer equipment costs; it is not an enacted national procurement program.
13. PowerSafe SBS Batteries | EnerSys
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Named telecom batteries support the battery-unit offering boundary; allocation weights are assumed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Named telecom batteries support the battery-unit offering boundary; allocation weights are assumed.

14. Vertiv NetSure M Series
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Configured enclosure, power and battery options support broader system classification, not universal bundle inclusion.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Configured enclosure, power and battery options support broader system classification, not universal bundle inclusion.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A marketed outdoor enclosure supports a protection option; global adoption and configuration proportions remain modeled.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A marketed outdoor enclosure supports a protection option; global adoption and configuration proportions remain modeled.
15. Ofcom - Network and Service Resilience Guidance for Communications Providers, June 16, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Core is a distinct, comparatively concentrated function with explicit backup expectations; global spending remains estimated.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Core is a distinct, comparatively concentrated function with explicit backup expectations; global spending remains estimated.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The stated xx.xx-xx.xx-fold site-scale distinction motivates lower-value, more numerous transport purchase equivalents.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The stated xx.xx-xx.xx-fold site-scale distinction motivates lower-value, more numerous transport purchase equivalents.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Peering and non-Internet interconnection are distinct functions; attributable backup purchase values are not disclosed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Peering and non-Internet interconnection are distinct functions; attributable backup purchase values are not disclosed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: June 2026 guidance identifies approximately four hours as good practice for active fixed-access cabinets. This supports a conditional Extended purchasing shift, not completed orders or a Global mandate. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/network-and-service-resilience-guidance-for-communications-providerspdf?v=xx.xx))
16. Technology and Tools | First Responder Network Authority
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Radio access, transport backhaul and core are separate network functions, supporting functional attribution without duplicate facility counting.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Radio access, transport backhaul and core are separate network functions, supporting functional attribution without duplicate facility counting.
17. Mobile Network Hardening Program | Australian Department of Infrastructure
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Completed battery enhancements and broader resilience projects provide a delivered regional demand signal, not a global forecast rate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Completed battery enhancements and broader resilience projects provide a delivered regional demand signal, not a global forecast rate.
18. BT - Digital Voice for Business Service Schedule, May 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Business customers bear backup-power expense, supporting a distinct institutional/business payer route rather than consumer eligibility extrapolation.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Business customers bear backup-power expense, supporting a distinct institutional/business payer route rather than consumer eligibility extrapolation.

19. Los Angeles Metro - Board Report 2024-1128, UPS Battery Replacement
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Completed and additional UPS battery replacements support continuing underground demand; mixed-load project budgets are not telecom-only revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Completed and additional UPS battery replacements support continuing underground demand; mixed-load project budgets are not telecom-only revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The transit authority's purchasing program supports an institutional own-use role, not its global spending proportion.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The transit authority's purchasing program supports an institutional own-use role, not its global spending proportion.
20. ETSI EN 300 019-1-3 V3.1.1 - Stationary Use at Weatherprotected Locations, May 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Weather-protected categories distinguish enclosure from environmental control; the standard does not measure market mix.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Weather-protected categories distinguish enclosure from environmental control; the standard does not measure market mix.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Maintained temperature control is a separate classification premise for the modeled conditional allocation.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Maintained temperature control is a separate classification premise for the modeled conditional allocation.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Enclosed locations without temperature control are distinguished from controlled locations.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Enclosed locations without temperature control are distinguished from controlled locations.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Partial weather protection is recognized separately; sales weights and future adoption remain assumed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Partial weather protection is recognized separately; sales weights and future adoption remain assumed.
21. ETSI EN 300 019-1-4 V3.1.1 - Stationary Use at Non-Weatherprotected Locations, May 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Non-weather-protected locations form a distinct classification regime, not a measured global spending pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Non-weather-protected locations form a distinct classification regime, not a measured global spending pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Sheltered non-weather-protected locations support the named conditional category.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Sheltered non-weather-protected locations support the named conditional category.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Open-air locations are separately recognized; their purchasing mix remains modeled.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Open-air locations are separately recognized; their purchasing mix remains modeled.

22. DC Power Plant / Rectifiers - UPS Rental
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Battery and complete DC-plant rentals establish delivery-category occurrence; global fees and utilization are not disclosed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Battery and complete DC-plant rentals establish delivery-category occurrence; global fees and utilization are not disclosed.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Commercial rental availability is a role premise only; modeled lessor sub-hire procurement remains unverified.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Commercial rental availability is a role premise only; modeled lessor sub-hire procurement remains unverified.
23. Helios Towers - Full Year Results 2025, March 12, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Grid-integration investment supplies a connection-improvement counterforce used conditionally in the forecast.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Grid-integration investment supplies a connection-improvement counterforce used conditionally in the forecast.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Reported xx.xx-hour average daily grid availability supports weak-grid commercial exposure, without a global classification share.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Reported xx.xx-hour average daily grid availability supports weak-grid commercial exposure, without a global classification share.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Grid integration and alternative-power investment qualify assumptions of permanently unchanged disconnected-site exposure.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Grid integration and alternative-power investment qualify assumptions of permanently unchanged disconnected-site exposure.
24. Telecommunications | Aggreko US
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Telecom battery-storage rental for temporary continuity supports delivery occurrence, not the estimated global fee scale.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom battery-storage rental for temporary continuity supports delivery occurrence, not the estimated global fee scale.
25. EnerSys PowerSafe SBS Front Terminal Batteries | Alpine Power Systems
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A named battery distributor supports the intermediary route; its listing is not a global channel-sales observation.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A named battery distributor supports the intermediary route; its listing is not a global channel-sales observation.
26. DC Power Services | Vertiv
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Cross-manufacturer projects and narrower upgrades support integration-prime and supported-replacement routes; numerical route proportions remain assumed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Cross-manufacturer projects and narrower upgrades support integration-prime and supported-replacement routes; numerical route proportions remain assumed.

27. Shuangdeng Group Co., Ltd. - Global Offering Prospectus, August 18, 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The company's own five-month 2025 lead-acid realization of RMB520.xx.xx/kWh constrains the relative-price bridge; syndicated industry claims are excluded. Forecast convergence remains assumed. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The company's own five-month 2025 lead-acid realization of RMB520.xx.xx/kWh constrains the relative-price bridge; syndicated industry claims are excluded. Forecast convergence remains assumed. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Own lithium-ion realization of RMB595.xx.xx/kWh is an input to the Lithium-Based value model, not a Global share or a Lithium-Metal sales observation. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Own lithium-ion realization of RMB595.xx.xx/kWh is an input to the Lithium-Based value model, not a Global share or a Lithium-Metal sales observation. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
28. Amara Raja Crosses 1 GWh Lithium Storage Deployment Powering India's Telecom Networks
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The April xx.xx 2026 disclosure reports approximately xx.xx GWh across xx.xx cumulative telecom lithium sites over four years. This is a commercial adoption scale check, not annual Global revenue or a supplier-share input. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The April xx.xx 2026 disclosure reports approximately xx.xx GWh across xx.xx cumulative telecom lithium sites over four years. This is a commercial adoption scale check, not annual Global revenue or a supplier-share input. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The disclosed deployment identifies lithium-ion commercialization at scale, supporting the subtype's established commercial position without directly measuring its conditional Global share. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The disclosed deployment identifies lithium-ion commercialization at scale, supporting the subtype's established commercial position without directly measuring its conditional Global share. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
29. Central Office Power Systems - EnerSys
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The central-office portfolio identifies Flooded Lead-Acid as a distinct telecom alternative, supporting the legacy-network category mapping but not its purchasing fraction. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The central-office portfolio identifies Flooded Lead-Acid as a distinct telecom alternative, supporting the legacy-network category mapping but not its purchasing fraction. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The portfolio separately identifies Valve-Regulated Lead-Acid, supporting the within-lead construction boundary used by the model. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The portfolio separately identifies Valve-Regulated Lead-Acid, supporting the within-lead construction boundary used by the model. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))

30. PowerSafe OPzV Batteries - EnerSys

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: EnerSys identifies OPzV as Gel and lists telecom applications. This supports commercial subtype mapping, not the assumed Gel/AGM volume or price mix. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-opzv/))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: EnerSys identifies OPzV as Gel and lists telecom applications. This supports commercial subtype mapping, not the assumed Gel/AGM volume or price mix. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-opzv/))

31. Bolloré - 2017 Registration Document

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The official filing identifies LMP professional outage-protection applications including telecom relays. This is a dated commercial boundary input, not evidence of 2025 telecom shipment value. ([bollore.com](https://www.bollore.com/wp-content/uploads/2018/xx.xx/bollore_ddr_2017_gb_bag-xx.xx-juin.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The official filing identifies LMP professional outage-protection applications including telecom relays. This is a dated commercial boundary input, not evidence of 2025 telecom shipment value. ([bollore.com](https://www.bollore.com/wp-content/uploads/2018/xx.xx/bollore_ddr_2017_gb_bag-xx.xx-juin.pdf))

32. Bolloré - Business Report 2025

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The 2025 report establishes continuing Lithium Metal Polymer commercial applications in electricity storage and buses, while omitting separately attributable telecom sales. It constrains the low-access expected-purchase model; no capacity-to-sales conversion is used. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The 2025 report establishes continuing Lithium Metal Polymer commercial applications in electricity storage and buses, while omitting separately attributable telecom sales. It constrains the low-access expected-purchase model; no capacity-to-sales conversion is used. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The report preserves the distinction between LMP and conventional lithium-ion, supporting the exhaustive subtype attribution rule rather than treating polymer packaging as Lithium-Metal. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The report preserves the distinction between LMP and conventional lithium-ion, supporting the exhaustive subtype attribution rule rather than treating polymer packaging as Lithium-Metal. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))

33. AT&T to Replace U-Verse Cabinet Batteries - Fierce Network, January 15, 2008

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The January xx.xx 2008 report corroborates AT&T's replacement of approximately xx.xx Avestor batteries after the supplier's closure. The obsolete stock is therefore not carried into the 2025 or 2032 purchasing numerator. ([fierce-network.com](https://www.fierce-network.com/telecom/at-t-to-replace-u-verse-cabinet-batteries))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The January xx.xx 2008 report corroborates AT&T's replacement of approximately xx.xx Avestor batteries after the supplier's closure. The obsolete stock is therefore not carried into the 2025 or 2032 purchasing numerator. ([fierce-network.com](https://www.fierce-network.com/telecom/at-t-to-replace-u-verse-cabinet-batteries))

34. PowerSafe NiCd Batteries - EnerSys
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: EnerSys identifies Nickel-Cadmium for central offices and outside plant, supporting the modeled legacy telecom cohort but not its installed attachment or replacement spending. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-nicd/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: EnerSys identifies Nickel-Cadmium for central offices and outside plant, supporting the modeled legacy telecom cohort but not its installed attachment or replacement spending. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-nicd/))
35. FDK Ni-MH Battery Is Chosen for the Cellect 600 Product of Alpha Technologies
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The October xx.xx 2015 announcement identifies NiMH in Alpha's Cellect xx.xx small-cell backup proposition. It supports a historical cohort rather than current fulfillment or assumed surviving stock. ([fdk.com](https://www.fdk.com/whatsnew-e/release20151019-e.html))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The October xx.xx 2015 announcement identifies NiMH in Alpha's Cellect xx.xx small-cell backup proposition. It supports a historical cohort rather than current fulfillment or assumed surviving stock. ([fdk.com](https://www.fdk.com/whatsnew-e/release20151019-e.html))
36. Products - Encell Technology
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Encell positions its Fused Iron Nickel-Iron battery for telecom. This supports the commercial category lead, while current purchases and attachment remain modeled. ([encell.com](https://encell.com/products/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Encell positions its Fused Iron Nickel-Iron battery for telecom. This supports the commercial category lead, while current purchases and attachment remain modeled. ([encell.com](https://encell.com/products/))
37. Telecom/5G - ZAF Energy Systems
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: ZAF positions Nickel-Zinc for telecom/5G. Its supplier proposition supports application mapping, not the modeled annual attachment or threefold forecast value multiplier. ([zafsys.com](https://zafsys.com/telecom-5g/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: ZAF positions Nickel-Zinc for telecom/5G. Its supplier proposition supports application mapping, not the modeled annual attachment or threefold forecast value multiplier. ([zafsys.com](https://zafsys.com/telecom-5g/))
38. HORIEN Salt Battery Solutions and Inlyte Energy Announce a Strategic Partnership
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: HORIEN's March xx.xx 2025 statement identifies sodium-metal-chloride telecom backup. Its separate partnership announcement is not counted as delivered telecom sales. ([horien.com](https://horien.com/wp-content/uploads/2025/xx.xx/Press-Release_HORIEN-Inlyte-International-Version.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: HORIEN's March xx.xx 2025 statement identifies sodium-metal-chloride telecom backup. Its separate partnership announcement is not counted as delivered telecom sales. ([horien.com](https://horien.com/wp-content/uploads/2025/xx.xx/Press-Release_HORIEN-Inlyte-International-Version.pdf))
39. Energy Backup - Phinergy
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Phinergy markets Aluminum-Air continuity offerings to telecom operators and tower companies. The source supports category and buyer mapping, not the modeled installed attachment or replacement numerator. ([phinergy.com](https://phinergy.com/solutions/energy-backup/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Phinergy markets Aluminum-Air continuity offerings to telecom operators and tower companies. The source supports category and buyer mapping, not the modeled installed attachment or replacement numerator. ([phinergy.com](https://phinergy.com/solutions/energy-backup/))

40. Australian Flow Batteries - RFB40X Series

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: RFB40X literature identifies telecom among stationary commercial applications. It supports the qualifying project boundary, not delivered projects, revenue or assumed attachment. ([afb.energy](https://www.afb.energy/wp-content/uploads/2025/xx.xx/Australian-Flow-Batteries-RFB40X-Series-2024.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: RFB40X literature identifies telecom among stationary commercial applications. It supports the qualifying project boundary, not delivered projects, revenue or assumed attachment. ([afb.energy](https://www.afb.energy/wp-content/uploads/2025/xx.xx/Australian-Flow-Batteries-RFB40X-Series-2024.pdf))

41. PowerReserve - Verizon Residential Accessories

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Verizon advertises an alkaline-cell voice-backup device at USD39.xx.xx excluding batteries. This supports a qualifying primary-zinc premises route and price comparator, not assumed Global attachment or first-sale realization. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Verizon advertises an alkaline-cell voice-backup device at USD39.xx.xx excluding batteries. This supports a qualifying primary-zinc premises route and price comparator, not assumed Global attachment or first-sale realization. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Advertised voice-only protection reaches xx.xx hours; internet and television protection are excluded. This supports service-specific Day-Scale classification. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Advertised voice-only protection reaches xx.xx hours; internet and television protection are excluded. This supports service-specific Day-Scale classification. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))

42. Alkaline Manganese Dioxide Handbook and Application Manual - Energizer

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The manufacturer's alkaline manganese-dioxide classification supports the zinc-family mapping for qualifying premises backup. It provides no telecom purchasing weight. ([data.energizer.com](https://data.energizer.com/pdfs/alkaline_appman.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The manufacturer's alkaline manganese-dioxide classification supports the zinc-family mapping for qualifying premises backup. It provides no telecom purchasing weight. ([data.energizer.com](https://data.energizer.com/pdfs/alkaline_appman.pdf))

43. ITU-T Work Programme - Aqueous Zinc-Based Battery Systems for Base Station Applications

- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The aqueous-zinc base-station work item is Under study with December 2027 timing. It constrains the forecast commercialization assumption but establishes neither approval nor customer purchases. ([itu.int](https://www.itu.int/itu-t/workprog/wp_item.aspx?isn=xx.xx))

44. ITU-T L.1397 - Battery System with Integrated Control and Monitoring Information Model

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The October 2025 recommendation names lithium-lead, lithium-sodium and sodium-lead combinations. This supports mixed-family classification, not inseparable pricing or Global prevalence. ([itu.int](https://www.itu.int/rec/dologin_pub.asp?id=T-REC-L.xx.xx-xx.xx-I%xx.xx%21PDF-E&lang=e&type=items))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The October 2025 recommendation names lithium-lead, lithium-sodium and sodium-lead combinations. This supports mixed-family classification, not inseparable pricing or Global prevalence. ([itu.int](https://www.itu.int/rec/dologin_pub.asp?id=T-REC-L.xx.xx-xx.xx-I%xx.xx%21PDF-E&lang=e&type=items))

45. ETSI EN 300 132-1 V2.2.1 - ICT Power Supply Interface: Alternating Current
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The ICT standard identifies the protected-load AC interface, supporting output-side attribution rather than classification by chemistry or normal utility input. It supplies no sales mix. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013201v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The ICT standard identifies the protected-load AC interface, supporting output-side attribution rather than classification by chemistry or normal utility input. It supplies no sales mix. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013201v020201p.pdf))
46. ETSI EN 300 132-2 V2.8.1 - ICT Power Supply Interface: Direct Current
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The ICT standard separately identifies the DC protected-equipment interface, supporting the DC-output boundary independently of battery chemistry. It is not a purchasing census. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013202v020801p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The ICT standard separately identifies the DC protected-equipment interface, supporting the DC-output boundary independently of battery chemistry. It is not a purchasing census. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013202v020801p.pdf))
47. Vertiv NetSure Inverter Series - Converged AC and DC Power System
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: NetSure Inverter Series identifies AC and DC loads supported through a common battery bank. This establishes a combined-output proposition, not its modeled purchasing fraction or future adoption. ([vertiv.com](https://www.vertiv.com/en-us/products-catalog/critical-power/dc-power-systems/vertiv-netsure-inverter-series/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: NetSure Inverter Series identifies AC and DC loads supported through a common battery bank. This establishes a combined-output proposition, not its modeled purchasing fraction or future adoption. ([vertiv.com](https://www.vertiv.com/en-us/products-catalog/critical-power/dc-power-systems/vertiv-netsure-inverter-series/))

48. ETSI EN 302 099 V2.2.1 - Powering of Equipment in Access Network
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Local powering uses a colocated source; allocation follows the backed source rather than receiver inventory. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Local powering uses a colocated source; allocation follows the backed source rather than receiver inventory. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Remote-source backup is distinguished from local backup, supporting the parent commercial boundary but not purchasing weights. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Remote-source backup is distinguished from local backup, supporting the parent commercial boundary but not purchasing weights. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Centralized powering originates at a telecommunications center. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Centralized powering originates at a telecommunications center. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Cluster powering uses a source outside the telecommunications center, supporting separation within Remote Powering. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Cluster powering uses a source outside the telecommunications center, supporting separation within Remote Powering. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Reverse powering is customer-origin supply, supporting source-level attribution of the battery-backed provider package. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Reverse powering is customer-origin supply, supporting source-level attribution of the battery-backed provider package. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))

49. Set Up Your Battery Backup - AT&T G.Fast Service with BGW210

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The 2021 provider document names a battery-backed package protecting G.fast customer and distribution equipment through reverse power feed. It establishes a dated source-backup proposition, not current Global quantities. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The 2021 provider document names a battery-backed package protecting G.fast customer and distribution equipment through reverse power feed. It establishes a dated source-backup proposition, not current Global quantities. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The provider advertises a xx.xx-hour service window for the particular package, supporting Day-Scale mapping without a universal premises-duration inference. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The provider advertises a xx.xx-hour service window for the particular package, supporting Day-Scale mapping without a universal premises-duration inference. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

50. DNA Tower Offers Battery Capacity in Electricity Reserve Markets with Elisa DES

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The June xx.xx 2025 announcement reports DNA Tower batteries connected to Finnish reserve markets while retaining outage continuity. This establishes a specific mixed-duty implementation, not Global attachment or guaranteed returns. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/press-releases/dna-tower-becomes-worlds-first-tower-company-to-offer-battery-capacity-in-electricity-reserve-markets-with-elisa-des))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The June xx.xx 2025 announcement reports DNA Tower batteries connected to Finnish reserve markets while retaining outage continuity. This establishes a specific mixed-duty implementation, not Global attachment or guaranteed returns. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/press-releases/dna-tower-becomes-worlds-first-tower-company-to-offer-battery-capacity-in-electricity-reserve-markets-with-elisa-des))

51. Case Elisa: Virtual Power Plant in the Telecom Industry

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The company case reports over 2,000 aggregated sites and approximately xx.xx MWh. This is an installed commercial scale check, not annual purchasing value or Global prevalence. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/customer-stories/elisacase))

21.14. Spain

Table 744. Spain Telecom Battery Backup System Market Size, 2017-2032 (USD Million)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Spain	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 745. Spain Telecom Battery Backup System Market Size, by Offering, 2017-2032 (USD Million)

Offering	2023	2024	2025	2026	2027	2032	CAGR (%)
Battery Units and Assemblies	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Complete Backup Systems	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 746. Spain Telecom Battery Backup System Market Size, by Battery Technology, 2017-2032 (USD Million)

Battery Technology	2023	2024	2025	2026	2027	2032	CAGR (%)
Aqueous Zinc-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Flow Batteries	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lithium-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Metal-Air	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Multi-Chemistry	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Sodium-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 747. Spain Telecom Battery Backup System Market Size, by Lead-Acid, 2017-2032 (USD Million)

Lead-Acid	2023	2024	2025	2026	2027	2032	CAGR (%)
Flooded Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Valve-Regulated Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 748. Spain Telecom Battery Backup System Market Size, by Valve-Regulated Lead-Acid, 2017-2032 (USD Million)

Valve-Regulated Lead-Acid	2023	2024	2025	2026	2027	2032	CAGR (%)
Absorbent Glass Mat	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Gel	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 749. Spain Telecom Battery Backup System Market Size, by Lithium-Based, 2017-2032 (USD Million)

Lithium-Based	2023	2024	2025	2026	2027	2032	CAGR (%)
Lithium-Ion	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lithium-Metal	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 750. Spain Telecom Battery Backup System Market Size, by Nickel-Based, 2017-2032 (USD Million)

Nickel-Based	2023	2024	2025	2026	2027	2032	CAGR (%)
Nickel-Cadmium	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Iron	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Metal Hydride	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Zinc	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 751. Spain Telecom Battery Backup System Market Size, by Power Interface, 2017-2032 (USD Million)

Power Interface	2023	2024	2025	2026	2027	2032	CAGR (%)
AC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Combined AC/DC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
DC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 752. Spain Telecom Battery Backup System Market Size, by Network Application, 2017-2032 (USD Million)

Network Application	2023	2024	2025	2026	2027	2032	CAGR (%)
Core Networks & Network Control	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Customer-Premises Connectivity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Network Interconnection & Peering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Transport & Backhaul Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Wireless Access Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Wireline Access Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 753. Spain Telecom Battery Backup System Market Size, by Buyer Type, 2017-2032 (USD Million)

Buyer Type	2023	2024	2025	2026	2027	2032	CAGR (%)
Business & Institutional Connectivity Owners	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Equipment Leasing & Rental Providers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Household Connectivity Purchasers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Energy-Service Providers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Infrastructure & Tower Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecommunications Network Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 754. Spain Telecom Battery Backup System Market Size, by Installation Environment, 2017-2032 (USD Million)

Installation Environment	2023	2024	2025	2026	2027	2032	CAGR (%)
Non-Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Underground Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 755. Spain Telecom Battery Backup System Market Size, by Weather-Protected Locations, 2017-2032 (USD Million)

Weather-Protected Locations	2023	2024	2025	2026	2027	2032	CAGR (%)
Enclosed Locations Without Temperature Control	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Partly Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Temperature-Controlled Enclosed Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 756. Spain Telecom Battery Backup System Market Size, by Non-Weather-Protected Locations, 2017-2032 (USD Million)

Non-Weather-Protected Locations	2023	2024	2025	2026	2027	2032	CAGR (%)
Open-Air Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Sheltered Non-Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 757. Spain Telecom Battery Backup System Market Size, by Powering Architecture, 2017-2032 (USD Million)

Powering Architecture	2023	2024	2025	2026	2027	2032	CAGR (%)
Local Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Remote Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 758. Spain Telecom Battery Backup System Market Size, by Remote Powering, 2017-2032 (USD Million)

Remote Powering	2023	2024	2025	2026	2027	2032	CAGR (%)
Centralized Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Cluster Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reverse Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 759. Spain Telecom Battery Backup System Market Size, by Commercial Delivery Model, 2017-2032 (USD Million)

Commercial Delivery Model	2023	2024	2025	2026	2027	2032	CAGR (%)
Leased or Rented Equipment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Managed Backup Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Owned Equipment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 760. Spain Telecom Battery Backup System Market Size, by Sales Channel, 2017-2032 (USD Million)

Sales Channel	2023	2024	2025	2026	2027	2032	CAGR (%)
Direct Manufacturer Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Distributor and Retailer Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Systems Integrator and Contractor Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Service Provider Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 761. Spain Telecom Battery Backup System Market Size, by Grid Availability, 2017-2032 (USD Million)

Grid Availability	2023	2024	2025	2026	2027	2032	CAGR (%)
Off-Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reliable Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Unreliable Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 762. Spain Telecom Battery Backup System Market Size, by Backup Duty, 2017-2032 (USD Million)

Backup Duty	2023	2024	2025	2026	2027	2032	CAGR (%)
Backup with Energy Management	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reserve-Only Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 763. Spain Telecom Battery Backup System Market Size, by Backup Autonomy, 2017-2032 (USD Million)

Backup Autonomy	2023	2024	2025	2026	2027	2032	CAGR (%)
Day-Scale Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Extended-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Intermediate-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Short-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. China Tower - 2025 Annual Results, March 18, 2026
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The xx.xx.149m-site inventory constrains wireless activity; forecast purchasing remains modeled.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The xx.xx.149m-site inventory constrains wireless activity; forecast purchasing remains modeled.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Replacement/improvement CAPEX fell from RMB6837m to RMB5474m, qualifying automatic replacement-led growth.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Replacement/improvement CAPEX fell from RMB6837m to RMB5474m, qualifying automatic replacement-led growth.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Disclosed tower operations establish a material infrastructure purchasing setting, not a global buyer share.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Disclosed tower operations establish a material infrastructure purchasing setting, not a global buyer share.
2. Broadband Commission - The State of Broadband: Our Digital World, 2025
   - Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))

3. Battery Backup - Meriwether Lewis Electric Cooperative
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Separately available replacement batteries support a battery-only replacement route.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Separately available replacement batteries support a battery-only replacement route.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The USD100-plus-tax device is a retail comparator, not an observed 2025 first-sale realization.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The USD100-plus-tax device is a retail comparator, not an observed 2025 first-sale realization.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Customer purchase and replacement responsibilities support household-funded procurement.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Customer purchase and replacement responsibilities support household-funded procurement.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Purchased equipment does not automatically include continuing service-plan coverage.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Purchased equipment does not automatically include continuing service-plan coverage.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Local provider sales establish this route alongside manufacturer-direct purchasing.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Local provider sales establish this route alongside manufacturer-direct purchasing.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The provider advertises approximately five hours for combined voice and internet, supporting service-specific Extended classification, not an observed 2025 purchase mix. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The provider advertises approximately five hours for combined voice and internet, supporting service-specific Extended classification, not an observed 2025 purchase mix. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The same proposition advertises xx.xx-hour voice-only protection, supporting Day-Scale mapping without equating duration with a universally larger purchase basket. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The same proposition advertises xx.xx-hour voice-only protection, supporting Day-Scale mapping without equating duration with a universally larger purchase basket. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
4. EnerSys 2026 Proxy Statement and Annual Report
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Direct customer supply is disclosed within a diversified international business; telecom channel proportions are not disclosed.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Direct customer supply is disclosed within a diversified international business; telecom channel proportions are not disclosed.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Distributor supply is disclosed, supporting route occurrence rather than its modeled sales weight.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Distributor supply is disclosed, supporting route occurrence rather than its modeled sales weight.

5. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: Audited 2025 telecom revenue of RMB1,xx.xx declined xx.xx%; telecom purchasing weakness is retained as counterevidence to automatic substitution-led aggregate growth. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Audited 2025 telecom revenue of RMB1,xx.xx declined xx.xx%; telecom purchasing weakness is retained as counterevidence to automatic substitution-led aggregate growth. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: Telecom-specific results are separated from adjacent data-center and power-storage growth when assessing lithium substitution; the filing does not disclose the modeled Global split. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom-specific results are separated from adjacent data-center and power-storage growth when assessing lithium substitution; the filing does not disclose the modeled Global split. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

6. Amara Raja Energy & Mobility - Q2/H1 FY2026 Earnings Presentation, November 6, 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand. ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))

7. IHS Holding Limited - First-Quarter 2026 Financial Statements

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement. ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

8. Ofcom - Mobile RAN Power Resilience: Technical Report and CFI Update, February 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The evaluated xx.xx-minute alternative supplies a subhour commercial-planning anchor, not observed shipments.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The evaluated xx.xx-minute alternative supplies a subhour commercial-planning anchor, not observed shipments.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: One-hour and two-hour alternatives anchor the analytical Intermediate band. Aggregate scenarios include multiple years of operating costs and are not annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: One-hour and two-hour alternatives anchor the analytical Intermediate band. Aggregate scenarios include multiple years of operating costs and are not annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The four-hour alternative anchors the Extended band's lower boundary without establishing a Global minimum or purchasing allocation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The four-hour alternative anchors the Extended band's lower boundary without establishing a Global minimum or purchasing allocation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

9. Ofcom - Your Landline Is Going Digital: What You Need to Know
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
   - Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Restricted provider-funded eligibility constrains operator-funded premises attribution and forecast adoption.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Restricted provider-funded eligibility constrains operator-funded premises attribution and forecast adoption.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Eligibility is not universal household funding; purchaser proportions remain assumptions.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Eligibility is not universal household funding; purchaser proportions remain assumptions.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Eligibility-limited provider backup and the one-hour minimum for qualifying customers constrain premises demand and anchor the Intermediate band's lower boundary. They do not establish universal adoption. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Eligibility-limited provider backup and the one-hour minimum for qualifying customers constrain premises demand and anchor the Intermediate band's lower boundary. They do not establish universal adoption. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

10. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone
    - Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue. ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
    - Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions. ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: USD45m financing and xx.xx planned site modernizations support an expansion signal, not observed backup-only service revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: USD45m financing and xx.xx planned site modernizations support an expansion signal, not observed backup-only service revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Energy-service activity supports the role; the modeled provider-as-buyer subcontract share is not established.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Energy-service activity supports the role; the modeled provider-as-buyer subcontract share is not established.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: More than xx.xx% weak/off-grid project exposure constrains service-cohort concentration, not the global grid mix.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: More than xx.xx% weak/off-grid project exposure constrains service-cohort concentration, not the global grid mix.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The project confirms disconnected-site commercial demand; its weak/off-grid combined statistic does not separate those categories.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The project confirms disconnected-site commercial demand; its weak/off-grid combined statistic does not separate those categories.
11. Fingrid - How to Participate in the Reserve Markets
    - Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue. ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Applicable owner permission and market agreements are commercial access gates. They constrain forecast mixed-duty adoption without measuring its Global percentage. ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))
12. PowerSafe SBS Batteries | EnerSys
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Named telecom batteries support the battery-unit offering boundary; allocation weights are assumed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Named telecom batteries support the battery-unit offering boundary; allocation weights are assumed.

13. Vertiv NetSure M Series
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Configured enclosure, power and battery options support broader system classification, not universal bundle inclusion.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Configured enclosure, power and battery options support broader system classification, not universal bundle inclusion.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A marketed outdoor enclosure supports a protection option; global adoption and configuration proportions remain modeled.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A marketed outdoor enclosure supports a protection option; global adoption and configuration proportions remain modeled.
14. Ofcom - Network and Service Resilience Guidance for Communications Providers, June 16, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Core is a distinct, comparatively concentrated function with explicit backup expectations; global spending remains estimated.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Core is a distinct, comparatively concentrated function with explicit backup expectations; global spending remains estimated.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The stated xx.xx-xx.xx-fold site-scale distinction motivates lower-value, more numerous transport purchase equivalents.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The stated xx.xx-xx.xx-fold site-scale distinction motivates lower-value, more numerous transport purchase equivalents.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Peering and non-Internet interconnection are distinct functions; attributable backup purchase values are not disclosed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Peering and non-Internet interconnection are distinct functions; attributable backup purchase values are not disclosed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: June 2026 guidance identifies approximately four hours as good practice for active fixed-access cabinets. This supports a conditional Extended purchasing shift, not completed orders or a Global mandate. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/network-and-service-resilience-guidance-for-communications-providerspdf?v=xx.xx))
15. Technology and Tools | First Responder Network Authority
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Radio access, transport backhaul and core are separate network functions, supporting functional attribution without duplicate facility counting.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Radio access, transport backhaul and core are separate network functions, supporting functional attribution without duplicate facility counting.
16. Mobile Network Hardening Program | Australian Department of Infrastructure
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Completed battery enhancements and broader resilience projects provide a delivered regional demand signal, not a global forecast rate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Completed battery enhancements and broader resilience projects provide a delivered regional demand signal, not a global forecast rate.
17. BT - Digital Voice for Business Service Schedule, May 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Business customers bear backup-power expense, supporting a distinct institutional/business payer route rather than consumer eligibility extrapolation.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Business customers bear backup-power expense, supporting a distinct institutional/business payer route rather than consumer eligibility extrapolation.

18. Los Angeles Metro - Board Report 2024-1128, UPS Battery Replacement
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Completed and additional UPS battery replacements support continuing underground demand; mixed-load project budgets are not telecom-only revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Completed and additional UPS battery replacements support continuing underground demand; mixed-load project budgets are not telecom-only revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The transit authority's purchasing program supports an institutional own-use role, not its global spending proportion.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The transit authority's purchasing program supports an institutional own-use role, not its global spending proportion.
19. ETSI EN 300 019-1-3 V3.1.1 - Stationary Use at Weatherprotected Locations, May 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Weather-protected categories distinguish enclosure from environmental control; the standard does not measure market mix.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Weather-protected categories distinguish enclosure from environmental control; the standard does not measure market mix.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Maintained temperature control is a separate classification premise for the modeled conditional allocation.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Maintained temperature control is a separate classification premise for the modeled conditional allocation.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Enclosed locations without temperature control are distinguished from controlled locations.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Enclosed locations without temperature control are distinguished from controlled locations.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Partial weather protection is recognized separately; sales weights and future adoption remain assumed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Partial weather protection is recognized separately; sales weights and future adoption remain assumed.
20. ETSI EN 300 019-1-4 V3.1.1 - Stationary Use at Non-Weatherprotected Locations, May 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Non-weather-protected locations form a distinct classification regime, not a measured global spending pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Non-weather-protected locations form a distinct classification regime, not a measured global spending pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Sheltered non-weather-protected locations support the named conditional category.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Sheltered non-weather-protected locations support the named conditional category.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Open-air locations are separately recognized; their purchasing mix remains modeled.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Open-air locations are separately recognized; their purchasing mix remains modeled.

21. DC Power Plant / Rectifiers - UPS Rental
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Battery and complete DC-plant rentals establish delivery-category occurrence; global fees and utilization are not disclosed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Battery and complete DC-plant rentals establish delivery-category occurrence; global fees and utilization are not disclosed.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Commercial rental availability is a role premise only; modeled lessor sub-hire procurement remains unverified.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Commercial rental availability is a role premise only; modeled lessor sub-hire procurement remains unverified.
22. Helios Towers - Full Year Results 2025, March 12, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Grid-integration investment supplies a connection-improvement counterforce used conditionally in the forecast.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Grid-integration investment supplies a connection-improvement counterforce used conditionally in the forecast.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Reported xx.xx-hour average daily grid availability supports weak-grid commercial exposure, without a global classification share.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Reported xx.xx-hour average daily grid availability supports weak-grid commercial exposure, without a global classification share.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Grid integration and alternative-power investment qualify assumptions of permanently unchanged disconnected-site exposure.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Grid integration and alternative-power investment qualify assumptions of permanently unchanged disconnected-site exposure.
23. Telecommunications | Aggreko US
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Telecom battery-storage rental for temporary continuity supports delivery occurrence, not the estimated global fee scale.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom battery-storage rental for temporary continuity supports delivery occurrence, not the estimated global fee scale.
24. EnerSys PowerSafe SBS Front Terminal Batteries | Alpine Power Systems
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A named battery distributor supports the intermediary route; its listing is not a global channel-sales observation.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A named battery distributor supports the intermediary route; its listing is not a global channel-sales observation.
25. DC Power Services | Vertiv
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Cross-manufacturer projects and narrower upgrades support integration-prime and supported-replacement routes; numerical route proportions remain assumed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Cross-manufacturer projects and narrower upgrades support integration-prime and supported-replacement routes; numerical route proportions remain assumed.

26. Shuangdeng Group Co., Ltd. - Global Offering Prospectus, August 18, 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The company's own five-month 2025 lead-acid realization of RMB520.xx.xx/kWh constrains the relative-price bridge; syndicated industry claims are excluded. Forecast convergence remains assumed. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The company's own five-month 2025 lead-acid realization of RMB520.xx.xx/kWh constrains the relative-price bridge; syndicated industry claims are excluded. Forecast convergence remains assumed. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Own lithium-ion realization of RMB595.xx.xx/kWh is an input to the Lithium-Based value model, not a Global share or a Lithium-Metal sales observation. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Own lithium-ion realization of RMB595.xx.xx/kWh is an input to the Lithium-Based value model, not a Global share or a Lithium-Metal sales observation. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
27. Amara Raja Crosses 1 GWh Lithium Storage Deployment Powering India's Telecom Networks
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The April xx.xx 2026 disclosure reports approximately xx.xx GWh across xx.xx cumulative telecom lithium sites over four years. This is a commercial adoption scale check, not annual Global revenue or a supplier-share input. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The April xx.xx 2026 disclosure reports approximately xx.xx GWh across xx.xx cumulative telecom lithium sites over four years. This is a commercial adoption scale check, not annual Global revenue or a supplier-share input. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The disclosed deployment identifies lithium-ion commercialization at scale, supporting the subtype's established commercial position without directly measuring its conditional Global share. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The disclosed deployment identifies lithium-ion commercialization at scale, supporting the subtype's established commercial position without directly measuring its conditional Global share. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
28. Central Office Power Systems - EnerSys
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The central-office portfolio identifies Flooded Lead-Acid as a distinct telecom alternative, supporting the legacy-network category mapping but not its purchasing fraction. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The central-office portfolio identifies Flooded Lead-Acid as a distinct telecom alternative, supporting the legacy-network category mapping but not its purchasing fraction. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The portfolio separately identifies Valve-Regulated Lead-Acid, supporting the within-lead construction boundary used by the model. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The portfolio separately identifies Valve-Regulated Lead-Acid, supporting the within-lead construction boundary used by the model. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))

29. PowerSafe OPzV Batteries - EnerSys
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: EnerSys identifies OPzV as Gel and lists telecom applications. This supports commercial subtype mapping, not the assumed Gel/AGM volume or price mix. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-opzv/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: EnerSys identifies OPzV as Gel and lists telecom applications. This supports commercial subtype mapping, not the assumed Gel/AGM volume or price mix. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-opzv/))
30. Bolloré - 2017 Registration Document
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The official filing identifies LMP professional outage-protection applications including telecom relays. This is a dated commercial boundary input, not evidence of 2025 telecom shipment value. ([bollore.com](https://www.bollore.com/wp-content/uploads/2018/xx.xx/bollore_ddr_2017_gb_bag-xx.xx-juin.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The official filing identifies LMP professional outage-protection applications including telecom relays. This is a dated commercial boundary input, not evidence of 2025 telecom shipment value. ([bollore.com](https://www.bollore.com/wp-content/uploads/2018/xx.xx/bollore_ddr_2017_gb_bag-xx.xx-juin.pdf))
31. Bolloré - Business Report 2025
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The 2025 report establishes continuing Lithium Metal Polymer commercial applications in electricity storage and buses, while omitting separately attributable telecom sales. It constrains the low-access expected-purchase model; no capacity-to-sales conversion is used. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The 2025 report establishes continuing Lithium Metal Polymer commercial applications in electricity storage and buses, while omitting separately attributable telecom sales. It constrains the low-access expected-purchase model; no capacity-to-sales conversion is used. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The report preserves the distinction between LMP and conventional lithium-ion, supporting the exhaustive subtype attribution rule rather than treating polymer packaging as Lithium-Metal. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The report preserves the distinction between LMP and conventional lithium-ion, supporting the exhaustive subtype attribution rule rather than treating polymer packaging as Lithium-Metal. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))
32. AT&T to Replace U-Verse Cabinet Batteries - Fierce Network, January 15, 2008
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The January xx.xx 2008 report corroborates AT&T's replacement of approximately xx.xx Avestor batteries after the supplier's closure. The obsolete stock is therefore not carried into the 2025 or 2032 purchasing numerator. ([fierce-network.com](https://www.fierce-network.com/telecom/at-t-to-replace-u-verse-cabinet-batteries))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The January xx.xx 2008 report corroborates AT&T's replacement of approximately xx.xx Avestor batteries after the supplier's closure. The obsolete stock is therefore not carried into the 2025 or 2032 purchasing numerator. ([fierce-network.com](https://www.fierce-network.com/telecom/at-t-to-replace-u-verse-cabinet-batteries))

33. PowerSafe NiCd Batteries - EnerSys
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: EnerSys identifies Nickel-Cadmium for central offices and outside plant, supporting the modeled legacy telecom cohort but not its installed attachment or replacement spending. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-nicd/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: EnerSys identifies Nickel-Cadmium for central offices and outside plant, supporting the modeled legacy telecom cohort but not its installed attachment or replacement spending. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-nicd/))
34. FDK Ni-MH Battery Is Chosen for the Cellect 600 Product of Alpha Technologies
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The October xx.xx 2015 announcement identifies NiMH in Alpha's Cellect xx.xx small-cell backup proposition. It supports a historical cohort rather than current fulfillment or assumed surviving stock. ([fdk.com](https://www.fdk.com/whatsnew-e/release20151019-e.html))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The October xx.xx 2015 announcement identifies NiMH in Alpha's Cellect xx.xx small-cell backup proposition. It supports a historical cohort rather than current fulfillment or assumed surviving stock. ([fdk.com](https://www.fdk.com/whatsnew-e/release20151019-e.html))
35. Products - Encell Technology
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Encell positions its Fused Iron Nickel-Iron battery for telecom. This supports the commercial category lead, while current purchases and attachment remain modeled. ([encell.com](https://encell.com/products/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Encell positions its Fused Iron Nickel-Iron battery for telecom. This supports the commercial category lead, while current purchases and attachment remain modeled. ([encell.com](https://encell.com/products/))
36. Telecom/5G - ZAF Energy Systems
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: ZAF positions Nickel-Zinc for telecom/5G. Its supplier proposition supports application mapping, not the modeled annual attachment or threefold forecast value multiplier. ([zafsys.com](https://zafsys.com/telecom-5g/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: ZAF positions Nickel-Zinc for telecom/5G. Its supplier proposition supports application mapping, not the modeled annual attachment or threefold forecast value multiplier. ([zafsys.com](https://zafsys.com/telecom-5g/))
37. HORIEN Salt Battery Solutions and Inlyte Energy Announce a Strategic Partnership
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: HORIEN's March xx.xx 2025 statement identifies sodium-metal-chloride telecom backup. Its separate partnership announcement is not counted as delivered telecom sales. ([horien.com](https://horien.com/wp-content/uploads/2025/xx.xx/Press-Release_HORIEN-Inlyte-International-Version.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: HORIEN's March xx.xx 2025 statement identifies sodium-metal-chloride telecom backup. Its separate partnership announcement is not counted as delivered telecom sales. ([horien.com](https://horien.com/wp-content/uploads/2025/xx.xx/Press-Release_HORIEN-Inlyte-International-Version.pdf))
38. Energy Backup - Phinergy
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Phinergy markets Aluminum-Air continuity offerings to telecom operators and tower companies. The source supports category and buyer mapping, not the modeled installed attachment or replacement numerator. ([phinergy.com](https://phinergy.com/solutions/energy-backup/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Phinergy markets Aluminum-Air continuity offerings to telecom operators and tower companies. The source supports category and buyer mapping, not the modeled installed attachment or replacement numerator. ([phinergy.com](https://phinergy.com/solutions/energy-backup/))

39. Australian Flow Batteries - RFB40X Series

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: RFB40X literature identifies telecom among stationary commercial applications. It supports the qualifying project boundary, not delivered projects, revenue or assumed attachment. ([afb.energy](https://www.afb.energy/wp-content/uploads/2025/xx.xx/Australian-Flow-Batteries-RFB40X-Series-2024.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: RFB40X literature identifies telecom among stationary commercial applications. It supports the qualifying project boundary, not delivered projects, revenue or assumed attachment. ([afb.energy](https://www.afb.energy/wp-content/uploads/2025/xx.xx/Australian-Flow-Batteries-RFB40X-Series-2024.pdf))

40. PowerReserve - Verizon Residential Accessories

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Verizon advertises an alkaline-cell voice-backup device at USD39.xx.xx excluding batteries. This supports a qualifying primary-zinc premises route and price comparator, not assumed Global attachment or first-sale realization. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Verizon advertises an alkaline-cell voice-backup device at USD39.xx.xx excluding batteries. This supports a qualifying primary-zinc premises route and price comparator, not assumed Global attachment or first-sale realization. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Advertised voice-only protection reaches xx.xx hours; internet and television protection are excluded. This supports service-specific Day-Scale classification. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Advertised voice-only protection reaches xx.xx hours; internet and television protection are excluded. This supports service-specific Day-Scale classification. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))

41. Alkaline Manganese Dioxide Handbook and Application Manual - Energizer

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The manufacturer's alkaline manganese-dioxide classification supports the zinc-family mapping for qualifying premises backup. It provides no telecom purchasing weight. ([data.energizer.com](https://data.energizer.com/pdfs/alkaline_appman.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The manufacturer's alkaline manganese-dioxide classification supports the zinc-family mapping for qualifying premises backup. It provides no telecom purchasing weight. ([data.energizer.com](https://data.energizer.com/pdfs/alkaline_appman.pdf))

42. ITU-T Work Programme - Aqueous Zinc-Based Battery Systems for Base Station Applications

- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The aqueous-zinc base-station work item is Under study with December 2027 timing. It constrains the forecast commercialization assumption but establishes neither approval nor customer purchases. ([itu.int](https://www.itu.int/itu-t/workprog/wp_item.aspx?isn=xx.xx))

43. ITU-T L.1397 - Battery System with Integrated Control and Monitoring Information Model

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The October 2025 recommendation names lithium-lead, lithium-sodium and sodium-lead combinations. This supports mixed-family classification, not inseparable pricing or Global prevalence. ([itu.int](https://www.itu.int/rec/dologin_pub.asp?id=T-REC-L.xx.xx-xx.xx-I%xx.xx%21PDF-E&lang=e&type=items))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The October 2025 recommendation names lithium-lead, lithium-sodium and sodium-lead combinations. This supports mixed-family classification, not inseparable pricing or Global prevalence. ([itu.int](https://www.itu.int/rec/dologin_pub.asp?id=T-REC-L.xx.xx-xx.xx-I%xx.xx%21PDF-E&lang=e&type=items))

44. ETSI EN 300 132-1 V2.2.1 - ICT Power Supply Interface: Alternating Current
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The ICT standard identifies the protected-load AC interface, supporting output-side attribution rather than classification by chemistry or normal utility input. It supplies no sales mix. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013201v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The ICT standard identifies the protected-load AC interface, supporting output-side attribution rather than classification by chemistry or normal utility input. It supplies no sales mix. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013201v020201p.pdf))
45. ETSI EN 300 132-2 V2.8.1 - ICT Power Supply Interface: Direct Current
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The ICT standard separately identifies the DC protected-equipment interface, supporting the DC-output boundary independently of battery chemistry. It is not a purchasing census. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013202v020801p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The ICT standard separately identifies the DC protected-equipment interface, supporting the DC-output boundary independently of battery chemistry. It is not a purchasing census. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013202v020801p.pdf))
46. Vertiv NetSure Inverter Series - Converged AC and DC Power System
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: NetSure Inverter Series identifies AC and DC loads supported through a common battery bank. This establishes a combined-output proposition, not its modeled purchasing fraction or future adoption. ([vertiv.com](https://www.vertiv.com/en-us/products-catalog/critical-power/dc-power-systems/vertiv-netsure-inverter-series/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: NetSure Inverter Series identifies AC and DC loads supported through a common battery bank. This establishes a combined-output proposition, not its modeled purchasing fraction or future adoption. ([vertiv.com](https://www.vertiv.com/en-us/products-catalog/critical-power/dc-power-systems/vertiv-netsure-inverter-series/))

47. ETSI EN 302 099 V2.2.1 - Powering of Equipment in Access Network
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Local powering uses a colocated source; allocation follows the backed source rather than receiver inventory. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Local powering uses a colocated source; allocation follows the backed source rather than receiver inventory. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Remote-source backup is distinguished from local backup, supporting the parent commercial boundary but not purchasing weights. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Remote-source backup is distinguished from local backup, supporting the parent commercial boundary but not purchasing weights. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Centralized powering originates at a telecommunications center. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Centralized powering originates at a telecommunications center. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Cluster powering uses a source outside the telecommunications center, supporting separation within Remote Powering. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Cluster powering uses a source outside the telecommunications center, supporting separation within Remote Powering. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Reverse powering is customer-origin supply, supporting source-level attribution of the battery-backed provider package. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Reverse powering is customer-origin supply, supporting source-level attribution of the battery-backed provider package. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))

48. Set Up Your Battery Backup - AT&T G.Fast Service with BGW210

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The 2021 provider document names a battery-backed package protecting G.fast customer and distribution equipment through reverse power feed. It establishes a dated source-backup proposition, not current Global quantities. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The 2021 provider document names a battery-backed package protecting G.fast customer and distribution equipment through reverse power feed. It establishes a dated source-backup proposition, not current Global quantities. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The provider advertises a xx.xx-hour service window for the particular package, supporting Day-Scale mapping without a universal premises-duration inference. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The provider advertises a xx.xx-hour service window for the particular package, supporting Day-Scale mapping without a universal premises-duration inference. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

49. DNA Tower Offers Battery Capacity in Electricity Reserve Markets with Elisa DES

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The June xx.xx 2025 announcement reports DNA Tower batteries connected to Finnish reserve markets while retaining outage continuity. This establishes a specific mixed-duty implementation, not Global attachment or guaranteed returns. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/press-releases/dna-tower-becomes-worlds-first-tower-company-to-offer-battery-capacity-in-electricity-reserve-markets-with-elisa-des))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The June xx.xx 2025 announcement reports DNA Tower batteries connected to Finnish reserve markets while retaining outage continuity. This establishes a specific mixed-duty implementation, not Global attachment or guaranteed returns. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/press-releases/dna-tower-becomes-worlds-first-tower-company-to-offer-battery-capacity-in-electricity-reserve-markets-with-elisa-des))

50. Case Elisa: Virtual Power Plant in the Telecom Industry

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The company case reports over 2,000 aggregated sites and approximately xx.xx MWh. This is an installed commercial scale check, not annual purchasing value or Global prevalence. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/customer-stories/elisacase))

21.15. Australia

Table 764. Australia Telecom Battery Backup System Market Size, 2017-2032 (USD Million)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 765. Australia Telecom Battery Backup System Market Size, by Offering, 2017-2032 (USD Million)

Offering	2023	2024	2025	2026	2027	2032	CAGR (%)
Battery Units and Assemblies	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Complete Backup Systems	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 766. Australia Telecom Battery Backup System Market Size, by Battery Technology, 2017-2032 (USD Million)

Battery Technology	2023	2024	2025	2026	2027	2032	CAGR (%)
Aqueous Zinc-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Flow Batteries	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lithium-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Metal-Air	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Multi-Chemistry	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Sodium-Based	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 767. Australia Telecom Battery Backup System Market Size, by Lead-Acid, 2017-2032 (USD Million)

Lead-Acid	2023	2024	2025	2026	2027	2032	CAGR (%)
Flooded Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Valve-Regulated Lead-Acid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 768. Australia Telecom Battery Backup System Market Size, by Valve-Regulated Lead-Acid, 2017-2032 (USD Million)

Valve-Regulated Lead-Acid	2023	2024	2025	2026	2027	2032	CAGR (%)
Absorbent Glass Mat	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Gel	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 769. Australia Telecom Battery Backup System Market Size, by Lithium-Based, 2017-2032 (USD Million)

Lithium-Based	2023	2024	2025	2026	2027	2032	CAGR (%)
Lithium-Ion	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lithium-Metal	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 770. Australia Telecom Battery Backup System Market Size, by Nickel-Based, 2017-2032 (USD Million)

Nickel-Based	2023	2024	2025	2026	2027	2032	CAGR (%)
Nickel-Cadmium	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Iron	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Metal Hydride	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nickel-Zinc	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 771. Australia Telecom Battery Backup System Market Size, by Power Interface, 2017-2032 (USD Million)

Power Interface	2023	2024	2025	2026	2027	2032	CAGR (%)
AC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Combined AC/DC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
DC Output	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 772. Australia Telecom Battery Backup System Market Size, by Network Application, 2017-2032 (USD Million)

Network Application	2023	2024	2025	2026	2027	2032	CAGR (%)
Core Networks & Network Control	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Customer-Premises Connectivity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Network Interconnection & Peering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Transport & Backhaul Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Wireless Access Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Wireline Access Networks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 773. Australia Telecom Battery Backup System Market Size, by Buyer Type, 2017-2032 (USD Million)

Buyer Type	2023	2024	2025	2026	2027	2032	CAGR (%)
Business & Institutional Connectivity Owners	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Equipment Leasing & Rental Providers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Household Connectivity Purchasers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Energy-Service Providers	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Infrastructure & Tower Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecommunications Network Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 774. Australia Telecom Battery Backup System Market Size, by Installation Environment, 2017-2032 (USD Million)

Installation Environment	2023	2024	2025	2026	2027	2032	CAGR (%)
Non-Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Underground Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 775. Australia Telecom Battery Backup System Market Size, by Weather-Protected Locations, 2017-2032 (USD Million)

Weather-Protected Locations	2023	2024	2025	2026	2027	2032	CAGR (%)
Enclosed Locations Without Temperature Control	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Partly Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Temperature-Controlled Enclosed Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 776. Australia Telecom Battery Backup System Market Size, by Non-Weather-Protected Locations, 2017-2032 (USD Million)

Non-Weather-Protected Locations	2023	2024	2025	2026	2027	2032	CAGR (%)
Open-Air Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Sheltered Non-Weather-Protected Locations	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 777. Australia Telecom Battery Backup System Market Size, by Powering Architecture, 2017-2032 (USD Million)

Powering Architecture	2023	2024	2025	2026	2027	2032	CAGR (%)
Local Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Remote Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 778. Australia Telecom Battery Backup System Market Size, by Remote Powering, 2017-2032 (USD Million)

Remote Powering	2023	2024	2025	2026	2027	2032	CAGR (%)
Centralized Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Cluster Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reverse Powering	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 779. Australia Telecom Battery Backup System Market Size, by Commercial Delivery Model, 2017-2032 (USD Million)

Commercial Delivery Model	2023	2024	2025	2026	2027	2032	CAGR (%)
Leased or Rented Equipment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Managed Backup Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Owned Equipment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 780. Australia Telecom Battery Backup System Market Size, by Sales Channel, 2017-2032 (USD Million)

Sales Channel	2023	2024	2025	2026	2027	2032	CAGR (%)
Direct Manufacturer Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Distributor and Retailer Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Systems Integrator and Contractor Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecom Service Provider Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 781. Australia Telecom Battery Backup System Market Size, by Grid Availability, 2017-2032 (USD Million)

Grid Availability	2023	2024	2025	2026	2027	2032	CAGR (%)
Off-Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reliable Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Unreliable Grid	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 782. Australia Telecom Battery Backup System Market Size, by Backup Duty, 2017-2032 (USD Million)

Backup Duty	2023	2024	2025	2026	2027	2032	CAGR (%)
Backup with Energy Management	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Reserve-Only Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 783. Australia Telecom Battery Backup System Market Size, by Backup Autonomy, 2017-2032 (USD Million)

Backup Autonomy	2023	2024	2025	2026	2027	2032	CAGR (%)
Day-Scale Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Extended-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Intermediate-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Short-Duration Backup	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. China Tower - 2025 Annual Results, March 18, 2026
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosed spending slowdown is a counterforce used in the restrained 2026 purchasing assumption, not an observation of 2026 global revenue. ([ir.china-tower.com](https://ir.china-tower.com/en/ir/presentation/pre260318.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The xx.xx.149m-site inventory constrains wireless activity; forecast purchasing remains modeled.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The xx.xx.149m-site inventory constrains wireless activity; forecast purchasing remains modeled.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Replacement/improvement CAPEX fell from RMB6837m to RMB5474m, qualifying automatic replacement-led growth.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Replacement/improvement CAPEX fell from RMB6837m to RMB5474m, qualifying automatic replacement-led growth.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Disclosed tower operations establish a material infrastructure purchasing setting, not a global buyer share.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Disclosed tower operations establish a material infrastructure purchasing setting, not a global buyer share.
2. Broadband Commission - The State of Broadband: Our Digital World, 2025
   - Evidence informing the 2032 market-value input; displayed series and growth include calculations: The fixed-broadband pool supports the premises-demand model, with future adoption and replacement assumptions remaining modeled. ([itu.int](https://www.itu.int/dms_pub/itu-s/opb/pol/s-pol-broadband.xx.xx-2025-pdf-e.pdf))

3. Battery Backup - Meriwether Lewis Electric Cooperative
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: The provider distinguishes voice-only protection from combined voice-and-internet protection, supporting service-specific rather than universal premises adoption assumptions. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Separately available replacement batteries support a battery-only replacement route.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Separately available replacement batteries support a battery-only replacement route.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The USD100-plus-tax device is a retail comparator, not an observed 2025 first-sale realization.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The USD100-plus-tax device is a retail comparator, not an observed 2025 first-sale realization.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Customer purchase and replacement responsibilities support household-funded procurement.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Customer purchase and replacement responsibilities support household-funded procurement.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Purchased equipment does not automatically include continuing service-plan coverage.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Purchased equipment does not automatically include continuing service-plan coverage.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Local provider sales establish this route alongside manufacturer-direct purchasing.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Local provider sales establish this route alongside manufacturer-direct purchasing.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The provider advertises approximately five hours for combined voice and internet, supporting service-specific Extended classification, not an observed 2025 purchase mix. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The provider advertises approximately five hours for combined voice and internet, supporting service-specific Extended classification, not an observed 2025 purchase mix. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The same proposition advertises xx.xx-hour voice-only protection, supporting Day-Scale mapping without equating duration with a universally larger purchase basket. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The same proposition advertises xx.xx-hour voice-only protection, supporting Day-Scale mapping without equating duration with a universally larger purchase basket. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
4. EnerSys 2026 Proxy Statement and Annual Report
   - Evidence informing the 2026 market-value input; displayed series and growth include calculations: Fiscal 2026 segment growth included data-center and industrial demand and communications mix effects. It is not accepted as a telecom-only global growth rate. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Direct customer supply is disclosed within a diversified international business; telecom channel proportions are not disclosed.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Direct customer supply is disclosed within a diversified international business; telecom channel proportions are not disclosed.
   - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Distributor supply is disclosed, supporting route occurrence rather than its modeled sales weight.
   - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Distributor supply is disclosed, supporting route occurrence rather than its modeled sales weight.

5. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: The telecom-specific decline is a counterweight to using broad energy-storage growth as the 2026 market forecast. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: Audited 2025 telecom revenue of RMB1,xx.xx declined xx.xx%; telecom purchasing weakness is retained as counterevidence to automatic substitution-led aggregate growth. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Audited 2025 telecom revenue of RMB1,xx.xx declined xx.xx%; telecom purchasing weakness is retained as counterevidence to automatic substitution-led aggregate growth. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: Telecom-specific results are separated from adjacent data-center and power-storage growth when assessing lithium substitution; the filing does not disclose the modeled Global split. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom-specific results are separated from adjacent data-center and power-storage growth when assessing lithium substitution; the filing does not disclose the modeled Global split. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2026/xx.xx/xx.xx.pdf))

6. Amara Raja Energy & Mobility - Q2/H1 FY2026 Earnings Presentation, November 6, 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Amara Raja subsequently reported more than xx.xx MWh of telecom volumes in its second quarter of fiscal 2026. This commercial shipment aggregate provides counterevidence to treating lead-acid weakness as disappearance of telecom backup demand. ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/Earningspresentation06112025.pdf))

7. IHS Holding Limited - First-Quarter 2026 Financial Statements

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: The disclosure supports a continuing replacement mechanism, but supplies no isolated global battery spending or replacement-cycle measurement. ([ihstowers.com](https://www.ihstowers.com/content/dam/ihs/corporate/documents/investors/earnings-materials/2026/IHS_Holding_Limited_1Q26_Financial_Statements.pdf.downloadasset.pdf))

8. Ofcom - Mobile RAN Power Resilience: Technical Report and CFI Update, February 2025

· Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom estimated UK-wide one-hour battery-backup alternatives at GBP1.xx.xx-xx.xx in 2024 prices, including capital expenditure and multiple years of operating costs. This is a jurisdictional scenario, not realized annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing the 2032 market-value input; displayed series and growth include calculations: The costed alternatives constrain the commercial significance and limitations of resilience upgrades; their existence does not establish forecast implementation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The evaluated xx.xx-minute alternative supplies a subhour commercial-planning anchor, not observed shipments.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The evaluated xx.xx-minute alternative supplies a subhour commercial-planning anchor, not observed shipments.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: One-hour and two-hour alternatives anchor the analytical Intermediate band. Aggregate scenarios include multiple years of operating costs and are not annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: One-hour and two-hour alternatives anchor the analytical Intermediate band. Aggregate scenarios include multiple years of operating costs and are not annual battery revenue.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The four-hour alternative anchors the Extended band's lower boundary without establishing a Global minimum or purchasing allocation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The four-hour alternative anchors the Extended band's lower boundary without establishing a Global minimum or purchasing allocation.
([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=xx.xx))

9. Ofcom - Your Landline Is Going Digital: What You Need to Know

- Evidence informing the 2026 market-value input; displayed series and growth include calculations: Ofcom describes provider-funded backup eligibility for landline-dependent customers lacking a working mobile phone or reliable mobile signal. Eligibility is narrower than the total broadband customer pool. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
- Evidence informing the 2032 market-value input; displayed series and growth include calculations: The eligibility boundary supports conditional premises adoption, not a universal entitlement or a quantified global take-up rate. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Restricted provider-funded eligibility constrains operator-funded premises attribution and forecast adoption.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Restricted provider-funded eligibility constrains operator-funded premises attribution and forecast adoption.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Eligibility is not universal household funding; purchaser proportions remain assumptions.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Eligibility is not universal household funding; purchaser proportions remain assumptions.
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Eligibility-limited provider backup and the one-hour minimum for qualifying customers constrain premises demand and anchor the Intermediate band's lower boundary. They do not establish universal adoption. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Eligibility-limited provider backup and the one-hour minimum for qualifying customers constrain premises demand and anchor the Intermediate band's lower boundary. They do not establish universal adoption. ([ofcom.org.uk](https://www.ofcom.org.uk/phones-and-broadband/landline-phones/future-of-landline-calls))

10. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone
    - Evidence informing the 2026 market-value input; displayed series and growth include calculations: IFC's March 2026 announcement establishes financing support for IPT's telecom-energy expansion in Ethiopia, Liberia and Sierra Leone. Financing is an expansion indicator, not completed deployment or attributable backup-fee revenue. ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
    - Evidence informing the 2029 market-value input; displayed series and growth include calculations: The financed expansion supports consideration of managed delivery, while global served-site counts and backup-only fees remain assumptions. ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: USD45m financing and xx.xx planned site modernizations support an expansion signal, not observed backup-only service revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: USD45m financing and xx.xx planned site modernizations support an expansion signal, not observed backup-only service revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Energy-service activity supports the role; the modeled provider-as-buyer subcontract share is not established.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Energy-service activity supports the role; the modeled provider-as-buyer subcontract share is not established.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: More than xx.xx% weak/off-grid project exposure constrains service-cohort concentration, not the global grid mix.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: More than xx.xx% weak/off-grid project exposure constrains service-cohort concentration, not the global grid mix.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The project confirms disconnected-site commercial demand; its weak/off-grid combined statistic does not separate those categories.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The project confirms disconnected-site commercial demand; its weak/off-grid combined statistic does not separate those categories.
11. Fingrid - How to Participate in the Reserve Markets
    - Evidence informing the 2032 market-value input; displayed series and growth include calculations: Fingrid's participation conditions establish contractual and permission gates for Finnish reserve markets. They support retaining an access constraint rather than assuming every backup asset earns additional energy-market revenue. ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Applicable owner permission and market agreements are commercial access gates. They constrain forecast mixed-duty adoption without measuring its Global percentage. ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))

12. Australian Government - Mobile Network Hardening Program
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Operator-specific battery upgrades and mixed hardening measures support localized Australian procurement, not a regional battery mandate.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Completed battery enhancements and broader resilience projects provide a delivered regional demand signal, not a global forecast rate.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Completed battery enhancements and broader resilience projects provide a delivered regional demand signal, not a global forecast rate.
13. PowerSafe SBS Batteries | EnerSys
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Named telecom batteries support the battery-unit offering boundary; allocation weights are assumed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Named telecom batteries support the battery-unit offering boundary; allocation weights are assumed.
14. Vertiv NetSure M Series
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Configured enclosure, power and battery options support broader system classification, not universal bundle inclusion.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Configured enclosure, power and battery options support broader system classification, not universal bundle inclusion.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A marketed outdoor enclosure supports a protection option; global adoption and configuration proportions remain modeled.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A marketed outdoor enclosure supports a protection option; global adoption and configuration proportions remain modeled.
15. Ofcom - Network and Service Resilience Guidance for Communications Providers, June 16, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Core is a distinct, comparatively concentrated function with explicit backup expectations; global spending remains estimated.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Core is a distinct, comparatively concentrated function with explicit backup expectations; global spending remains estimated.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The stated xx.xx-xx.xx-fold site-scale distinction motivates lower-value, more numerous transport purchase equivalents.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The stated xx.xx-xx.xx-fold site-scale distinction motivates lower-value, more numerous transport purchase equivalents.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Peering and non-Internet interconnection are distinct functions; attributable backup purchase values are not disclosed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Peering and non-Internet interconnection are distinct functions; attributable backup purchase values are not disclosed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: June 2026 guidance identifies approximately four hours as good practice for active fixed-access cabinets. This supports a conditional Extended purchasing shift, not completed orders or a Global mandate. ([ofcom.org.uk](https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-xx.xx-xx.xx-weeks/xx.xx-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/network-and-service-resilience-guidance-for-communications-providerspdf?v=xx.xx))

16. Technology and Tools | First Responder Network Authority
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Radio access, transport backhaul and core are separate network functions, supporting functional attribution without duplicate facility counting.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Radio access, transport backhaul and core are separate network functions, supporting functional attribution without duplicate facility counting.
17. BT - Digital Voice for Business Service Schedule, May 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Business customers bear backup-power expense, supporting a distinct institutional/business payer route rather than consumer eligibility extrapolation.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Business customers bear backup-power expense, supporting a distinct institutional/business payer route rather than consumer eligibility extrapolation.
18. Los Angeles Metro - Board Report 2024-1128, UPS Battery Replacement
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Completed and additional UPS battery replacements support continuing underground demand; mixed-load project budgets are not telecom-only revenue.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Completed and additional UPS battery replacements support continuing underground demand; mixed-load project budgets are not telecom-only revenue.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The transit authority's purchasing program supports an institutional own-use role, not its global spending proportion.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The transit authority's purchasing program supports an institutional own-use role, not its global spending proportion.
19. ETSI EN 300 019-1-3 V3.1.1 - Stationary Use at Weatherprotected Locations, May 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Weather-protected categories distinguish enclosure from environmental control; the standard does not measure market mix.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Weather-protected categories distinguish enclosure from environmental control; the standard does not measure market mix.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Maintained temperature control is a separate classification premise for the modeled conditional allocation.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Maintained temperature control is a separate classification premise for the modeled conditional allocation.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Enclosed locations without temperature control are distinguished from controlled locations.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Enclosed locations without temperature control are distinguished from controlled locations.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Partial weather protection is recognized separately; sales weights and future adoption remain assumed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Partial weather protection is recognized separately; sales weights and future adoption remain assumed.

20. ETSI EN 300 019-1-4 V3.1.1 - Stationary Use at Non-Weatherprotected Locations, May 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Non-weather-protected locations form a distinct classification regime, not a measured global spending pool.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Non-weather-protected locations form a distinct classification regime, not a measured global spending pool.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Sheltered non-weather-protected locations support the named conditional category.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Sheltered non-weather-protected locations support the named conditional category.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Open-air locations are separately recognized; their purchasing mix remains modeled.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Open-air locations are separately recognized; their purchasing mix remains modeled.
21. DC Power Plant / Rectifiers - UPS Rental
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Battery and complete DC-plant rentals establish delivery-category occurrence; global fees and utilization are not disclosed.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Battery and complete DC-plant rentals establish delivery-category occurrence; global fees and utilization are not disclosed.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Commercial rental availability is a role premise only; modeled lessor sub-hire procurement remains unverified.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Commercial rental availability is a role premise only; modeled lessor sub-hire procurement remains unverified.
22. Helios Towers - Full Year Results 2025, March 12, 2026
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Grid-integration investment supplies a connection-improvement counterforce used conditionally in the forecast.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Grid-integration investment supplies a connection-improvement counterforce used conditionally in the forecast.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Reported xx.xx-hour average daily grid availability supports weak-grid commercial exposure, without a global classification share.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Reported xx.xx-hour average daily grid availability supports weak-grid commercial exposure, without a global classification share.
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Grid integration and alternative-power investment qualify assumptions of permanently unchanged disconnected-site exposure.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Grid integration and alternative-power investment qualify assumptions of permanently unchanged disconnected-site exposure.
23. Telecommunications | Aggreko US
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Telecom battery-storage rental for temporary continuity supports delivery occurrence, not the estimated global fee scale.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Telecom battery-storage rental for temporary continuity supports delivery occurrence, not the estimated global fee scale.
24. EnerSys PowerSafe SBS Front Terminal Batteries | Alpine Power Systems
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: A named battery distributor supports the intermediary route; its listing is not a global channel-sales observation.
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: A named battery distributor supports the intermediary route; its listing is not a global channel-sales observation.

25. DC Power Services | Vertiv

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Cross-manufacturer projects and narrower upgrades support integration-prime and supported-replacement routes; numerical route proportions remain assumed.
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Cross-manufacturer projects and narrower upgrades support integration-prime and supported-replacement routes; numerical route proportions remain assumed.

26. Shuangdeng Group Co., Ltd. - Global Offering Prospectus, August 18, 2025

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The company's own five-month 2025 lead-acid realization of RMB520.xx.xx/kWh constrains the relative-price bridge; syndicated industry claims are excluded. Forecast convergence remains assumed. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The company's own five-month 2025 lead-acid realization of RMB520.xx.xx/kWh constrains the relative-price bridge; syndicated industry claims are excluded. Forecast convergence remains assumed. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: Own lithium-ion realization of RMB595.xx.xx/kWh is an input to the Lithium-Based value model, not a Global share or a Lithium-Metal sales observation. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Own lithium-ion realization of RMB595.xx.xx/kWh is an input to the Lithium-Based value model, not a Global share or a Lithium-Metal sales observation. ([www1.hkexnews.hk](https://www1.hkexnews.hk/listedco/listconews/sehk/2025/xx.xx/xx.xx.pdf))

27. Amara Raja Crosses 1 GWh Lithium Storage Deployment Powering India's Telecom Networks

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The April xx.xx 2026 disclosure reports approximately xx.xx GWh across xx.xx cumulative telecom lithium sites over four years. This is a commercial adoption scale check, not annual Global revenue or a supplier-share input. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The April xx.xx 2026 disclosure reports approximately xx.xx GWh across xx.xx cumulative telecom lithium sites over four years. This is a commercial adoption scale check, not annual Global revenue or a supplier-share input. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The disclosed deployment identifies lithium-ion commercialization at scale, supporting the subtype's established commercial position without directly measuring its conditional Global share. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The disclosed deployment identifies lithium-ion commercialization at scale, supporting the subtype's established commercial position without directly measuring its conditional Global share. ([amararaja.com](https://amararaja.com/press_release/amara-raja-crosses-xx.xx-gwh-lithium-storage-deployment-powering-indias-telecom-networks/))

28. Central Office Power Systems - EnerSys

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The central-office portfolio identifies Flooded Lead-Acid as a distinct telecom alternative, supporting the legacy-network category mapping but not its purchasing fraction. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The central-office portfolio identifies Flooded Lead-Acid as a distinct telecom alternative, supporting the legacy-network category mapping but not its purchasing fraction. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The portfolio separately identifies Valve-Regulated Lead-Acid, supporting the within-lead construction boundary used by the model. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The portfolio separately identifies Valve-Regulated Lead-Acid, supporting the within-lead construction boundary used by the model. ([enersys.com](https://www.enersys.com/en/industries/communications-networks/central-office/))

29. PowerSafe OPzV Batteries - EnerSys

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: EnerSys identifies OPzV as Gel and lists telecom applications. This supports commercial subtype mapping, not the assumed Gel/AGM volume or price mix. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-opzv/))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: EnerSys identifies OPzV as Gel and lists telecom applications. This supports commercial subtype mapping, not the assumed Gel/AGM volume or price mix. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-opzv/))

30. Bolloré - 2017 Registration Document

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The official filing identifies LMP professional outage-protection applications including telecom relays. This is a dated commercial boundary input, not evidence of 2025 telecom shipment value. ([bollore.com](https://www.bollore.com/wp-content/uploads/2018/xx.xx/bollore_ddr_2017_gb_bag-xx.xx-juin.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The official filing identifies LMP professional outage-protection applications including telecom relays. This is a dated commercial boundary input, not evidence of 2025 telecom shipment value. ([bollore.com](https://www.bollore.com/wp-content/uploads/2018/xx.xx/bollore_ddr_2017_gb_bag-xx.xx-juin.pdf))

31. Bolloré - Business Report 2025

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The 2025 report establishes continuing Lithium Metal Polymer commercial applications in electricity storage and buses, while omitting separately attributable telecom sales. It constrains the low-access expected-purchase model; no capacity-to-sales conversion is used. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The 2025 report establishes continuing Lithium Metal Polymer commercial applications in electricity storage and buses, while omitting separately attributable telecom sales. It constrains the low-access expected-purchase model; no capacity-to-sales conversion is used. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))
- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The report preserves the distinction between LMP and conventional lithium-ion, supporting the exhaustive subtype attribution rule rather than treating polymer packaging as Lithium-Metal. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The report preserves the distinction between LMP and conventional lithium-ion, supporting the exhaustive subtype attribution rule rather than treating polymer packaging as Lithium-Metal. ([bollore.com](https://www.bollore.com/wp-content/uploads/2026/xx.xx/0421a_boll25t40_rapport_activite_gb_2025_mel.pdf))

32. AT&T to Replace U-Verse Cabinet Batteries - Fierce Network, January 15, 2008

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The January xx.xx 2008 report corroborates AT&T's replacement of approximately xx.xx Avestor batteries after the supplier's closure. The obsolete stock is therefore not carried into the 2025 or 2032 purchasing numerator. ([fierce-network.com](https://www.fierce-network.com/telecom/at-t-to-replace-u-verse-cabinet-batteries))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The January xx.xx 2008 report corroborates AT&T's replacement of approximately xx.xx Avestor batteries after the supplier's closure. The obsolete stock is therefore not carried into the 2025 or 2032 purchasing numerator. ([fierce-network.com](https://www.fierce-network.com/telecom/at-t-to-replace-u-verse-cabinet-batteries))

33. PowerSafe NiCd Batteries - EnerSys

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: EnerSys identifies Nickel-Cadmium for central offices and outside plant, supporting the modeled legacy telecom cohort but not its installed attachment or replacement spending. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-nicd/))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: EnerSys identifies Nickel-Cadmium for central offices and outside plant, supporting the modeled legacy telecom cohort but not its installed attachment or replacement spending. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-nicd/))

34. FDK Ni-MH Battery Is Chosen for the Cellect 600 Product of Alpha Technologies

- Evidence informing base-year allocation inputs; displayed values and growth are calculated: The October xx.xx 2015 announcement identifies NiMH in Alpha's Cellect xx.xx small-cell backup proposition. It supports a historical cohort rather than current fulfillment or assumed surviving stock. ([fdk.com](https://www.fdk.com/whatsnew-e/release20151019-e.html))
- Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The October xx.xx 2015 announcement identifies NiMH in Alpha's Cellect xx.xx small-cell backup proposition. It supports a historical cohort rather than current fulfillment or assumed surviving stock. ([fdk.com](https://www.fdk.com/whatsnew-e/release20151019-e.html))

35. Products - Encell Technology
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Encell positions its Fused Iron Nickel-Iron battery for telecom. This supports the commercial category lead, while current purchases and attachment remain modeled. ([encell.com](https://encell.com/products/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Encell positions its Fused Iron Nickel-Iron battery for telecom. This supports the commercial category lead, while current purchases and attachment remain modeled. ([encell.com](https://encell.com/products/))
36. Telecom/5G - ZAF Energy Systems
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: ZAF positions Nickel-Zinc for telecom/5G. Its supplier proposition supports application mapping, not the modeled annual attachment or threefold forecast value multiplier. ([zafsys.com](https://zafsys.com/telecom-5g/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: ZAF positions Nickel-Zinc for telecom/5G. Its supplier proposition supports application mapping, not the modeled annual attachment or threefold forecast value multiplier. ([zafsys.com](https://zafsys.com/telecom-5g/))
37. HORIEN Salt Battery Solutions and Inlyte Energy Announce a Strategic Partnership
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: HORIEN's March xx.xx 2025 statement identifies sodium-metal-chloride telecom backup. Its separate partnership announcement is not counted as delivered telecom sales. ([horien.com](https://horien.com/wp-content/uploads/2025/xx.xx/Press-Release_HORIEN-Inlyte-International-Version.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: HORIEN's March xx.xx 2025 statement identifies sodium-metal-chloride telecom backup. Its separate partnership announcement is not counted as delivered telecom sales. ([horien.com](https://horien.com/wp-content/uploads/2025/xx.xx/Press-Release_HORIEN-Inlyte-International-Version.pdf))
38. Energy Backup - Phinergy
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Phinergy markets Aluminum-Air continuity offerings to telecom operators and tower companies. The source supports category and buyer mapping, not the modeled installed attachment or replacement numerator. ([phinergy.com](https://phinergy.com/solutions/energy-backup/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Phinergy markets Aluminum-Air continuity offerings to telecom operators and tower companies. The source supports category and buyer mapping, not the modeled installed attachment or replacement numerator. ([phinergy.com](https://phinergy.com/solutions/energy-backup/))
39. Australian Flow Batteries - RFB40X Series
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: RFB40X literature identifies telecom among stationary commercial applications. It supports the qualifying project boundary, not delivered projects, revenue or assumed attachment. ([afb.energy](https://www.afb.energy/wp-content/uploads/2025/xx.xx/Australian-Flow-Batteries-RFB40X-Series-2024.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: RFB40X literature identifies telecom among stationary commercial applications. It supports the qualifying project boundary, not delivered projects, revenue or assumed attachment. ([afb.energy](https://www.afb.energy/wp-content/uploads/2025/xx.xx/Australian-Flow-Batteries-RFB40X-Series-2024.pdf))

40. PowerReserve - Verizon Residential Accessories
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Verizon advertises an alkaline-cell voice-backup device at USD39.xx.xx excluding batteries. This supports a qualifying primary-zinc premises route and price comparator, not assumed Global attachment or first-sale realization. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Verizon advertises an alkaline-cell voice-backup device at USD39.xx.xx excluding batteries. This supports a qualifying primary-zinc premises route and price comparator, not assumed Global attachment or first-sale realization. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Advertised voice-only protection reaches xx.xx hours; internet and television protection are excluded. This supports service-specific Day-Scale classification. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Advertised voice-only protection reaches xx.xx hours; internet and television protection are excluded. This supports service-specific Day-Scale classification. ([verizon.com](https://www.verizon.com/home/accessories/powerreserve/?skuParam=sku190001))
41. Alkaline Manganese Dioxide Handbook and Application Manual - Energizer
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The manufacturer's alkaline manganese-dioxide classification supports the zinc-family mapping for qualifying premises backup. It provides no telecom purchasing weight. ([data.energizer.com](https://data.energizer.com/pdfs/alkaline_appman.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The manufacturer's alkaline manganese-dioxide classification supports the zinc-family mapping for qualifying premises backup. It provides no telecom purchasing weight. ([data.energizer.com](https://data.energizer.com/pdfs/alkaline_appman.pdf))
42. ITU-T Work Programme - Aqueous Zinc-Based Battery Systems for Base Station Applications
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The aqueous-zinc base-station work item is Under study with December 2027 timing. It constrains the forecast commercialization assumption but establishes neither approval nor customer purchases. ([itu.int](https://www.itu.int/itu-t/workprog/wp_item.aspx?isn=xx.xx))
43. ITU-T L.1397 - Battery System with Integrated Control and Monitoring Information Model
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The October 2025 recommendation names lithium-lead, lithium-sodium and sodium-lead combinations. This supports mixed-family classification, not inseparable pricing or Global prevalence. ([itu.int](https://www.itu.int/rec/dologin_pub.asp?id=T-REC-L.xx.xx-xx.xx-I%xx.xx%21PDF-E&lang=e&type=items))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The October 2025 recommendation names lithium-lead, lithium-sodium and sodium-lead combinations. This supports mixed-family classification, not inseparable pricing or Global prevalence. ([itu.int](https://www.itu.int/rec/dologin_pub.asp?id=T-REC-L.xx.xx-xx.xx-I%xx.xx%21PDF-E&lang=e&type=items))
44. ETSI EN 300 132-1 V2.2.1 - ICT Power Supply Interface: Alternating Current
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The ICT standard identifies the protected-load AC interface, supporting output-side attribution rather than classification by chemistry or normal utility input. It supplies no sales mix. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013201v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The ICT standard identifies the protected-load AC interface, supporting output-side attribution rather than classification by chemistry or normal utility input. It supplies no sales mix. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013201v020201p.pdf))

45. ETSI EN 300 132-2 V2.8.1 - ICT Power Supply Interface: Direct Current
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: The ICT standard separately identifies the DC protected-equipment interface, supporting the DC-output boundary independently of battery chemistry. It is not a purchasing census. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013202v020801p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The ICT standard separately identifies the DC protected-equipment interface, supporting the DC-output boundary independently of battery chemistry. It is not a purchasing census. ([etsi.org](https://www.etsi.org/deliver/etsi_en/300100_300199/xx.xx/xx.xx.01_60/en_30013202v020801p.pdf))
46. Vertiv NetSure Inverter Series - Converged AC and DC Power System
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: NetSure Inverter Series identifies AC and DC loads supported through a common battery bank. This establishes a combined-output proposition, not its modeled purchasing fraction or future adoption. ([vertiv.com](https://www.vertiv.com/en-us/products-catalog/critical-power/dc-power-systems/vertiv-netsure-inverter-series/))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: NetSure Inverter Series identifies AC and DC loads supported through a common battery bank. This establishes a combined-output proposition, not its modeled purchasing fraction or future adoption. ([vertiv.com](https://www.vertiv.com/en-us/products-catalog/critical-power/dc-power-systems/vertiv-netsure-inverter-series/))

47. ETSI EN 302 099 V2.2.1 - Powering of Equipment in Access Network
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Local powering uses a colocated source; allocation follows the backed source rather than receiver inventory. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Local powering uses a colocated source; allocation follows the backed source rather than receiver inventory. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Remote-source backup is distinguished from local backup, supporting the parent commercial boundary but not purchasing weights. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Remote-source backup is distinguished from local backup, supporting the parent commercial boundary but not purchasing weights. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Centralized powering originates at a telecommunications center. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Centralized powering originates at a telecommunications center. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Cluster powering uses a source outside the telecommunications center, supporting separation within Remote Powering. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Cluster powering uses a source outside the telecommunications center, supporting separation within Remote Powering. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing base-year allocation inputs; displayed values and growth are calculated: Reverse powering is customer-origin supply, supporting source-level attribution of the battery-backed provider package. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))
    - Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: Reverse powering is customer-origin supply, supporting source-level attribution of the battery-backed provider package. ([etsi.org](https://www.etsi.org/deliver/etsi_en/302000_302099/xx.xx/xx.xx.01_60/en_302099v020201p.pdf))

48. Set Up Your Battery Backup - AT&T G.Fast Service with BGW210

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The 2021 provider document names a battery-backed package protecting G.fast customer and distribution equipment through reverse power feed. It establishes a dated source-backup proposition, not current Global quantities. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The 2021 provider document names a battery-backed package protecting G.fast customer and distribution equipment through reverse power feed. It establishes a dated source-backup proposition, not current Global quantities. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The provider advertises a xx.xx-hour service window for the particular package, supporting Day-Scale mapping without a universal premises-duration inference. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The provider advertises a xx.xx-hour service window for the particular package, supporting Day-Scale mapping without a universal premises-duration inference. ([att.com](https://www.att.com/idpassets/images/support/pdf/BatterybackupforG.FastservicewithBGW210.pdf))

49. DNA Tower Offers Battery Capacity in Electricity Reserve Markets with Elisa DES

· Evidence informing base-year allocation inputs; displayed values and growth are calculated: The June xx.xx 2025 announcement reports DNA Tower batteries connected to Finnish reserve markets while retaining outage continuity. This establishes a specific mixed-duty implementation, not Global attachment or guaranteed returns. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/press-releases/dna-tower-becomes-worlds-first-tower-company-to-offer-battery-capacity-in-electricity-reserve-markets-with-elisa-des))

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The June xx.xx 2025 announcement reports DNA Tower batteries connected to Finnish reserve markets while retaining outage continuity. This establishes a specific mixed-duty implementation, not Global attachment or guaranteed returns. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/press-releases/dna-tower-becomes-worlds-first-tower-company-to-offer-battery-capacity-in-electricity-reserve-markets-with-elisa-des))

50. Case Elisa: Virtual Power Plant in the Telecom Industry

· Evidence informing forecast-year allocation inputs; displayed values and growth are calculated: The company case reports over 2,000 aggregated sites and approximately xx.xx MWh. This is an installed commercial scale check, not annual purchasing value or Global prevalence. ([elisaindustriq.com](https://www.elisaindustriq.com/resources/customer-stories/elisacase))

22. Competitive Landscape

22.1. Market Share Analysis, 2025

Commercial positioning in the Global Telecom Battery Backup System market depends on access to a defined purchasing obligation. Battery-focused portfolios such as EnerSys' PowerSafe SBS and Delta Electronics, Inc.'s telecom lithium families can address component procurement, while Vertiv, Huawei, ZTE Corporation, and Ericsson present broader site-power propositions. ▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪ ▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪ ▪▪▪▪▪▪▪▪▪▪▪ ▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪ ▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪

Qualification and switching conditions constrain that choice. ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪ ▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ A technically named offering alone does not provide access to an operator account.

Regional integration can create a practical route where the buyer wants local coordination. ▪▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪ ▪ ▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪ ▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪▪ The partner contributes coordination of distinct equipment obligations; the trade-off is reliance on the prime's fulfillment and another manufacturer's continuing support.

Mexican and South American routes provide alternatives to a globally marketed package. Solutum de México S de RL de CV, Jaguar de México, and RITMA advertise telecom-oriented power or backup propositions; interberg presents industrial battery alternatives; and Lorain Technologies offers a local backup-power route. ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪ ▪ ▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪ ▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪ ▪▪▪ ▪▪▪ ▪▪▪ ▪▪▪ ▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪

▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪ ▪▪▪▪ ▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪ ▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪ ▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪▪

■■■■■■■■■■■■■ These alternatives may reduce customer coordination when the local contract includes service, but regional branding does not establish identical terms across countries or islands. The buyer should identify the destination seller and separate equipment resale from installation and continuing care.

Saudi Arabian and neighboring procurement routes are also relationship-specific. ■■ ■■■■■■ ■■■■■■■■■■ ■ ■■■■■■ ■■■■ ■■■■■ ■■■■■■■■■■ ■■■■■■■■ ■■■■■■ ■■■ ■■■■ ■■ ■■■■■ ■■■■■■■■■ ■■■■■■■ ■■■■■ ■■ ■■■■■■■ ■■■■■■■ ■■■■■■■■ ■■■■■■■■■ ■■■■■■■■■■■ ■■■■■■■ ■■■■■■■ ■■■■■ ■ ■■■■■■■■■■■■■■ ■■■■■■■ ■■■■■■■■■■■■ ■■■■■ ■■■■■ ■■■■ ■■■ ■■■■■■■■■ ■■ ■■■■■■■■ ■■■■■■■■■ ■■■■■ ■■ ■■■■ ■■■ ■■■■■ ■■■■■ ■■■■■■■ ■■■■■■■ ■■■■■■■■ ■■ ■■■■■■■ ■■■■■ ■■■■ ■■■ ■■■■■■ ■■■■■■■ ■■■■■■■■■■ ■■■■■■■■ ■■■■■■■■■■■■■ ■■■■■■■■■■■■■■ The competitive distinction is whether the counterparty accepts equipment, integration, and support obligations; neither a supplier's customer list nor a legacy brand name settles manufacturer authorization or current contract continuity.

African alternatives span batteries, integration, and wider energy fulfillment. Inala advertises telecom batteries and hybrid-power coordination; BlueNova addresses battery-backed microgrid applications; ASSAD Group presents network-power batteries; and Tele-Serve Engineering Services Limited offers communications backup batteries. ■■■■■■■■■■ ■■■■ ■■■ ■■■■■ ■■■■■■■■■■■ ■■ ■■■■■■■■■■ ■■■■■■■■ ■■■■■■■ ■■■■■■■ ■■■■■■ ■■■■■■■■■■■■■■ ■■■■■■■■■■■■■ ■■■■■■■■■■■■■ ■■■■■■ ■■■■■ ■■■■■■■■■■ ■ ■■■■■■■■ ■■■■■ ■■■■■■■■■■■■ ■■■■■■ ■■■ ■■■■■■■■ ■■■■■■■■ ■■■■■■■■■■ ■ ■■■■■■■■■■■■■■■■■ ■■■■■■■■■■■■■■ ■■■■■■■■■ ■■■■■■■■■ ■■■■■■ ■■■■■■■ ■■■ ■■■■■ ■■■■■■■■■■ ■■■■■■■■ ■■■ ■■■■■■■■ ■■■■■■■■■■ ■■■■■■ ■■■■ ■■■■■■■ ■■■■ ■ ■■■■■ ■■■■■■ ■■ ■■■■■■■■■■■ ■■■■■■■■■■■ ■■■■■■■■■ ■■■ ■■■■ ■■■■■■■■■■■ ■■ ■ ■■■■■■■ ■■■■■■■■■■■■■■

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Figure 38. Global Telecom Battery Backup System Market Share, by Key Player, 2025

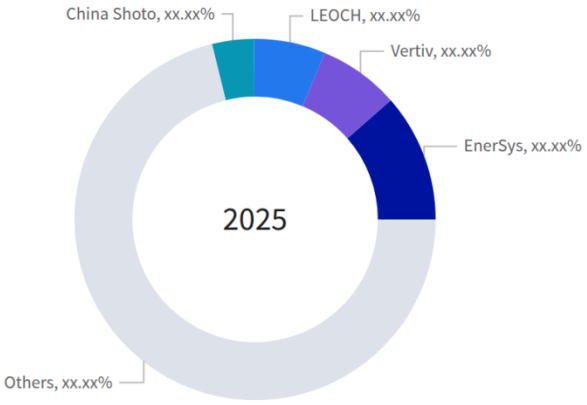

Table 784. Global Telecom Battery Backup System Market Share, by Key Player, 2025

Key Player	Share (%)
Amara Raja Energy & Mobility Limited	xx.xx
ASPİLSAN Enerji	xx.xx
BAE Batterien GmbH	xx.xx
Baterias Pioneiro	xx.xx
Camusat	xx.xx
CE+T Power	xx.xx
Celltech Group	xx.xx
China Shoto	xx.xx
Efore	xx.xx
EnerSys	xx.xx
EneSolve Holdings, Inc.	xx.xx
Ericsson	xx.xx
Exicom Tele-Systems Limited	xx.xx
Exide Technologies	xx.xx
FSP Technology Inc.	xx.xx
GS Yuasa	xx.xx
Hankook & Company Co., Ltd.	xx.xx
HBL Engineering Limited	xx.xx
Intelbras	xx.xx
IPT PowerTech Group	xx.xx
Kehua Data Co., Ltd.	xx.xx

Table 784 - continued

Key Player	Share (%)
LEOCH	xx.xx
Monbat AD	xx.xx
Narada Power	xx.xx
NED Energy Limited	xx.xx
Nian Battery Khavaran	xx.xx
Polarium Energy Solutions AB	xx.xx
Pylontech	xx.xx
Roselektronika	xx.xx
Sacred Sun	xx.xx
Salicru	xx.xx
Schneider Electric	xx.xx
Sebang Global Battery Co., Ltd.	xx.xx
Shenzhen Richroc Electronics Co., Ltd.	xx.xx
Shindengen Electric Manufacturing Co., Ltd.	xx.xx
Statron AG	xx.xx
Sunwoda	xx.xx
TAB	xx.xx
Tudor Baterias	xx.xx
Tycon Systems	xx.xx
Vertiv	xx.xx
Vision Group	xx.xx
Westell Technologies, Inc.	xx.xx
ZTE Corporation	xx.xx
Others	xx.xx

Sources & Evidence

1. PowerSafe SBS Batteries | EnerSys

   · The PowerSafe SBS catalog establishes a named battery proposition, not buyer-specific qualification or a complete-system obligation.
   ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-sbs/))

   · Evidence informing base-year company-share estimates: The named PowerSafe SBS communications offering supports the standalone telecom-battery attribution premise, but does not measure sales, customer acceptance or the modeled application percentage.

2. DC Power Services | Vertiv
   · Vertiv advertises DC projects regardless of manufacturer and maintenance or upgrades for existing plants. ([vertiv.com](https://www.vertiv.com/en-us/products/services/dc-power-services/))
   · Evidence informing base-year company-share estimates: Cross-manufacturer DC-power projects and upgrades establish a commercial alternative to complete plant replacement. This supports scope separation and the Knowledge lock-in challenge, not the modeled equipment mix or inclusion of standalone maintenance fees.
3. Verizon Supplier Code of Conduct
   · Verizon incorporates ongoing supplier-code compliance into procurement decisions and permits disqualification or termination. Product acceptance remains separate. ([verizon.com](https://www.verizon.com/about/our-company/how-we-lead/policies/supplier-code-of-conduct))
4. Battery Backup | Meriwether Lewis Electric Cooperative
   · MLConnect recommends Precision Power, permits cooperative or direct purchasing, assigns battery care to customers, and excludes backup from its service plan. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
5. Ericsson and Swisscom launch next-gen intelligent power platform
   · The platform provides a broader network-linked site-power proposition rather than a battery-only purchasing object. ([ericsson.com](https://www.ericsson.com/en/press-releases/xx.xx/2026/ericsson-and-swisscom-launch-next-gen-intelligent-power-platform))
   · Evidence informing base-year company-share estimates: The April xx.xx 2026 announcement establishes introduction of the Energy & Enclosure platform in Swisscom's network. It tests the integrated-equipment Knowledge finding but is explicitly not credited as a 2025 sale.
6. Telecommunications - Power solutions | Battery Energy Australia
   · The Australian portfolio supports a conditional regional-prime comparison, not blanket contemporary package availability. ([batteryenergy.com.au](https://www.batteryenergy.com.au/applications/telecommunications))
7. Battery Energy Power Solutions + Enatel Energy
   · Battery Energy's September xx.xx 2020 announcement records a signed strategic partnership with Enatel; current terms are not established by that historical record. ([batteryenergy.com.au](https://www.batteryenergy.com.au/news/strategic-partnership-enatel-battery-energy))
8. Products - Li-ion Battery Backup Systems - Delta
   · The named Delta battery families support component procurement positioning rather than automatic complete-system responsibility. ([deltaww.com](https://www.deltaww.com/en-US/products/telecom-battery-systems))
9. Digitalizing site power for green connectivity and computing - Huawei
   · The 5G Power proposition establishes a broader site-power comparison path, not destination-specific procurement acceptance. ([huawei.com](https://www.huawei.com/en/huaweitech/publication/xx.xx/digitalizing-site-power-green-connectivity-computing))
10. Telecom Power-5G power, hybrid and iEnergy network energy management solutions|ZTE
    · ZTE's portfolio supplies a site-power alternative, while customer and country acceptance remain offering-specific. ([zte.com.cn](https://www.zte.com.cn/global/solutions_latest/smart_energy/powersolution.html))
11. EnerSys PowerSafe SBS EON VRLA Battery - Datasheet & Quote
    · The listing supplies a local access path, not a separate manufacturer or an enforceable site-service contract. ([omansevenstar.com](https://omansevenstar.com/product/enersys-powersafe-sbs-eon/))
12. Solutum de México | Soluciones en respaldo de energía
    · Solutum's official portfolio presents telecom backup and power infrastructure, including battery cabinets; quotation scope must assign actual supply obligations. ([solutum.com.mx](https://www.solutum.com.mx/))

13. Jaguar de México | Telecom engineering, EMS and engineering design
    · Jaguar's official business portfolio identifies its SHIELD telecom-power proposition, supporting a local supply comparison rather than manufacturer authorization inference. ([jaguar.mx](https://www.jaguar.mx/es))
14. RITMA · Sistemas de energía en corriente directa y almacenamiento
    · RITMA publishes telecom-related DC-power and battery-storage propositions; prime and warranty responsibilities remain contractual. ([ritma.mx](https://www.ritma.mx/))
15. interberg - Baterías industriales de níquel-cadmio y plomo-ácido
    · interberg publishes industrial nickel-cadmium and lead-acid battery propositions with telecom context; destination qualification remains separate. (interberg.com.mx)
16. lorain technologies
    · Lorain's official portfolio advertises backup-power and battery propositions, without establishing an individual current telecom contract. (lorain-technologies.com)
17. ICETEL
    · ICETEL advertises telecom power integration and an EnerSys relationship; that supplier statement does not independently establish current authorization. (icetel.cl)
18. BATERÍAS ALLSAI OPzV CFPV Y LFPV - MEE CHILE
    · MEE Chile lists ALLSAI OPzV CFPV/LFPV stationary batteries through a quotation-oriented product page; current fulfillment remains separate. ([mee.cl](https://mee.cl/producto/baterias-allsai-opzv-cfpv-lfpv/))
19. YUASA | CIA UPS DEL PERU SAC
    · CIA UPS DEL PERU SAC publishes a Yuasa battery resale proposition; current manufacturer authority and destination support are not inferred.
    ([upsdelperu.com.pe](https://www.upsdelperu.com.pe/productos/baterias-yuasa/))
20. SONELECTRIC S.A.S. | UPS, Baterías y Respaldo Energético Colombia
    · SONELECTRIC's official portfolio presents battery and backup-system supply, including CSB brand positioning; authorization and current buyer commitments remain separate.
    (sonelectric.com.co)
21. Sistemas de Respaldo de Energía - Duncan
    · Duncan publishes a backup-energy-system portfolio, supporting a regional system-supply comparison without establishing an individual current award.
    ([bateriasduncan.com.co](https://bateriasduncan.com.co/sistemas-de-respaldo-de-energia/))
22. La Casa de las Baterías Guatemala | Somos Energía
    · La Casa de las Baterías' Guatemala-facing portfolio markets DC-energy propositions; it does not establish uniform terms for every regional branch. (guatemala.casabat.com)
23. Productos | SIESA
    · SIESA publishes a battery and replacement-bank purchasing proposition, supporting a regional equipment route rather than automatic managed continuity.
    ([siesapanama.com](https://www.siesapanama.com/soluciones/))
24. DC Power - Batteries - Telenetworks
    · Telenetworks advertises DC-power and battery-bank integration; equipment resale and island-specific fulfillment remain separate questions.
    ([telenetworks.net](https://www.telenetworks.net/services/dc-power-batteries/))
25. Quiénes somos BatteryOnePR
    · BatteryOnePR's company account connects the digital business with Battery Giant de PR and backup-battery customers; present fulfillment is not established by the historical account.
    ([batteryonepr.com](https://www.batteryonepr.com/es/blogs/news/who-we-are-batteryonepr))
26. Site & Power | Al Rashid Technology & Power
    · Al Rashid advertises telecom DC backup and site-power capabilities; named customer relationships remain supplier-reported. ([atp.sa](https://atp.sa/en/our-services/osp-isp/))
27. AWAL Lithium Batteries - Alawal Group
    · Awal markets named lithium batteries for GSM tower backup; that product listing does not establish every operator's qualification. ([ftc.com.sa](https://ftc.com.sa/products/telecom/awal-lithium-batteries/))

28. SUPPLY - Fenda
    - Fenda describes telecom battery and DC-system supply or integration, with seller and service obligations remaining quotation-specific. ([fenda.com.sa](https://fenda.com.sa/s03/))
29. Batteries | Ghad Al Taqat
    - Ghad Al Taqat publishes battery-supply positioning for backup applications, including telecom; sourcing authority and current commitments remain separate. ([ghad-altaqat.com](https://www.ghad-altaqat.com/batteries))
30. Solar Batteries Archives - PEDCO LTD
    - PEDCO lists SONICK-branded batteries, supporting a channel proposition without proving ownership of the manufacturer or current authorization. ([pedco.com.sa](https://pedco.com.sa/products-category/solar-batteries/))
31. Stocking of Sealed Lead-Acid Batteries - Komax
    - Komax publishes a sealed lead-acid battery stocking service for applications including telecom; individual availability and support remain separate. ([komax.com.kw](https://www.komax.com.kw/services/stocking-of-sealed-lead-acid-batteries))
32. Power System Solutions for Telecom Applications - ITEC
    - ITEC publishes telecom power-system solutions involving batteries; customer and destination commitments remain supplier-described rather than independently confirmed awards. ([itec.ps](https://itec.ps/project/power-system-solutions-for-telecom-applications/))
33. Power - DCS
    - DCS publishes a telecom power portfolio with battery-related offerings; exact local contracting and support allocation remain separate. ([dcs-me.com.lb](https://dcs-me.com.lb/solutions/power/))
34. DC Telco Power Solutions | ITG
    - ITG's dedicated DC telecom power page attributes the relevant power proposition to ECOSYS; operating-seller and contract attribution remain separate. ([itgholding.com](https://itgholding.com/solutions/dc-telco-power-solutions/))
35. Solutions | Inala
    - Inala publishes telecom battery and hybrid-power coordination propositions, not a uniform enforceable continuity contract across its footprint. ([inala.com](https://www.inala.com/solutions))
36. Micro-grid Solutions - BlueNova
    - BlueNova's microgrid portfolio includes battery-backed communications applications; wider energy scope must be distinguished from dedicated backup responsibility. ([bluenova.co.za](https://www.bluenova.co.za/solutions/micro-grid-solutions/))
37. Network Power - ASSAD Group
    - ASSAD Group publishes network-power battery offerings, supporting equipment comparison without assuming a transferred operator continuity obligation. ([assadgroup.com](https://assadgroup.com/en/services/network-power/))
38. Batteries | Tele-Serve
    - Tele-Serve advertises communications backup batteries, providing a local equipment-supply comparison with current authorization and site terms left separate. ([tele-serve.com](https://tele-serve.com/Batteries.html))
39. Énergie Solaire Télécom Afrique - Sites BTS | NRJSOLAIRE
    - NRJSOLAIRE markets battery-backed telecom-energy systems; equipment, wider energy, and continuing service boundaries require a specific contract. ([nrjsolaire.sn](https://nrjsolaire.sn/energie-solaire-telecom/))
40. BATPCO Renewable Energy
    - BATPCO publishes a Telecom Energy proposition involving battery and hybrid-energy solutions; exact local fulfillment remains separate. (batpco.co.tz)
41. Chloride Exide Batteries & Power Tanzania | Widala
    - Widala advertises a Chloride Exide battery-distribution route with telecom applications; upstream authorization is not independently established. ([widalagroup.co.tz](https://www.widalagroup.co.tz/distribution/chloride-exide-batteries))

42. Safetech Nigeria - Solid-State Batteries | Avtinac Limited
· The Safetech Nigeria catalog identifies Avtinac Limited and telecom-backup categories; exclusivity and performance claims are not adopted. (safetechenergy.africa)
43. ESCO Panel at Tower & Co. Global Hub 2026: What the Industry Is Discussing
· Evidence informing base-year company-share estimates: The October xx.xx 2026 company account reports approximately xx.xx ESCO sites across seven countries. It anchors operating scale, not observed average 2025 sites or annual revenue.
44. Battery Energy Storage Systems - IPT PowerTech
· Evidence informing base-year company-share estimates: The battery-system page reports more than xx.xx sites reporting data across hybrid telecom activity. This supports a stock proxy; timing, unique-site coverage and annual purchase capture remain assumptions.
45. About IPT PowerTech
· Evidence informing base-year company-share estimates: The corporate history records integration of power systems into outdoor cabinets through Stratum Enclosures, supporting a possible originating finished-system role rather than assuming all transactions are battery resale.
46. Solar & Battery as a Service - IPT PowerTech
· Evidence informing base-year company-share estimates: The service offering assigns installation, ownership and maintenance to IPT and describes consumption-based or fixed-payment contracts. It supports the delivery-role distinction, not the modeled backup-only annual fee.
47. IFC Summary of Investment Information - IPT PowerTech, Project 49095
· Evidence informing base-year company-share estimates: The financing disclosure identifies IPI Group Holding Limited, separates T-ESCO, telecom services and power products, and currently describes more than xx.xx managed sites.
· Evidence informing base-year company-share estimates: It records approval in April 2025, signing in January 2026 and investment in February 2026. These constrain financing timing and prevent treating project approval as realized base-year revenue.
48. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone
· Evidence informing base-year company-share estimates: The March xx.xx 2026 announcement specifies USD45 million of financing and a xx.xx-site modernization, operation and maintenance cohort. Financing and anticipated deployment are excluded from 2025 recognized equipment or fee revenue.
49. EnerSys 2026 Proxy Statement and Annual Report
· Evidence informing base-year company-share estimates: Audited Energy Systems sales of USD1,xx.xx in fiscal 2025 and USD1,xx.xx in fiscal 2026 anchor the calendar bridge. The segment includes communications and excluded adjacent applications; the telecom, eligibility and non-overlap adjustments remain modeled.
50. Vertiv Annual Report 2025
· Evidence informing base-year company-share estimates: 2025 product sales of USD8,xx.xx and the company's approximately xx.xx% Communications Networks revenue classification constrain the modeled communications product wallet. The end-market percentage is rounded to the nearest five percentage points.
51. ZTE reports RMB 121.30 billion in revenue and RMB 8.42 billion in net profit for 2024
· Evidence informing base-year company-share estimates: The 2024 disclosure reports power-supply support for xx.xx 5G base stations globally. It anchors a discounted commercial-footprint model, not observed physical-site stock, battery inclusion or annual delivered revenue.
52. ZTE Corporation - 2025 Annual Report
· Evidence informing base-year company-share estimates: The annual report identifies integrated telecom power/battery activity and reports 2025 carriers' network revenue of RMB62,xx.xx, down xx.xx%. The broad revenue is a boundary and purchasing-cycle check, not the modeled battery-backup numerator.
53. Find out more about our presence in United States - Ericsson
· Evidence informing base-year company-share estimates: Ericsson's current US equipment presence at nearly xx.xx sites constrains the commercial customer footprint. The 2025 backcast, backup attachment and supplier purchasing capture remain assumptions; the source does not count Ericsson-supplied batteries.

54. Ericsson Annual Report 2025
· Evidence informing base-year company-share estimates: The geographically diversified Networks business reported approximately SEK151.xx.xx of 2025 sales. This establishes a broader economic envelope and scope exclusions, not the assumed US backup-wallet percentage or direct battery revenue.
55. Regulamento (UE) 2023/1542 | Baterias - seminar materials including Exide Technologies company overview
· Evidence informing base-year company-share estimates: The publicly hosted Exide company overview reports EUR1.xx.xx prior-fiscal-year turnover and xx.xx% automotive/xx.xx% industrial mix. The slides are dated June 2023; these are historical financial anchors, not observed 2025 revenue.
56. Exide Technologies - Fiscal 2014 Form 10-K
· Evidence informing base-year company-share estimates: The predecessor's fiscal-2014 worldwide industrial sales mix was xx.xx% Network Power. This supplies a historical application-mix proxy, explicitly not the current standalone Exide mix.
57. Exide Technologies ESG Report 2025
· Evidence informing base-year company-share estimates: The 2025 report identifies distinct Energy Solutions and Motion businesses and three versus four corresponding European plants. These establish the retained commercial categories and perimeter, not automatic plant-count revenue weights.
58. Solition Telecom | Exide
· Evidence informing base-year company-share estimates: Solition Telecom establishes a continuing named telecom-battery commercial category. It supports scope mapping, not the assumed xx.xx% telecom attribution, realized sales or destination-specific acceptance.
59. Financial Segment | GS YUASA
· Evidence informing base-year company-share estimates: Reports JPY113,xx.xx of Industrial Batteries and Power Supplies sales for the year ended March xx.xx 2025. This is the financial starting point, not telecom-only revenue.
60. GS Yuasa - Consolidated Financial Results for the First Nine Months Ended December 31, 2025
· Evidence informing base-year company-share estimates: Reports April-December 2025 industrial-segment sales of JPY82,xx.xx, up JPY5,xx.xx. Combined with the prior fiscal-year total, this establishes calendar-2025 segment revenue of JPY118,xx.xx.
61. GS Yuasa Report 2025 - Strategy by Business Segment: Industrial Batteries and Power Supplies
· Evidence informing base-year company-share estimates: Distinguishes emergency backup, regular-use storage and forklift applications within the industrial segment, supporting the need for application attribution rather than counting the complete segment.
62. Polarium sharpens strategic focus after year of transformation
· Evidence informing base-year company-share estimates: Reports 2025 net sales of SEK896 million versus SEK1,xx.xx in 2024. It dates expected distributed-energy-system revenue to the third quarter of 2026, preventing that later activity from being credited to 2025.
63. Contact Us - Polarium
· Evidence informing base-year company-share estimates: Names Polarium Energy Solutions AB and registration number xx.xx-xx.xx and identifies telecom purchasing routes. This supports the retained commercial identity but does not establish entity-only revenue.
64. Investor Relations at Polarium
· Evidence informing base-year company-share estimates: Governance text names Polarium Energy Systems AB while the footer names Solutions AB, preserving a material counterparty-attribution limitation on the modeled commercial-group share.
65. Leoch International Technology Limited - Annual Report 2025
· Evidence informing base-year company-share estimates: Reports 2025 reserve-power revenue of RMB7,xx.xx and describes its mixed data-center, communications and other backup applications. This supports the financial anchor and application exclusions, not the assumed xx.xx% telecom fraction.

66. Telecom Backup Power Solution - LEOCH

· Evidence informing base-year company-share estimates: Identifies telecom battery supply to operators, tower companies and integrators, supporting the relevant commercial role and the need to distinguish finished assemblies from embedded-system sales.

67. 浙江南都电源动力股份有限公司 - 2025 年年度报告

· Evidence informing base-year company-share estimates: Reports communications-storage, lead-acid and lithium-product revenues used in the product-specific attribution model. The filing's qualified audit and going-concern uncertainty limit confidence in these financial inputs.

68. Telecom - Narada Power

· Evidence informing base-year company-share estimates: Describes customers extending beyond telecom operators into internet, finance and other industrial applications, supporting rejection of communications-storage revenue as an automatically telecom-only numerator.

69. Shuangdeng Group Co., Ltd. - Annual Results Announcement for the Year Ended December 31, 2025

· Evidence informing base-year company-share estimates: Discloses RMB1,xx.xx of 2025 telecom-energy-storage revenue and an xx.xx% decline, separately from data-center storage. Operator and equipment-provider relationships support evaluating embedded-system exclusions.

· Evidence informing base-year company-share estimates: Separately disclosed telecom and data-center revenues provide an independent application-mix comparator for LEOCH; the comparator does not directly establish LEOCH's telecom fraction.

70. Federal Reserve Board - Foreign Exchange Rates, G.5A Annual, January 5, 2026

· Evidence informing base-year company-share estimates: Provides the 2025 annual average of JPY149.xx.xx per USD used to translate the attributable calendar-year numerator.

· Evidence informing base-year company-share estimates: Provides the 2025 annual average of SEK9.xx.xx per USD used to translate the attributable numerator.

· Evidence informing base-year company-share estimates: Provides the 2025 annual average of RMB7.xx.xx per USD used to translate attributable reserve-power sales.

· Evidence informing base-year company-share estimates: Provides the 2025 annual average of RMB7.xx.xx per USD used to translate the product-specific telecom numerator.

· Evidence informing base-year company-share estimates: Provides the 2025 annual average of RMB7.xx.xx per USD used to translate disclosed telecom revenue after modeled exclusions.

· Evidence informing base-year company-share estimates: The 2025 annual-average exchange-rate table reports USD1.xx.xx per euro, used to translate Salicru's modeled EUR3,xx.xx numerator into USD3,xx.xx. ([federalreserve.gov](https://www.federalreserve.gov/releases/g5a/current/))

71. 深圳市雄韬电源科技股份有限公司 2025 年年度报告

· Evidence informing base-year company-share estimates: The 2025 filing reports CNY165,xx.xx of communications lead-battery sales, CNY1,xx.xx of lithium batteries and materials, and separate UPS and storage lead-battery revenues. These constrain the application model, not its assumed lithium telecom or materials fractions. ([static.cninfo.com.cn](https://static.cninfo.com.cn/finalpage/2026-xx.xx-xx.xx/xx.xx.PDF))

72. 山东圣阳电源股份有限公司 2025 年年度报告

· Evidence informing base-year company-share estimates: The 2025 annual report separately reports CNY1,xx.xx of communications revenue and distinguishes data/computing-center and storage/power applications. It supports the telecom revenue anchor, not the modeled xx.xx% eligibility factor. ([static.cninfo.com.cn](https://static.cninfo.com.cn/finalpage/2026-xx.xx-xx.xx/xx.xx.PDF))

73. Amara Raja Energy & Mobility Limited - Q4/FY2025 Investor Presentation

· Evidence informing base-year company-share estimates: The FY2025 presentation reports consolidated operational revenue of INR128,xx.xx, used as one endpoint of the calendar-year revenue bridge. Excluded third-party market estimates appearing elsewhere in the presentation are not used. ([amararajaeandm.com](https://www.amararajaeandm.com/Files/FinancialResults/2025/AREandMInvestorPresentation.pdf))

74. Amara Raja Energy & Mobility Limited - May 26, 2026 Earnings Call Transcript
· Evidence informing base-year company-share estimates: Management's May xx.xx 2026 call reports FY2026 consolidated revenue of INR13,xx.xx crore, used with the FY2025 endpoint in an explicitly modeled calendar bridge. Supplier-asserted market-share figures are not used. ([amararajaeandm.com](https://www.amararajaeandm.com/pdf/credit-ratings/Reg30earningscalltranscript.pdf))
75. Amara Raja Energy & Mobility Limited - May 30, 2025 Earnings Call Transcript
· Evidence informing base-year company-share estimates: Management's May xx.xx 2025 call identifies approximately INR100 crore of telecom pack sales in the January-March quarter. This anchors that quarter only; the following quarter's matching amount is an assumption. ([amararajaeandm.com](https://www.amararajaeandm.com/pdf/credit-ratings/AREandMinvestorcalltranscript.pdf))
76. Amara Raja Energy & Mobility Limited - November 7, 2025 Earnings Call Transcript
· Evidence informing base-year company-share estimates: The November xx.xx 2025 call reports more than xx.xx MWh of quarterly telecom pack supplies and approximately INR170 crore of broader New Energy revenue. These support shipment scale and a commercial realization check, not an observed telecom ASP. ([amararajaeandm.com](https://www.amararajaeandm.com/pdf/credit-ratings/AREM-%20Q2FY26%20Concall%20Transcript%20V2.pdf))
77. Amara Raja Energy & Mobility Limited - February 12, 2026 Earnings Call Transcript
· Evidence informing base-year company-share estimates: The February xx.xx 2026 call reports approximately xx.xx MWh of October-December telecom pack supplies, broader New Energy revenue exceeding INR200 crore, and lead telecom revenue below xx.xx% of overall revenue. These constrain the modeled shipment-price and application-mix bridges. ([amararajaeandm.com](https://www.amararajaeandm.com/pdf/credit-ratings/Reg30Earningscalltranscript260211.pdf))
78. HBL Engineering Limited - Annual Report 2024-2025
· Evidence informing base-year company-share estimates: FY2025 customer disaggregation identifies INR73,xx.xx lakh of Telecom/Industry battery revenue and INR35,xx.xx lakh of battery exports. The report describes telecom lead-battery contraction and nonparticipation in telecom lithium packs. Telecom allocation within the combined pools remains modeled. ([hbl.in](https://www.hbl.in/reports/hblannualreport2025.pdf))
79. Internal Revenue Service - Yearly Average Currency Exchange Rates
· Evidence informing base-year company-share estimates: The 2025 annual-average CNY rate of xx.xx per USD supports translation of Vision's modeled attributable revenue. ([irs.gov](https://www.irs.gov/individuals/international-taxpayers/yearly-average-currency-exchange-rates))
· Evidence informing base-year company-share estimates: The 2025 annual-average CNY rate of xx.xx per USD supports translation of Sacred Sun's modeled attributable revenue. ([irs.gov](https://www.irs.gov/individuals/international-taxpayers/yearly-average-currency-exchange-rates))
· Evidence informing base-year company-share estimates: The 2025 annual-average INR rate of xx.xx per USD supports translation of Amara Raja's modeled calendar-year numerator. ([irs.gov](https://www.irs.gov/individuals/international-taxpayers/yearly-average-currency-exchange-rates))
· Evidence informing base-year company-share estimates: The 2025 annual-average INR rate of xx.xx per USD supports translation of HBL's modeled attributable numerator. ([irs.gov](https://www.irs.gov/individuals/international-taxpayers/yearly-average-currency-exchange-rates))
80. Westell Technologies, Inc. and Subsidiaries - Quarterly Report for the Six Months Ended September 30, 2025
· Evidence informing base-year company-share estimates: Note xx.xx reports USD6,xx.xx of IBW revenue for the six months ended September xx.xx 2025 and USD3,xx.xx for the latest quarter. This constrains the modeled business-line scale, not directly observed BBU revenue. ([otcmarkets.com](https://www.otcmarkets.com/file/company/financial-report/xx.xx/content))
· Evidence informing base-year company-share estimates: The segment description includes battery-backup units and adjacent wireless equipment, requiring an explicit product-scope allocation. The xx.xx% paired-purchase mix and assumed prices are not disclosed observations. ([otcmarkets.com](https://www.otcmarkets.com/file/company/financial-report/xx.xx/content))

81. Westell Technologies, Inc. and Subsidiaries - Quarterly Report for the Three Months Ended June 30, 2025

· Evidence informing base-year company-share estimates: Note xx.xx reports USD3,xx.xx of IBW revenue for the three months ended June xx.xx 2025. Comparison with the following quarter supports a seasonality-neutral working annualization, while not establishing full calendar-2025 revenue. ([otcmarkets.com](https://www.otcmarkets.com/file/company/financial-report/xx.xx/content))

82. CS19-BBU-004, BDA Battery Back-Up Unit - Westell Technologies, Inc.

· Evidence informing base-year company-share estimates: The named CS19-BBU-xx.xx BDA Battery Back-Up Unit establishes the finished public-safety communications backup product used in the modeled numerator. It does not disclose 2025 shipments, realized prices or purchasing attachment. ([westell.com](https://www.westell.com/products/cs19-bbu-xx.xx))

83. About Tycon Systems | Utah-Built Remote Power Solutions

· Evidence informing base-year company-share estimates: Tycon reports xx.xx-plus communities served across a broader remote-power and connectivity portfolio. This is the cumulative commercial-footprint input to the assumption-led model, not observed annual telecom revenue or installed backup units. ([tyconsystems.com](https://www.tyconsystems.com/about))

84. Outdoor UPS & Battery Backup Systems | UPSPro | Tycon Systems

· Evidence informing base-year company-share estimates: The inspected supplier catalog lists finished UPSPro systems at USD430.xx.xx USD1,xx.xx and USD2,xx.xx. These current prices constrain the modeled complete-system basket; purchasing weights, 2025 price equivalence and net realization remain assumptions. ([tyconsystems.com](https://www.tyconsystems.com/categories/upspro/xx.xx))

85. Deep Cycle Batteries | Tycon Solar | Tycon Systems

· Evidence informing base-year company-share estimates: The inspected Tycon battery catalog lists standalone battery prices of USD37.xx.xx USD274.xx.xx and USD982.xx.xx. These constrain the replacement-basket price model, not annual quantities or the unresolved first-sale versus finished-battery-resale distinction. ([tyconsystems.com](https://www.tyconsystems.com/categories/batteries/xx.xx))

86. Outdoor UPS Backup for Port WiFi Networks | Tycon Systems

· Evidence informing base-year company-share estimates: Tycon's port-connectivity case identifies eight UPSPro systems protecting a WiFi network. It supports the included commercial application and a multi-unit project comparator; unidentified deployment timing prevents treating it as observed 2025 sales. ([tyconsystems.com](https://www.tyconsystems.com/blogs/post/ensuring-port-connectivity-a-tycon-systems%C2%AE-case-study))

87. Empresa | Tudor Baterias

· Evidence informing base-year company-share estimates: The official company record identifies the Brazilian manufacturing business and more than xx.xx authorized resellers. This supplies the commercial-footprint anchor for the assumed 2025 effective-channel model, not observed telecom turnover. ([tudor.com.br](https://tudor.com.br/pt_br/empresa))

88. Características Estacionária | Tudor Baterias

· Evidence informing base-year company-share estimates: Tudor lists telecommunications applications within its stationary portfolio, alongside unrelated applications. The source supports product eligibility and the need for an application split; it does not disclose the modeled xx.xx% telecom portion or USD85 realization. ([tudor.com.br](https://tudor.com.br/pt_br/produtos/estacionaria/caracteristicas))

89. Relatório de Sustentabilidade 2025 - Pioneiro Baterias

· Evidence informing base-year company-share estimates: Pioneiro reports xx.xx batteries produced in 2025, xx.xx owned distributors and presence in xx.xx Latin American countries. The production quantity anchors the volume model; it is not an observed telecom shipment or revenue total. ([bateriaspioneiro.com.br](https://bateriaspioneiro.com.br/relatorio-de-sustentabilidade-2025/))

90. Tudo o que você precisa saber sobre Baterias Estacionárias - Pioneiro Baterias

· Evidence informing base-year company-share estimates: The company's stationary-battery publication names telephone exchanges and several nontelecom applications. It supports the eligible commercial category but not the assumed xx.xx% stationary mix or xx.xx% telecom attribution. ([bateriaspioneiro.com.br](https://bateriaspioneiro.com.br/tudo-o-que-voce-precisa-saber-sobre-baterias-estacionarias/))

91. Baterias Pioneiro marca presença na 25ª Edição da Exposec - Pioneiro Baterias

· Evidence informing base-year company-share estimates: Pioneiro's Exposec account describes stationary and UPS offerings for security customers. This supports excluding a telecom-only interpretation of the specialist battery line and retaining uncertainty in its application mix. ([bateriaspioneiro.com.br](https://bateriaspioneiro.com.br/baterias-pioneiro-marca-presenca-na-25a-edicao-da-exposec/?utm_source=openai))

92. Intelbras S.A. - 2025 Financial Statements and Administration Report, legal publication dated March 13, 2026

· Evidence informing base-year company-share estimates: The calendar-2025 financial statements report Energy segment net revenue of BRL752,xx.xx versus BRL1,xx.xx in 2024. This is the observed mixed-product financial envelope, not telecom battery-backup revenue. ([s3.glbimg.com](https://s3.glbimg.com/v1/AUTH_63b422c2caee4269b8b34177e8876b93/valorri-uploads/bs/2026/W/xx.xx/LvtYpISRGhUowKHOnrXQ/intelbras1588105113032026.pdf))

· Evidence informing base-year company-share estimates: The legal publication supports the reporting period, currency and consolidated business boundary used in the assumption-led product/end-use/first-sale bridge; it does not disclose or verify the model's attribution fractions. ([s3.glbimg.com](https://s3.glbimg.com/v1/AUTH_63b422c2caee4269b8b34177e8876b93/valorri-uploads/bs/2026/W/xx.xx/LvtYpISRGhUowKHOnrXQ/intelbras1588105113032026.pdf))

93. Intelbras - 4T25 Results Presentation

· Evidence informing base-year company-share estimates: The 4T25 presentation distinguishes UPS and power-supply activity from solar within Energy and reports BRL752,xx.xx annual Energy revenue. It supports using a product-line financial envelope rather than total corporate or communications-equipment revenue. ([api.mziq.com](https://api.mziq.com/mzfilemanager/v2/d/660c9d23-3bb0-4bd4-xx.xx-c9fe5ad308b4/b7d14d26-xx.xx-8f3f-8a77-fc13ded1d08b?origin=xx.xx))

94. Fonte Nobreak 12V 1A EFB 1201 com Bateria Intelbras

· Evidence informing base-year company-share estimates: The company lists the battery-containing EFB xx.xx for network and IP-telephone applications alongside non-telecom uses, supporting an eligible premises-backup role and the need for end-use exclusions. ([loja.intelbras.com.br](https://loja.intelbras.com.br/fonte-nobreak-efb-xx.xx-bateria/p))

· Evidence informing base-year company-share estimates: The current BRL149 retail listing is not treated as a calendar-2025 first-sale price, shipment quantity or observed market share. The page supports portfolio classification only. ([loja.intelbras.com.br](https://loja.intelbras.com.br/fonte-nobreak-efb-xx.xx-bateria/p))

95. BAE Batterien GmbH - Geschichte

· Evidence informing base-year company-share estimates: BAE reports xx.xx employees on an undated company-history page. This constrains the workforce proxy but does not directly establish 2025 headcount or telecom revenue. ([bae-berlin.de](https://www.bae-berlin.de/geschichte))

96. BAE Batterien GmbH - Stationary

· Evidence informing base-year company-share estimates: The stationary portfolio includes telecom and several unrelated stationary applications, supporting an application adjustment rather than attribution of all stationary sales to telecom. ([bae-berlin.de](https://www.bae-berlin.de/en/station%C3%A4r))

97. Monbat AD - Annual Consolidated Report, 31 December 2025

· Evidence informing base-year company-share estimates: Audited 2025 lead-acid revenue after intersegment eliminations is BGN316.xx.xx. Stationary batteries account for xx.xx% of battery-type sales revenue and lead-acid plates for xx.xx%, providing the financial and product-mix anchors; telecom attribution remains modeled. ([monbatgroup.com](https://monbatgroup.com/wp-content/uploads/2026/xx.xx/Annual-Consolidated-report-xx.xx-EN-Full.pdf))

98. TAB Polska - Basic Information

· Evidence informing base-year company-share estimates: The TAB operating-site description reports annual capacity of xx.xx traction and stationary cells at Žerjav, separately from starter-battery factories. Utilization, application mix and realized prices are modeled, not disclosed sales. ([tab-polska.pl](https://tab-polska.pl/en/basic-info/))

99. CE+T Group now obtained the Gold label as Best Managed Companies

· Evidence informing base-year company-share estimates: The May xx.xx 2021 disclosure reports more than EUR40 million CE+T Power turnover and xx.xx worldwide employees, furnishing a historical industrial backup-equipment productivity comparator; its transfer to BAE is modeled. ([cet-power.com](https://www.cet-power.com/nl/news/cet-group-now-obtained-the-gold-label-as-best-managed-companies/))

· Evidence informing base-year company-share estimates: More than EUR40 million historical turnover constrains CE+T Power's operating scale, not its observed 2025 telecom battery-inclusive revenue. ([cet-power.com](https://www.cet-power.com/nl/news/cet-group-now-obtained-the-gold-label-as-best-managed-companies/))

100. Telecom - CE+T Power

· Evidence informing base-year company-share estimates: The telecom portfolio distinguishes modular UPS and battery-backup propositions from conversion and monitoring products, supporting a qualifying-package adjustment rather than counting all power-conversion revenue. ([cet-power.com](https://www.cet-power.com/en/market/telecom/))

101. Shenzhen Kexin Communication Technologies Co., Ltd. - 2025 Annual Report

· Evidence informing base-year company-share estimates: The 2025 subsidiary table reports Fi-Systems Oy revenue of RMB312,xx.xx for communications-power and wireless-network-energy activity. This is the operating-envelope input, not directly observed telecom battery-backup revenue. The filing identifies Efore operating entities within the subgroup. ([static.cninfo.com.cn](https://static.cninfo.com.cn/finalpage/2026-xx.xx-xx.xx/xx.xx.PDF))

102. Telecom Solutions - Efore

· Evidence informing base-year company-share estimates: The portfolio distinguishes custom power supplies, battery-containing backup systems and battery families, and dates ICT battery introduction to 2022. These distinctions constrain the modeled eligible-product fraction but do not disclose its sales percentage. ([efore.com](https://www.efore.com/telecom-solutions/))

103. Your Career Starts Here - Celltech Solutions Oy

· Evidence informing base-year company-share estimates: The official recruitment site reports EUR120 million turnover. Because the statement is not assigned to a financial year, it supports an explicitly undated scale proxy rather than observed calendar-2025 sales. (careers.celltech-group.com)

104. Business Areas - Addtech Q2 2025/2026

· Evidence informing base-year company-share estimates: For the quarter ended September xx.xx 2025, Addtech Electrification reports SEK59 million Data & Telecommunications customer sales and SEK1,xx.xx total sales. Their ratio calibrates the modeled customer exposure; it is not Celltech's directly observed sales mix. ([q22025.reports.addtech.com](https://q22025.reports.addtech.com/financials/business-areas))

105. Infrastructure Energy Storage and Power Supply - Celltech Group

· Evidence informing base-year company-share estimates: The infrastructure portfolio separates telecom battery and tailored-power offerings from transport, general energy storage and data-center applications. It supports the application exclusions and coordination role, not the assumed numerical attribution fractions. ([celltech-group.com](https://celltech-group.com/business-segments/infrastructure/))

106. Sustainability - Celltech Group

· Evidence informing base-year company-share estimates: Celltech identifies Addtech as its parent. This supports using the parent business-area disclosure as a bounded calibration lead without attributing all Addtech revenue to Celltech. ([celltech-group.com](https://celltech-group.com/sustainable-batteries/))

107. Salicru - Estado de Información No Financiera 2024

· Evidence informing base-year company-share estimates: Salicru's 2024 report gives EUR101 million turnover and identifies UPS as xx.xx% of sales, supporting the product-family monetary anchor rather than directly observing 2025 telecom revenue. ([salicru.com](https://www.salicru.com/files/pagina/xx.xx/xx.xx/einf_2024.pdf))

108. SPS NET2 - SAI DC compacto con baterías de Ion-Litio - Salicru

· Evidence informing base-year company-share estimates: SPS NET2 is a battery-containing DC UPS for network-device continuity, supporting the eligible premises-product boundary. The catalog does not disclose its sales quantity or the modeled revenue fractions. ([salicru.com](https://www.salicru.com/sps-net2-xx.xx.html))

109. Statron - Telecom: UPS Systems and Battery Solutions

· Evidence informing base-year company-share estimates: The telecom-specific record reports approximately xx.xx realized systems, more than ten customers and approximately ten countries. It supports a telecom-cohort proxy, not directly observed 2025 annual sales or active stock. ([statron.com](https://www.statron.com/en/segment/telecom/))

· Evidence informing base-year company-share estimates: The listed portfolio includes Statron modular systems and third-party Eaton UPS products, supporting the need for an explicit manufacturer-versus-resale eligibility adjustment. ([statron.com](https://www.statron.com/en/segment/telecom/))

110. Statron - Swiss Quality, Company Brochure, July 2021

· Evidence informing base-year company-share estimates: The 2021 company brochure identifies telecom battery and UPS relationships with Swisscom, Sunrise and Huawei. These dated commercial references support participation, but do not measure 2025 deliveries, prices or current contract continuity. ([statron.com](https://statron.com/wp-content/uploads/2022/xx.xx/Stratron_Image_Broschuere_en_Jul2021_web.pdf))

111. Turkcell ile ASPİLSAN Enerji'den Yerli Batarya Üretiminde Stratejik İş Birliği

· Evidence informing base-year company-share estimates: The June xx.xx 2022 announcement specifies approximately xx.xx telecom battery modules over xx.xx years under a Turkcell agreement spanning 2022-2025. It supports the contract-scale input, not observed 2025 deliveries, realized prices or the final modeled share. ([aspilsan.com](https://www.aspilsan.com/turkcell-ile-aspilsan-enerjiden-yerli-batarya-uretiminde-stratejik-is-birligi/))

112. ASPİLSAN Enerji and ULAK's Strategic Partnership at MWC26

· Evidence informing base-year company-share estimates: The March xx.xx 2026 disclosure describes telecom-network participation with Turkcell and Türk Telekom and export activity. It supports the distinct supplementary customer-business premise, but does not measure the assumed xx.xx annual equivalents or calendar-2025 revenue. ([aspilsan.com](https://www.aspilsan.com/en/aspilsan-enerji-and-ulaks-strategic-partnership-at-mwc26/))

113. Новосибирский завод «Оксид» поставил заказчикам крупную партию промышленных аккумуляторов

· Evidence informing base-year company-share estimates: The September xx.xx 2025 report corroborates a supplier-reported delivery of more than 2,000 Oxide batteries for telecommunications backup and identifies the manufacturer within the Rosel holding. It supports the dated delivery anchor and parent attribution, not audited annual revenue or the assumed unit price. ([mashnews.ru](https://mashnews.ru/novosibirskij-zavod-radiodetalej-oksid-postavil-zakazchikam-krupnuyu-partiyu-promyishlennyix-akkumulyatorov.html))

114. «Росэл» поставил более 2000 аккумуляторов для телеком-оборудования

· Evidence informing base-year company-share estimates: The September xx.xx 2025 report corroborates the same battery-delivery event and reports long-term telecom-operator contracts. It supports continuing commercial activity as a modeling premise; it is not an independent audit or a separate additive shipment quantity. ([ferra.ru](https://www.ferra.ru/amp/news/v-rossii/rosel-postavil-bolee-2000-akkumulyatorov-dlya-telekom-oborudovaniya-xx.xx-xx.xx-2025.htm))

115. Nian Battery Khavaran - About Us

· Evidence informing base-year company-share estimates: The company description states annual production of xx.xx batteries and a subsequent capacity expansion to xx.xx batteries. These undated commercial-scale disclosures anchor the modeled unit scale, not directly observed calendar-2025 sales.

· Evidence informing base-year company-share estimates: The company describes a Shuangdeng/China Shoto licensing relationship, supporting the commercial connection used for the comparable-product calibration. Telecom mix, eligible external first-sale attribution and realized price remain assumptions.

116. Camusat - Environment, Social and Governance Report ESG / 2024

· Evidence informing base-year company-share estimates: Reports xx.xx solar/hybrid sites installed and managed in 2024 and xx.xx Aktivco sites at year-end; these constrain the beginning activity proxy, not observed 2025 backup revenue. ([camusat.com](https://camusat.com/wp-content/uploads/2025/xx.xx/CAMUSAT_ESGReport_2024_EN-c.pdf))

117. Camusat - Rapport Environnement, Social et de Gouvernance / 2025

· Evidence informing base-year company-share estimates: Reports an xx.xx-site solar/hybrid footprint and xx.xx rural or remote telecom deployments in 2025; these provide stock and project-count anchors for the modeled service/equipment attribution, not directly observed backup sales or fees. ([camusat.com](https://camusat.com/wp-content/uploads/2026/xx.xx/CAMUSAT_Rapport-ESG-2025_fr.pdf))

118. Proparco - Supporting access to telecom services in Senegal's rural areas

· Evidence informing base-year company-share estimates: The July xx.xx 2023 project record identifies Aktivco as a Camusat subsidiary financing and operating energy assets under long-term contracts and records a EUR13.xx.xx loan. It corroborates the service and ownership role; financing is not treated as annual backup revenue. ([proparco.fr](https://www.proparco.fr/en/carte-des-projets/aktivco-senegal-2023))

119. Exicom Tele-Systems Limited - Annual Report 2024-25

· Evidence informing base-year company-share estimates: FY2025 consolidated Critical Power revenue was INR570.xx.xx crore; this constrains the segment envelope and the modeled January-March calendar bridge, not the final telecom-only share. ([bsmedia.business-standard.com](https://bsmedia.business-standard.com/_media/bs/data/announcements/bse/xx.xx/47761e2a-d046-4e88-badb-594667ccb1e0.pdf))

120. Exicom Q1 FY26: Navigating a Soft Quarter with Clear Momentum for the Road Ahead

· Evidence informing base-year company-share estimates: The April-June 2025 quarter reported INR205.xx.xx crore of total consolidated revenue and described Critical Power and battery-project delays. This supports a restrained modeled quarter; INR115 crore of Critical Power revenue is an assumption, not a source observation. ([exicom.com](https://www.exicom.com/insights/press-releases/exicom-q1-fy26-navigating-a-soft-quarter-with-clear-momentum-for-the-road-ahead))

121. Exicom Q2 FY26 Quarter Results: Strong Q2 Performance on Solid India Growth

· Evidence informing base-year company-share estimates: The September-2025 quarter reported approximately INR170 crore of consolidated Critical Power revenue and delivered systems for approximately xx.xx BharatNet sites. These are segment and delivered-activity anchors, not battery-only revenue. ([exicom.com](https://www.exicom.com/insights/press-releases/q2fy26-quarter-results-exicom-posts-strong-q2-performance-on-solid-india-growth-charts-a-disciplined-path-for-scale-up))

122. Exicom Strengthens Market Position in Q3 with Growing Order Book and FY27 Expansion Plans

· Evidence informing base-year company-share estimates: The December-2025 quarter reported approximately INR164 crore of Critical Power revenue. Announced DC-system orders are distinguished from realized revenue and are not added as separate 2025 sales. ([exicom.com](https://www.exicom.com/insights/press-releases/exicom-q3-results-fy27-growth-path))

123. Telecom Batteries | Critical Power Solutions by Exicom

· Evidence informing base-year company-share estimates: The named EXTB telecom-battery portfolio supports separating battery sales from broader Critical Power products. It does not establish the modeled product mix or every system quotation's battery inclusion. ([exicom.com](https://www.exicom.com/product-family/telecom-batteries))

124. NED Energy - Telecom Battery

· Evidence informing base-year company-share estimates: NED claims a Global telecom footprint exceeding xx.xx sites. The model uses the xx.xx-site floor as an undated stock anchor, with active-cohort, replacement, retention and price assumptions explicitly separate. ([nedenergy.in](https://www.nedenergy.in/service-details.html?tab=telecom_battery))

125. Time Technoplast Limited - Merger of NED Energy Limited into Power Build Batteries Private Limited

· Evidence informing base-year company-share estimates: The November xx.xx 2024 merger disclosure separately reports NED FY2024 revenue of INR60.xx.xx crore and Power Build Batteries revenue of INR51.xx.xx crore. These constrain legacy-business scale and prevent assigning the successor's entire business to NED. ([timetechnoplast.com](https://www.timetechnoplast.com/wp-content/uploads/2024/xx.xx/merger-of-subsidiary-company.pdf))

126. Time Technoplast Limited - Q1 FY2026 Earnings Conference Call Transcript, August 12, 2025

· Evidence informing base-year company-share estimates: The August xx.xx 2025 company transcript confirms completion of the NED/Power Build merger. The estimate retains identifiable legacy NED telecom activity rather than assuming an independent surviving legal entity or assigning all successor revenue. ([timetechnoplast.com](https://www.timetechnoplast.com/wp-content/uploads/2025/xx.xx/q1-transcript-2025.pdf))

127. Sebang Global Battery Co., Ltd. - 2025 Business Report, Filed March 19, 2026

· Evidence informing base-year company-share estimates: The 2025 filing reports KRW176,xx.xx of manufactured industrial-battery revenue separately from KRW21,xx.xx of industrial merchandise revenue, and a KRW1,xx.xx/USD annual average. The model excludes merchandise and applies explicit telecom and eligibility assumptions. ([kind.krx.co.kr](https://kind.krx.co.kr/external/2026/xx.xx/xx.xx/xx.xx/xx.xx/xx.xx.htm))

· Evidence informing base-year company-share estimates: The filing supplies a period-matched 2025 Korean-won/USD annual exchange-rate comparator of xx.xx, used only for the currency bridge in Hankook's model, not as evidence of Hankook revenue. ([kind.krx.co.kr](https://kind.krx.co.kr/external/2026/xx.xx/xx.xx/xx.xx/xx.xx/xx.xx.htm))

128. Sebang Group - Battery, Manufacturing and Recycling

· Evidence informing base-year company-share estimates: The group identifies telecommunications among industrial-battery applications alongside other uses. This supports an application adjustment rather than treating all industrial revenue as telecom sales; the xx.xx% allocation remains assumed. ([sebanggroup.com](https://www.sebanggroup.com/client/en/business/manufacturing))

129. Hankook & Company - 4Q 2025 Financial Results

· Evidence informing base-year company-share estimates: The 2025 presentation reports KRW1,xx.xx of ES division revenue and a xx.xx% Industrial product-sales mix. These define the narrow industrial proxy envelope; the division figures are internally prepared and unaudited, and the final telecom allocation is modeled. ([cdn.hankook-technologygroup.com](https://cdn.hankook-technologygroup.com/static/assets/down/quarterly-reports/2025/25_4Q_IR_ENG_F.pdf))

130. 2V AGM | Hankook Battery

· Evidence informing base-year company-share estimates: The named industrial 2V AGM offering establishes a stationary-battery comparison boundary. It supports restricting the model to industrial activity but does not measure telecom participation or the assumed xx.xx% application allocation. ([hankook-battery.com](https://www.hankook-battery.com/en/technology/industrial-2v-agm.do))

131. FSP Technology Inc. - FY2025 Results Analyst Meeting, March 30, 2026

· Evidence informing base-year company-share estimates: Reports 2025 net sales of NT$xx.xx and networking application revenue of xx.xx%, constraining the modeled revenue envelope rather than observing telecom battery-backup revenue.

132. FSP Technology Inc. - First-Quarter 2025 Results Analyst Meeting

· Evidence informing base-year company-share estimates: Identifies UPS and 5G power offerings and the historical Voltronic investment; supports participation and the need to separate manufactured finished offerings from investment-related or purchased-product activity.

133. Sunwoda Electronic Co., Ltd. - 2025 Annual Report

· Evidence informing base-year company-share estimates: Discloses CNY2,xx.xx of 2025 energy-storage-system revenue, providing the narrow monetary pool used by the telecom attribution model; does not disclose its telecom percentage.

134. Sunwoda: Quality at the Core, Ensuring Stable AIDC Operations Through Reliable Delivery

· Evidence informing base-year company-share estimates: Identifies telecom backup within network energy alongside data centers and other applications, supporting exclusion of non-telecom network-energy activity rather than treating the entire business as eligible.

135. Pylon Technologies Co., Ltd. - 2025 Annual Report
· Evidence informing base-year company-share estimates: Reports CNY2,xx.xx of storage revenue, identifies base-station backup offerings and discloses CNY56,xx.xx of material sales to ZTE and subsidiaries; constrains the model and challenges reliance on related-party channel prominence.

136. Energywith Sustainability Report 2025
· Evidence informing base-year company-share estimates: Energywith reports approximately JPY135 billion of consolidated sales for March 2025. This supports a predecessor-group scale input, not a telecom revenue percentage or the final modeled share.
([energy-with.com](https://www.energy-with.com/wp-content/uploads/2026/xx.xx/Energywith-Sustainability-Report2025_J.pdf))

137. Energywith - Company Outline
· Evidence informing base-year company-share estimates: Energywith's company outline reports approximately JPY130 billion of consolidated sales for March 2026, used with the March 2025 input in an explicitly modeled fiscal-to-calendar bridge.
([energy-with.com](https://www.energy-with.com/company/outline/))

138. The Furukawa Battery - Financial Results for the Fiscal Year Ended March 31, 2025
· Evidence informing base-year company-share estimates: Furukawa's FY2025 external industrial sales of JPY25.xx.xx and total external sales of JPY84.xx.xx support the industrial-mix calibration and ownership-adjusted acquired-business proxy. Neither amount is telecom-only revenue.
([corp.furukawadenchi.co.jp](https://corp.furukawadenchi.co.jp/en/ir/news/news-xx.xx/main/xx.xx/link/202503_Q4.pdf))

139. Energywith - History
· Evidence informing base-year company-share estimates: Energywith's history identifies Sustainable Battery Holdings as its parent and records the Furukawa tender transaction in 2025. This supports predecessor and group-attribution context rather than retrospective full-year acquired revenue.
([energy-with.com](https://www.energy-with.com/en/company/history/))

140. EneSolve Holdings - Corporate Information
· Evidence informing base-year company-share estimates: The holding-company record states April xx.xx 2026 commencement and identifies the current group scale. It supports retaining a qualified predecessor attribution rather than treating the commencement date alone as proof of zero 2025 economic activity.
([ene-solve.com](https://www.ene-solve.com/company/))

141. Tokyo Century - Notice Concerning Results of AP78's Tender Offer for Shares of Furukawa Battery, September 9, 2025
· Evidence informing base-year company-share estimates: The September xx.xx 2025 transaction notice dates completion of AP78's tender offer to September xx.xx 2025 and describes the subsequent holding-company transaction steps. It constrains the partial-year ownership bridge, not an exact consolidation revenue amount.
([tokyocentury.co.jp](https://www.tokyocentury.co.jp/en/newsroom/news/pdf/02f099aeedf161dc1992b1fcfd7acce46cf63653.pdf))

142. Shindengen - Segment Information
· Evidence informing base-year company-share estimates: The Power Systems segment sales series supplies JPY6.xx.xx for March 2025 and JPY7.xx.xx for March 2026 as the broad segment inputs to the calendar bridge; battery-inclusive and telecom allocations remain assumptions.
([shindengen.co.jp](https://www.shindengen.co.jp/ir/finance/segment/))

143. Shindengen Corporate Profile 2025
· Evidence informing base-year company-share estimates: The corporate profile identifies telecommunications rectifiers, lithium-ion storage, inverters and monitoring in the relevant power business. It supports narrowing the activity boundary rather than allocating total corporate revenue to telecom backup.
([shindengen.com](https://www.shindengen.com/company/files/docs/corporateprofile_20250828.pdf))

144. Shindengen - Telecommunication Power Supplies
· Evidence informing base-year company-share estimates: The telecom power portfolio supports battery-connected commercial systems but does not establish batteries in every sale. This is the premise for the explicit battery-inclusive attribution discount.
([shindengen.com](https://www.shindengen.com/products/eco_energy/electronics/))

145. Schneider Electric - Ensure Business Continuity with APC UPS Solutions, June 2, 2025
    · Evidence informing base-year company-share estimates: The June xx.xx 2025 article describes over xx.xx APC installations. It is used as qualified cumulative commercial scale, not observed active stock or annual shipments.
    ([blog.se.com](https://blog.se.com/datacenter/2025/xx.xx/xx.xx/how-you-can-ensure-business-continuity-during-unstable-power-conditions/))
146. Schneider Electric - A Trusted Partner for All Your IT Infrastructure Needs, September 11, 2025
    · Evidence informing base-year company-share estimates: The September xx.xx 2025 article instead describes over xx.xx APC installations and the brand's multi-decade history. The differing stock statements are retained as a comparability limitation, not averaged into an observed installed base.
    ([blog.se.com](https://blog.se.com/datacenter/2025/xx.xx/xx.xx/schneider-electric-a-trusted-partner-for-all-your-it-infrastructure-needs/))
147. Schneider Electric - Single Phase UPS Basic Life Expectancy: When to Consider a New Unit over a Battery
    · Evidence informing base-year company-share estimates: The company distinguishes approximately xx.xx-xx.xx-year UPS chassis life from xx.xx-xx.xx-year VRLA battery life. These commercial lifecycle ranges constrain the modeled eight-year small-package and mid-cycle battery purchasing cohorts.
    ([apc.com](https://www.apc.com/us/en/faqs/FAQ000265093/))
148. Schneider Electric - APC Symmetra Battery Systems
    · Evidence informing base-year company-share estimates: The Symmetra battery-system portfolio explicitly identifies network and telecommunications protection and separately replaceable battery assemblies. It supports the included equipment and replacement categories, not their modeled quantities or prices.
    ([se.com](https://www.se.com/us/en/product-range/xx.xx-apc-symmetra-battery-systems))
149. Enterprise Development History - Shenzhen Richroc Electronic Co., Ltd.
    · Evidence informing base-year company-share estimates: The October xx.xx 2024 company publication reports aggregate capacity of at least xx.xx sets per day. This is the model's capacity reference, not observed 2025 shipments or revenue; annual realization, application mix and prices remain assumptions.
    ([wgpups.com](https://www.wgpups.com/news/enterprise-development-history/))
150. UPS1202A Mini UPS - Reliable 12V 2A Backup Power for Routers & IoT Devices
    · Evidence informing base-year company-share estimates: The June xx.xx 2025 UPS1202A publication establishes a continuing finished mini-UPS offering for routers, modems and fiber connectivity, with additional noncommunications applications. It supports product eligibility and the need for an application adjustment, not the assumed xx.xx% mix or sales quantity.
    ([wgpups.com](https://www.wgpups.com/news/what-makes-ups1202a-a-trusted-classic%EF%BC%9F/))
151. 科华数据股份有限公司 2025 年年度报告 - Kehua Data Co., Ltd. 2025 Annual Report
    · Evidence informing base-year company-share estimates: Reports 2025 smart-power product revenue of RMB743,xx.xx and data-center product revenue of RMB2,xx.xx. These mixed-application revenues anchor the assumption-led attribution, not an observed telecom numerator.
    ([static.cninfo.com.cn](https://static.cninfo.com.cn/finalpage/2026-xx.xx-xx.xx/xx.xx.PDF))
152. Kehua Data Co., Ltd. - Business Summary, updated September 3, 2025
    · Evidence informing base-year company-share estimates: The business summary updated September xx.xx 2025 identifies telecom UPS, DC UPS, batteries and accessories, supporting telecom participation and the need to distinguish finished backup packages from adjacent products. It provides no telecom revenue split.
    ([static.cninfo.com.cn](https://static.cninfo.com.cn/finalpage/enpage/002335_2.pdf))

22.2. Market Concentration Analysis, 2025

[illegible] Vertiv's cross-manufacturer DC service proposition is a counterexample to automatic original-brand aftermarket exclusivity. Nevertheless, an

advertised cross-vendor service does not establish acceptance of every existing plant or preservation of every manufacturer's warranty.

Completed ownership changes can reduce the independence implied by separate product brands. Stryten Energy LLC completed its acquisition of C&D Technologies and Trojan Battery Company on October xx.xx 2026, while retaining those product brands. ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪ ▪▪ ▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪ ▪ ▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪ ▪▪▪▪▪▪▪

Channel breadth also differs from independent manufacturing alternatives. Telzas lists FIAMM stationary batteries; Tescom lists EnerSys PowerSafe SBS EON; Seven Star LLC offers the same named EnerSys family in Oman; and Kira Power Solutions advertises EnerSys batteries in Egypt. ▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪ ▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪

Some group relationships are established while similarly named businesses remain unresolved. Newmar identifies Mission Critical Electronics as its parent, and Charles Industries identifies itself as an Amphenol company. ▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪ ▪▪▪▪▪▪▪▪ ▪▪ ▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪ ▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪ ▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪

Digital and energy-market relationships can create continuing dependencies beyond equipment ownership. ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ Retaining Reserve-Only Backup avoids an additional market relationship, whereas a service-assisted route introduces another counterparty without removing eligibility requirements.

Sources & Evidence

1. DC Power Services | Vertiv
   · Cross-manufacturer service is a counterexample to automatic original-brand aftermarket exclusivity, without proving universal compatibility.
   ([vertiv.com](https://www.vertiv.com/en-us/products/services/dc-power-services/))

2. How to participate in the reserve markets | Fingrid
   · Fingrid requires resource-owner permission where applicable and documents reserve-market participation arrangements separately from software capability.
   ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))
3. Nokia adds Virtual Power Plant to its leading energy efficiency solution portfolio
   · Nokia's February xx.xx 2024 announcement markets VPP software around backup assets and states intended availability later in 2024.
   ([nokia.com](https://www.nokia.com/newsroom/nokia-adds-virtual-power-plant-to-its-leading-energy-efficiency-solution-portfolio/))
4. Telecom & Network | Polarium
   · The cloud-connected proposition creates a separate digital-service comparison beyond hardware ownership.
   ([polarium.com](https://polarium.com/telecom/))
5. Product Datasheets & Ordering Guides - Charles Industries, LLC · An Amphenol Company
   · The catalog supports Amphenol group attribution, not an independent manufacturer interpretation for every Charles product.
   ([charlesindustries.com](https://www.charlesindustries.com/support/resources/product-datasheets-ordering-guides/))
6. Stryten Energy Completes Acquisition of C&D Trojan, Creating a Leading Battery Manufacturing Platform for Transportation, Industrial, Critical Infrastructure, and Military Applications
   · Stryten announced completed acquisition of C&D Technologies and Trojan Battery Company on October xx.xx 2026, retaining their product brands.
   ([stryten.com](https://www.stryten.com/stryten-energy-completes-acquisition-of-cd-trojan/))
7. FIAMM Energy Technologies - AURELIUS
   · AURELIUS identifies FIAMM Energy Technologies as an investment and records 2025 as the acquisition year. Leadership claims are not used.
   ([aurelius-group.com](https://www.aurelius-group.com/investment/fiamm-energy-technologies))
8. Fiamm | Telzas - Power systems for telecommunications
   · Telzas lists FIAMM stationary products including FIT and an inquiry route, supporting channel access rather than a separate underlying manufacturer.
   ([telzas.com](https://www.telzas.com/en/products/stationary-batteries/fiamm/))
9. PowerSafe SBS EON Technology Batteries - Products | Tescom UPS
   · Tescom lists EnerSys PowerSafe SBS EON batteries through its commercial portfolio; current manufacturer-confirmed authority remains separate.
   ([tescom-ups.com](https://www.tescom-ups.com/en/product/powersafe-sbs-eon-technology-batteries-xx.xx))
10. EnerSys PowerSafe SBS EON VRLA Battery - Datasheet & Quote
    · Seven Star lists EnerSys PowerSafe SBS EON through an Oman quotation route; actual fulfillment and authorization require confirmation.
    ([omansevenstar.com](https://omansevenstar.com/product/enersys-powersafe-sbs-eon/))
11. EnerSys PowerSafe Batteries Egypt | OPzV, OPzS, SBS | KPS
    · Kira Power Solutions advertises EnerSys PowerSafe batteries in Egypt; its authorization description is supplier-reported. ([kps-grp.com](https://kps-grp.com/powersafe-batteries-egypt/))
12. About Newmar | Powering the Network
    · Newmar explicitly identifies Mission Critical Electronics as its parent, supporting group attribution rather than separate-parent treatment. ([poweringthenetwork.com](https://www.poweringthenetwork.com/about/))
13. ABOUT SEC UK BATTERIES
    · SEC UK identifies itself as a division of Shield Batteries Limited; this does not establish the separate SEC business's ownership or seller identity. ([secukbattery.co.uk](https://www.secukbattery.co.uk/about-us.html))

22.3. Recent Developments & Impact Analysis, 2025

Stryten Energy LLC's completed acquisition of C&D Technologies and Trojan Battery Company on October xx.xx 2026 changes the ownership relationship behind retained battery brands. For telecom buyers, the immediate consequence is a need to reassess contracting and support independence-not to assume that existing product ranges, warranties, or customer approvals have already been integrated. ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪

Ericsson's April xx.xx 2026 announcement reports introduction of its Energy & Enclosure platform in Swisscom's network. ▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ Buyers should therefore benchmark a reported deployment and an announced delivery obligation differently: the former can inform a comparable account discussion, while the latter requires confirmation of the actual ordered bundle and fulfillment.

Phinergy's first-half 2026 disclosure records a March xx.xx 2026 Swisscom Broadcast agreement and an initial demonstration purchase, with envisaged Swiss distribution and customer-support roles. ▪▪▪ ▪▪▪▪ ▪▪ ▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪ ▪ ▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪ ▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪ ▪▪ ▪▪▪▪▪▪▪ ▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪▪▪ Swiss purchasers should resolve seller, warranty, and support responsibilities before relying on the channel, and should monitor a binding follow-on commitment rather than an announcement alone.

IFC's March xx.xx 2026 financing announcement supports IPT PowerTech Group's telecom-energy modernization, operation, and maintenance in Ethiopia, Liberia, and Sierra Leone. ▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪ ▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪ ▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪ Camusat's AktivCo financing record in Senegal provides another outsourcing comparison, rather than proof that all funded energy arrangements are equivalent dedicated backup contracts.

Supplier-continuity developments can invalidate a simple live-catalog interpretation. Metair's August xx.xx 2026 results publication classifies First Battery Industrial as discontinued operations following the second half of 2025. ▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪ ▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪ ▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪

Nokia's February xx.xx 2024 VPP announcement stated intended availability later that year, and its March xx.xx 2025 product discussion described additional features and an aggregator interface. ■■■■■ ■■■■■■■ ■■■■■■■■■ ■■■■■■■■■ ■■■■■■■ ■■■■■■■■■■■ ■■■■■■■ ■■■■■ ■■■■■■■■■■■■■■■■■■■■ ■■■■■■■ ■■■■■■■■ ■■ ■■■■■■■■ ■■■■■■■■■■■■■■■ ■■■■■■■■■■■■ ■■■■■■■■■■■■■ ■■■■■■■ ■■■■■■ ■■■■■ ■■ ■■■■■■■■■■■ ■■■■■■■■■■ ■■■■■■■■ ■■■ ■■■■ ■■■■■■■■ ■■■■■■■ ■■■■■■■■■■ ■■ ■■■ ■■■■■■■■■■ ■■■■■■■■ The software proposition can be evaluated without assuming that its marketing supplies participation rights or transfers telecom continuity responsibility.

Sources & Evidence

1. Nokia adds Virtual Power Plant to its leading energy efficiency solution portfolio
   · The intended availability statement does not establish completed destination-specific license delivery or executed reserve-service obligations.
   ([nokia.com](https://www.nokia.com/newsroom/nokia-adds-virtual-power-plant-to-its-leading-energy-efficiency-solution-portfolio/))
2. Ericsson and Swisscom launch next-gen intelligent power platform
   · The April xx.xx 2026 announcement reports introduction of the platform in Swisscom's network; this is account-specific deployment evidence.
   ([ericsson.com](https://www.ericsson.com/en/press-releases/xx.xx/2026/ericsson-and-swisscom-launch-next-gen-intelligent-power-platform))
3. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone
   · IFC's March xx.xx 2026 announcement supports IPT telecom-energy modernization, operation, and maintenance in Ethiopia, Liberia, and Sierra Leone, not completed fulfillment everywhere.
   ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
4. Phinergy Ltd. Report for the First Half Ended June 30, 2026
   · Phinergy's first-half 2026 report discloses the March xx.xx 2026 Swisscom agreement, initial demonstration purchase, envisaged distribution and support, and nonbinding further intentions.
   ([ir.phinergy.com](https://ir.phinergy.com/wp-content/uploads/2026/xx.xx/%D7%xx.xx%D7%xx.xx%D7%xx.xx-%D7%A8%D7%xx.xx%D7%A2%D7%xx.xx%D7%9F-xx.xx%D7%xx.xx%D7%A6%D7%xx.xx-%D7%A9%D7%A0%D7%AA%D7%xx.xx-%D7%9C%D7%A9%D7%A0%D7%AA-2026-.pdf))
5. Phinergy Immediate Disclosure Regarding Swisscom Broadcast AG, July 9, 2026
   · Phinergy's July xx.xx 2026 disclosure describes continuing discussions concerning subsequent Swisscom commercial stages, not a completed broad rollout.
   ([ir.phinergy.com](https://ir.phinergy.com/wp-content/uploads/2026/xx.xx/P1755536-xx.xx.pdf))
6. Exicom Delivers its Strongest Quarter of FY26 as Both Businesses Return to Sharp Growth
   · Exicom's May xx.xx 2026 announcement reports an Indian DC-power-system order for delivery in fiscal 2027; battery inclusion and completed fulfillment are not established.
   ([exicom.com](https://www.exicom.com/insights/press-releases/exicom-delivers-its-strongest-quarter-of-fy26-as-both-businesses-return-to-sharp-growth))
7. Pioneering sustainable innovation with AI and cloud | Nokia
   · Nokia's March xx.xx 2025 discussion describes added VPP features and an aggregator interface, without customer-specific license or activation commitments.
   ([nokia.com](https://www.nokia.com/blog/pioneering-sustainable-innovation-with-ai-and-cloud/))
8. Stryten Energy Completes Acquisition of C&D Trojan, Creating a Leading Battery Manufacturing Platform for Transportation, Industrial, Critical Infrastructure, and Military Applications
   · The completed acquisition changes parent attribution, without establishing immediate customer-contract, warranty, or approval integration.
   ([stryten.com](https://www.stryten.com/stryten-energy-completes-acquisition-of-cd-trojan/))

9. Supporting access to telecom services in Senegal's rural areas | Proparco
   · Proparco's AktivCo Senegal project record establishes development-finance support for the Camusat-related outsourcing comparison, not universal completed continuity fulfillment. ([proparco.fr](https://www.proparco.fr/en/carte-des-projets/aktivco-senegal-2023))
10. Results for the six months ended 30 June 2026 - Metair Investments Limited
   · Metair's August xx.xx 2026 publication classifies First Battery Industrial as discontinued operations following the second half of 2025, not closure of the entire First Battery business. ([metair.co.za](https://metair.co.za/latest_news/results-for-the-six-months-ended-xx.xx-june-2026/))
11. From R565.65 million to zero for South African fibre cable company - MyBroadband
   · The September xx.xx 2026 report describes Dartcom's business rescue and an asset auction scheduled for September xx.xx 2026; it does not establish the completed outcome or successor seller. ([mybroadband.co.za](https://mybroadband.co.za/news/fibre/xx.xx-from-r565-xx.xx-million-to-zero-for-south-african-fibre-cable-company.html))

22.4. Product Portfolio Analysis, 2025

Telecom battery backup portfolios compete at different purchasing boundaries. ■■■■■■■■ ■■■■■■■■■ ■■■■ ■■■■ ■■■■ ■■■■■■■■■■■■■■■ ■■■■ ■■■■■■■■■■■■■ ■■■■■■■■■■ ■■ ■■■■■■■■ ■■■■■■■■■■■■■■■■■■■■■■ ■■■■■■■ ■■■■■■■■■■ ■■■■■■■ ■■■■■■■■■■ ■■■ ■■■■■■■■■■■■■ ■■■■■■■ ■■■■■■■ ■■■■■■■■■ ■■■■■■■ ■■■■■■■■■■■■■■■■■ ■■■■■■■■■■■ ■■■■■■■■■■■■ ■■■■■■ ■■■■■■■■■■■■ ■■■■ ■■■■■■■■ ■■■■■■■ ■■■■■■■ ■■■■■■■■ ■■■■■■ ■■■■■■ ■■■ ■■■■■■■ ■■■■■■ ■■■■■■■■■ ■■■■■■■■ ■■■■■■■ ■■■■■■■■■■ ■■■■■■ ■■■■■■■ ■■■■■■■■■■■■ These alternatives can support a replacement shortlist, but their coexistence does not establish interchangeable operator acceptance, destination fulfillment, or responsibility for the surrounding power plant.

■■■■■■■■■■ ■■■■■■■ ■■ ■■■■■■■■■■■■ ■■■■■■ ■■■■ ■■■■ ■■■■■■■■■■ ■■ ■■ ■■■■■■■■■ ■■■■■■■■■ ■■■■■ ■■■■ ■■■■■■■ ■ ■■■■■■■■ ■■■■■■■ ■■■■■■■■■■ ■■■■■■■ ■■■■■ ■■■ ■■■■■■■ ■■■■■ ■■■■ ■■■■■■■■■■ ■■■ ■■■■■■■■■■■■ ■■■■■■■■■■ ■■■■■■■ ■■■■■■■ ■■■■■■■■■■ ■■■■■■■■■■ ■■■ ■■■■■■■■■■■■■■ ■■■■■■■■■■■■■ ■■■ ■■■■■ ■■■■■■■■■■■■■ ■■■■■ ■■■■■■■■■■ ■■ ■■ ■■■■■■■■■■■■■■ ■■■■■■■■■ ■■■■■■ HORIEN Salt Battery Solutions and Phinergy introduce Sodium-Based and Metal-Air propositions, respectively. A purchaser considering category substitution should compare the exact continuity obligation, accountable seller, and continuing support-not infer superior performance or replacement eligibility from the technology name.

■■■■■■ ■■■■■■■■■ ■■■■ ■ ■■■■■■■ ■■■■■■■■■■■■ ■■■■■■■■■■■■ ■■■■■ ■■■■■■■■■■■■ ■■■■■ ■■■■■ ■■■■■ ■■■■■■■ ■■■■■■■ ■■■■■■■ ■■■■■■■■■ ■■■■■■■ ■■■■■■■■ ■■■■■■■ ■ ■■■■■■■ ■■■■■■■■■ ■■■■■■■■■■■■ ■■■■■■■ ■■■■■■■■■■■■■■■ ■■■■■ ■■■■■■■ ■■■■■■■■ ■■■■■■■■ ■■ ■■■■■ ■■■ ■■■ ■■■■■■■■■■■■■■ ■■■■■■■■ ■■■ ■■■■■■■ ■■■■■■■■■■■■ ■■■■■■■ ■■■■■■■ ■■■■■ ■■■■■■■■■■ ■■■■■■■■■■■ ■■■■■■■■■■■ ■■■■■■ ■ ■■■■■■■■■ ■■■■■■■■ ■■■■■■■■ ■■■■■■ ■■■■■■■■ ■■■■■■■■ ■■■■■■■■■■■■ ■■■ ■■■■■■■■■■■■ ■■■■■■■■■■■■ These portfolios offer different integration boundaries: an operator retaining its existing plant may prefer battery procurement, while a site-modernization buyer may seek a prime responsible for the quoted package. Battery inclusion and continuing support must be explicit in either route.

CE+T Power, Efore, Celltech Group, and Eaton provide additional power-system or tailored-power comparison paths. ■■■■■■■■■ ■■■■■■■ ■■■■■■■■■■■■ ■■■■■■■■■ ■■■■■■■ ■■■■■■■ ■■■■■■■■■■■■■■■■■■■■■■ ■■■■■■■■■■■■ ■■■■■ ■■■■■■■■■ ■■ ■■■ ■■■■■■■■■■■ ■■

[illegible] Buyers should obtain separate equipment and integration boundaries before comparing these propositions with battery-only bids.

North American power portfolios illustrate why interface capability and battery supply need separate treatment. Innovative Circuit Technology Ltd. describes DC backup systems for wireless and communications markets. [illegible]

Enclosure and communications-service boundaries form another peer group. [illegible] Purchasers should distinguish an enclosure, an integrated backup configuration, and a building-level communications obligation before considering these suppliers interchangeable.

Canadian-facing alternatives also require a consistent purchasing object. Canbat Technologies Inc. and Starmax Batteries publish telecom battery portfolios; UPS Battery Center offers telecom replacement batteries through a retail-oriented catalog. [illegible]

Customer-Premises Connectivity has its own portfolio boundary. [illegible] They are not substitutes for institutional site systems merely because both contain batteries.

Regional stationary-battery alternatives broaden equipment choice without establishing uniform service reach. Moura links stationary telecom offerings with regional lifecycle positioning; Tudor Baterias identifies communications applications in its stationary portfolio;

and Baterias Pioneiro connects its stationary line with telephone-exchange use. ▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪ ▪ ▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪

Turkish and Gulf portfolios add further equipment alternatives. Orbit Energy advertises a Telecom Series; Yiğit Akü Malzemeleri A.Ş. lists front-terminal batteries for telecom; Eternity Technologies FZ-LLC identifies an ET-LI-ION telecom-backup proposition; and ESİS Enerji ve Elektronik San. ▪▪▪▪ ▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪ ▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪

Battery Energy Power Solutions, Gulf Horizon Telecom, and IPT PowerTech Group address different delivery-model choices. Battery Energy's Australian portfolio combines batteries with turnkey coordination and a documented Enatel partnership. ▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪ ▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪ ▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪

Connected services add another commercial layer. Polarium Energy Solutions AB markets Connected Batteries with cellular connectivity and cloud integration, and separately advertises Polarium Care. ▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪ ▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪

Sources & Evidence

1. PowerSafe SBS Batteries | EnerSys
   · EnerSys markets PowerSafe SBS for telecom applications and provides a quotation route, supporting a component-level comparison. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-sbs/))
2. Vertiv NetSure M Series
   · Vertiv's EMEA NetSure M Series page presents configurable outdoor telecom infrastructure with battery options, not identical inclusion in every quotation. ([vertiv.com](https://www.vertiv.com/en-emea/products-catalog/facilities-enclosures-and-racks/outdoor-enclosures/netsure-m-series/))

3. Nokia adds Virtual Power Plant to its leading energy efficiency solution portfolio
   · The announcement establishes a software proposition around existing backup assets, distinct from equipment ownership. ([nokia.com](https://www.nokia.com/newsroom/nokia-adds-virtual-power-plant-to-its-leading-energy-efficiency-solution-portfolio/))
4. Ericsson and Swisscom launch next-gen intelligent power platform
   · Ericsson's Energy & Enclosure platform combines power systems, storage, enclosures, and centralized site-energy control. ([ericsson.com](https://www.ericsson.com/en/press-releases/xx.xx/2026/ericsson-and-swisscom-launch-next-gen-intelligent-power-platform))
5. Telecom & Network | Polarium
   · Polarium markets Connected Batteries with native cellular connectivity and cloud integration. ([polarium.com](https://polarium.com/telecom/))
6. Polarium Care - Our Services
   · Polarium separately advertises Polarium Care services, supporting separation of hardware purchase and continuing service obligations. ([polarium.com](https://polarium.com/services/))
7. Telecommunications - Power solutions | Battery Energy Australia
   · Battery Energy lists telecom battery products and turnkey capabilities, while its standalone DC Power Solutions entry is labeled coming soon. ([batteryenergy.com.au](https://www.batteryenergy.com.au/applications/telecommunications))
8. Battery Energy Power Solutions + Enatel Energy
   · The partnership supports comparison of coordinated equipment supply with separately contracted batteries and DC equipment. ([batteryenergy.com.au](https://www.batteryenergy.com.au/news/strategic-partnership-enatel-battery-energy))
9. Baterias Estacionárias | Moura
   · Moura's stationary portfolio identifies telecom applications and regional lifecycle positioning; destination terms remain separate. ([moura.com.br](https://www.moura.com.br/produtos/estacionarias))
10. Precision Power Products - Precision Group
    · Precision Group lists Micro UPS, FTTx backup, telecom batteries, and rack-mounted lithium products. ([goprecisiongroup.com](https://goprecisiongroup.com/precision-power-products/))
11. HORIEN Salt Battery Solutions and Inlyte Energy Announce a Strategic Partnership
    · HORIEN's March xx.xx 2025 statement identifies sodium-metal-chloride storage and telecom backup, supporting a Sodium-Based comparison without performance equivalence. ([horien.com](https://horien.com/wp-content/uploads/2025/xx.xx/Press-Release_HORIEN-Inlyte-International-Version.pdf))
12. Industrial Battery Rental & Sales in Saudi Arabia | Gulf Horizon Telecom
    · Gulf Horizon advertises telecom battery rental and purchase in Saudi Arabia; the catalog does not establish an executed continuity or return commitment. ([gulfhorizontele.com](https://www.gulfhorizontele.com/battery-solutions-saudi-arabia))
13. Solar & Battery as a Service - IPT Website
    · IPT advertises a service in which it installs, owns, and maintains solar-and-battery energy systems. ([iptpowertech.com](https://iptpowertech.com/solutions/solar-battery-as-a-service))
14. Energy Backup | Phinergy
    · Phinergy markets Aluminum-Air backup for telecom operators and tower companies; comparative acceptance or performance is not established. ([phinergy.com](https://phinergy.com/solutions/energy-backup/))
15. Telecom Batteries | Critical Power Solutions by Exicom
    · Exicom lists named EXTB telecom battery offerings independently of broader DC-system contracts. ([exicom.com](https://www.exicom.com/product-family/telecom-batteries))

16. Products - Li-ion Battery Backup Systems - Delta
    - Delta lists TEB4810, TEB4815, TEB5110, and DUO5128 within its telecom Li-ion Battery Backup Systems portfolio. ([deltaww.com](https://www.deltaww.com/en-US/products/telecom-battery-systems))
17. Telecommunications & 5G Network Backup Batteries - East Penn
    - East Penn lists Deka communications batteries and separately advertises North American support, maintenance, removal, and recycling. ([eastpennmanufacturing.com](https://www.eastpennmanufacturing.com/applications/telecommunications/))
18. Communication Batteries - GSYuasa Energy Solutions
    - GS Yuasa Energy Solutions lists VRLA communication batteries and named communication product series. ([gsyuasa-es.com](https://gsyuasa-es.com/industrial/applications/telecom-batteries/))
19. Energysolutions and batteries for telecommunication
    - HOPPECKE identifies a telecom battery portfolio, including grid | Xtreme VR in a front-terminal variant. ([hoppecke.com](https://www.hoppecke.com/en-us/applications/grid/telecommunication/))
20. Solition Telecom | Exide
    - Exide Technologies markets Solition Telecom modules and describes a Europe and MEA sales-and-service proposition; destination commitments remain separate. ([exidegroup.com](https://www.exidegroup.com/nz/en/product/solition-telecom))
21. Telecom Backup Power Solution-LEOCH BATTERY
    - LEOCH advertises a multi-technology telecom portfolio and connected monitoring or anti-theft products; promotional outcome claims are not adopted. ([leoch.com](https://www.leoch.com/industries/network-power/telecom-backup-power))
22. Telecom - 应用领域 - Narada Power
    - Narada's telecom page lists lithium and lead-acid product families and a purchasing inquiry route. Its leadership assertions are not used. ([en.naradapower.com](https://en.naradapower.com/solution/industry.html))
23. Telecom Battery
    - Vision Group's telecom page advertises remote monitoring, cloud management, GPS tracking, and anti-theft functions. ([vision-batt.com](https://www.vision-batt.com/en/solution/telecombattery.html))
24. Amara Raja Energy & Mobility Limited - Telecom
    - Amara Raja's telecom page identifies AMARON SLEEK and AMARON VOLT as VRLA offerings. ([amararajaeandm.com](https://www.amararajaeandm.com/Industrial/telecom))
25. Telecom | HBL Batteries
    - HBL's telecom catalog advertises lead-acid and nickel-cadmium batteries for communications backup; scale and ranking claims are not used. ([hblbatteries.com](https://hblbatteries.com/Telecom-app.html))
26. FT Series Lead-Acid Batteries for Sale | China Manufacturer | Ritar
    - Ritar publishes an FT Series front-terminal lead-acid battery offering; exact customer acceptance remains separate. ([ritarpower.com](https://www.ritarpower.com/products/ft-series-lead-acid-batteries/))
27. Telecom Battery Solutions | Power-Sonic
    - Power-Sonic maintains a telecom battery-solutions portfolio, supporting a battery-focused comparison rather than universal system equivalence. ([power-sonic.com](https://www.power-sonic.com/telecom/))
28. Digitalizing site power for green connectivity and computing - Huawei
    - Huawei describes 5G Power as a telecom site-power solution incorporating energy storage and management; promotional savings claims are not used. ([huawei.com](https://www.huawei.com/en/huaweitech/publication/xx.xx/digitalizing-site-power-green-connectivity-computing))
29. Telecom Power-5G power, hybrid and iEnergy network energy management solutions|ZTE
    - ZTE describes PadPower, battery, cabinet, and energy-management propositions for telecom sites; historical framework activity is not treated as current universal access. ([zte.com.cn](https://www.zte.com.cn/global/solutions_latest/smart_energy/powersolution.html))

30. Telecom - CE+T Power
    · CE+T Power publishes a telecom power proposition with backup and energy-management functions; the quoted equipment boundary remains important.
    ([cet-power.com](https://www.cet-power.com/en/market/telecom/))
31. Telecom Solutions - Efore
    · Efore maintains a telecom-solutions portfolio containing battery-related propositions; current seller and quotation scope require separate confirmation. ([efore.com](https://www.efore.com/telecom-solutions/))
32. Infrastructure Energy Storage and Power Supply | Celltech Group
    · Celltech's infrastructure portfolio offers batteries and tailored telecom power solutions, supporting a distinct coordination comparison.
    ([celltech-group.com](https://celltech-group.com/business-segments/infrastructure/))
33. Custom power conversion solutions
    · Eaton's custom power-conversion page describes integrated telecom DC-power and battery-backup solutions, without establishing every quotation's battery inclusion.
    ([eaton.com](https://www.eaton.com/us/en-us/catalog/power-conversion/custom-power-conversion-solutions.html))
34. Telecom Power Supply Systems - BENNING
    · BENNING publishes a dedicated telecom power-supply-system portfolio, supporting an infrastructure-supply peer group rather than battery-only equivalence.
    ([benning.de](https://www.benning.de/sbd/BRA/products-us/telecom-power-supply-systems.html))
35. About ICT - Innovative Circuit Technology
    · ICT describes DC backup systems serving fixed-wireless, small-cell, and communications-site markets, alongside other conversion products. ([ict-power.com](https://ict-power.com/about-us/about-ict/))
36. Telecommunications - Analytic Systems Power Conversion Solutions
    · Analytic Systems markets telecommunications power-conversion equipment; this supports a component role rather than automatic battery-inclusive responsibility.
    ([analyticsystems.com](https://analyticsystems.com/markets/telecom/))
37. Power Supply Solutions for Critical Communications | Samlex America
    · Samlex America markets power and backup solutions for critical communications. The source does not resolve the separate model-metadata inconsistency.
    ([samlexamerica.com](https://samlexamerica.com/industries/communications/))
38. DCPS 4RU Telecom System
    · La Marche's DCPS Telecom System advertises intelligent battery management and remote monitoring; those functions do not establish battery inclusion in every sale.
    ([lamarchemfg.com](https://www.lamarchemfg.com/products/dcps-telecom-system.html))
39. Power Supply & Power Distribution
    · Raycap publishes wireless power-supply and distribution propositions, supporting a site-power comparison with battery inclusion left configuration-specific.
    ([raycap.com](https://www.raycap.com/products/power-supply-and-power-distribution-for-wireless/))
40. Telecom & Wireless Power Solutions | SENS
    · SENS maintains a cable, telecom, and wireless power portfolio, distinct from a universally battery-inclusive quotation. ([sens-usa.com](https://www.sens-usa.com/industries/cable-telecom-wireless))
41. DC Power Systems - DC Power Equipment - Telecommunications
    · Eagle Eye Power Solutions publishes telecom DC-power equipment and service positioning, supporting an equipment-and-support comparison rather than monitoring-only treatment.
    ([eepowersolutions.com](https://eepowersolutions.com/dc-power-system-solutions-tailored-for-telecommunications/))
42. Product Datasheets & Ordering Guides - Charles Industries, LLC • An Amphenol Company
    · Charles Industries' catalog lists CUBE battery-backup cabinets and identifies the business as an Amphenol company.
    ([charlesindustries.com](https://www.charlesindustries.com/support/resources/product-datasheets-ordering-guides/))

43. Building Systems - Sabre Industries, Inc.
    · Sabre's enclosure integration capabilities include batteries and DC power systems, without identifying the same contents in every package. ([sabreindustries.com](https://sabreindustries.com/building-systems/))
44. CS19-BBU-004, BDA Battery Back-Up Unit :: Westell Technologies, Inc.
    · Westell identifies a named BDA battery-backup unit within its public-safety communications portfolio, not universal carrier-network equivalence. ([westell.com](https://www.westell.com/products/cs19-bbu-xx.xx))
45. Off-Grid Solar & Backup Power | Tycon Solar | Tycon Systems
    · Tycon's commercial catalog addresses outdoor battery-backup and remote-power systems; exact telecom contractual scope remains separate. ([tyconsystems.com](https://www.tyconsystems.com/categories/tycon-solar/xx.xx))
46. Telecom Lithium Batteries - LiFePO4 Telecom Batteries Canada Supplier
    · Canbat publishes a dedicated telecom lithium-battery portfolio under Canbat Technologies Inc.; customer acceptance and fulfillment are not established by the catalog. ([canbat.com](https://canbat.com/lithium-telecom-batteries/))
47. Telecom - Starmax Batteries
    · Starmax publishes a telecom battery portfolio, supporting a regional battery comparison without establishing current buyer transactions. ([starmaxbatteries.com](https://starmaxbatteries.com/solutions-archives/telecom/))
48. Telecom System Batteries in Toronto, Canada
    · UPS Battery Center maintains a telecom replacement-battery catalog in Canada, distinct from a complete-system service contract. ([upsbatterycenter.ca](https://www.upsbatterycenter.ca/ups-battery/upsbattery-p-u/telecom-lead-acid-batteries))
49. Products | Equinox Power
    · Equinox presents UPS and fault-managed-power propositions for telecom and other critical infrastructure, without establishing a customer-specific orderable package. ([equinoxpowerinc.com](https://www.equinoxpowerinc.com/products))
50. RIC Hybrid UPS System Product Brochure
    · RIC's commercial brochure describes a Hybrid UPS offering, supporting an AC/DC-package comparison with telecom-specific acceptance left unconfirmed. ([ricelectronics.com](https://ricelectronics.com/wp-content/uploads/2025/xx.xx/RIC-HybridUPS-Individual-Product-Brochure.pdf))
51. 2026 PSI Product Catalog
    · PowerTec's 2026 commercial catalog contains ONT backup propositions; a named catalog does not establish every provider's acceptance. ([powertecsolutions.net](https://www.powertecsolutions.net/wp-content/uploads/2026/xx.xx/2026-PSI-Product-Catalog_8.5x11-v5.pdf))
52. Telecom Power - DC UPS | CyberPower
    · CyberPower lists indoor and outdoor FTTx DC UPS categories. ([cyberpower.com](https://www.cyberpower.com/global/en/product/overview/telecom-power/dc-ups))
53. Fonte Nobreak EFB 1201 com Bateria Intelbras
    · Intelbras identifies the EFB xx.xx backup supply with an included battery, supporting a premises-equipment role rather than institutional-system equivalence. ([loja.intelbras.com.br](https://loja.intelbras.com.br/fonte-nobreak-efb-xx.xx-bateria/p))
54. SPS NET2 - O mini UPS CC inteligente e eficiente - Salicru
    · Salicru markets SPS NET2 as a network-device DC UPS; the inspected page does not establish every destination's fulfillment. ([salicru.com](https://www.salicru.com/ao-pt/sps-net2.html))
55. Características Estacionária | Tudor Baterias
    · Tudor identifies communications applications in its stationary-battery portfolio; that listing does not establish uniform local support. ([tudor.com.br](https://tudor.com.br/pt_br/produtos/estacionaria/caracteristicas))

56. Tudo o que você precisa saber sobre Baterias Estacionárias - Pioneiro Baterias
    · Pioneiro's company publication connects its stationary-battery line with applications including telephone exchanges, not a dated customer award. ([bateriaspioneiro.com.br](https://bateriaspioneiro.com.br/tudo-o-que-voce-precisa-saber-sobre-baterias-estacionarias/))
57. BAE Batterien GmbH - Stationary Batteries
    · BAE publishes stationary batteries for applications including telecommunications, supporting equipment comparison without destination-contract equivalence. ([bae-berlin.de](https://www.bae-berlin.de/en/station%C3%A4r))
58. Industrial Batteries - Monbat
    · Monbat's industrial-battery portfolio includes reserve-power and telecom applications; individual current contracts remain separate. ([monbat.com](https://www.monbat.com/product_category/industrial-batteries/))
59. OPzS CELLS & BLOCKS - TAB
    · TAB lists stationary OPzS products for applications including communications equipment, supporting a battery rather than universal complete-system role. ([tab.si](https://www.tab.si/products/opzs-cells/?lang=sl))
60. Telecom Batteries | Victron Energy
    · Victron maintains a dedicated telecom-battery catalog; customer qualification and local support remain offering-specific. ([victronenergy.com](https://www.victronenergy.com/batteries/telecom-batteries))
61. TELECOM - Midac Batteries
    · MIDAC publishes a dedicated telecom stationary-battery portfolio, not uniform destination service terms. ([midacbatteries.com](https://midacbatteries.com/telecom/))
62. MXL 7.2-12 - MERAWEX
    · MERAWEX lists the MXL xx.xx-xx.xx battery, supporting a named component comparison with exact telecom acceptance left separate. ([merawex.com.pl](https://merawex.com.pl/produkt/akumulatory/seria-mxl/mxl-xx.xx-xx.xx-xx.xx/))
63. Производитель аккумуляторов AGM, GEL и OPzV в России | RNB
    · RNB's official business page identifies its regional battery business and stationary technologies; current destination commitments are not inferred. ([rnbat.ru](https://rnbat.ru/company/))
64. Аккумуляторы телеком-оборудования и ретрансляторов
    · Enerdzhi Treyd's commercial page offers telecom battery systems under its regional selling identity; no equivalence with ENERGON is inferred. ([run-power.ru](https://www.run-power.ru/cell/telecom))
65. ЭНЕРГОН - Stationary Batteries
    · ENERGON publishes a stationary-battery portfolio, supporting a separate regional comparison without attributing it to Delta Electronics. ([energon.ru](https://energon.ru/akb/stationary-batteries/))
66. Telecommunication Energy Storage Systems - Orbit Energy
    · Orbit Energy publishes a Telecommunication Energy Storage Systems offering, supporting a named telecom-equipment comparison. ([orbitenerji.com](https://www.orbitenerji.com/en/product-detail/telecommunication-energy-storage-systems))
67. Front Terminal Batteries | Telecom & UPS | Yiğit Akü
    · Yiğit Akü lists front-terminal batteries with telecom applications; this does not establish every buyer's accepted replacement. ([yigitaku.com](https://yigitaku.com/en/product-detail/detail/front-terminal-batteries))
68. ET-LI-ION Battery - Eternity Technologies
    · Eternity markets the ET-LI-ION offering for telecom power and backup; current customer and destination terms are not established by the catalog. ([eternitytechnologies.com](https://eternitytechnologies.com/product/lithium/et-li-ion-battery/))
69. EGE 300K Online UPS - Esis Power
    · ESİS publishes the EGE 300K UPS proposition for applications including telecom, leaving exact procurement scope to the quotation. ([en.esis.com.tr](https://en.esis.com.tr/xx.xx-xx.xx-online-ups/ege-300k-online-ups.html))

70. Türk Telekom ve ASPİLSAN Enerji’den Yerli Lityum Batarya İş Birliği
    · ASPİLSAN's dated Türk Telekom cooperation announcement establishes a supplier-reported operator relationship, not universal ongoing qualification. ([aspilsan.com](https://www.aspilsan.com/en/turk-telekom-and-aspilsan-enerji-domestic-lithium-battery-collaboration/))

22.5. Benchmarking Analysis, 2025

A defensible benchmark compares the purchased obligation before comparing supplier breadth. ■■■■■■■■■■■ ■■■■■■■■■ ■■■■■ ■■■■■■■■■■■■■■ ■■■■■■■■■■■ ■ ■■■■■■■■■■■■■■■■■ ■■■■■■■■■■■■ ■■■ ■■■■■■■■■■ ■■■■■■■■ ■■■■ ■■■■■■■ ■■■■ ■■■■■■■■ ■■ ■■■ ■■■■■■■■ ■■■ ■■■■■■ ■■■■■■■■ ■■■■ ■■■ ■■■■■■■ ■■■■■ ■■■■■■■■■■■■ ■■■■ ■■■■■■■ ■■■ ■■■■■■■■ ■■■■■■■■■ ■■■■■■■■■■■■■■■■ ■■■ ■■■■■■■■■ ■■■■■■■■■ ■■■■■■■■■ ■■■■■■■■■ ■■■■■■■■■■■■■■ ■■■ ■■■■■■■■■■ ■■■■■■■■ ■■■■■■■■■■■■ For Customer-Premises Connectivity, the decisive benchmark is the protected device-and-service boundary together with warranty and continuing care-not a general backup label.

For institutional systems, compare an accepted battery replacement, a supported existing-plant upgrade, and a battery-inclusive package separately. Vertiv's cross-manufacturer service offering supports the upgrade comparison, while Delta Electronics, Inc.'s battery-family catalog supports component-level procurement. ■■■■■■■■ ■■■■■■■■■■■■■ ■■■■■■■ ■■■■■■■ ■■■■■■■ ■■■ ■■■■■ ■■■■■■■■■■■■ ■■■■■■■ ■■■■■■■■■■■■ ■■■■■■■■■■■■ ■■■■■■■■■■■■ ■■■ ■■■■■■■■■ ■■■■■■■■■■■■■ ■■■■ ■■■ ■■■■■■■ ■■■■■■■■ ■■■■■■■■■■ ■ ■■■■■ ■■■ ■■■■■■■ ■■■■■■■■ ■■■ ■■■■■■■■ ■■■■■■■■■■ ■■■■■■■■■■■■ ■■■■■■■■■■■■ ■■■■■■■■ ■■■■■■■■■■■■ ■■■■■ ■■■■■■■■■ ■■■ ■■■■■■■■■■■■ ■■■■■■■■■■ ■■■■■■■■ ■■■■■■■■■■■■■■ ■■■ ■■■■■■■■ ■■■■■■■■■■■■ ■■■ ■■■■■■■■ ■■■■■■■■■■■■ ■■■■■■■■■ ■■■■■■■■

Connected-fleet benchmarking should distinguish advertised functions from enforceable obligations. Polarium, Vision Group, and LEOCH describe monitoring or anti-theft capabilities; none of those descriptions establishes a comparative customer outcome. ■■■■■■■■■■ ■■■■■■■ ■■■■■■ ■■■■■■■■■■ ■■■■■■■■ ■■■■■■ ■■■■■■■■■ ■■■ ■■■■■ ■■■ ■■■■■■■■■■ ■■■■■ ■■■■■ ■■■■■■■■ ■■■■■■ ■■■■■■■■ ■■■ ■■■■■ ■■■■■■■■■■ ■■■■■■■ ■■■■■■■■ ■■■■■■■■ ■■■■■■■■■■ ■■■■■■■■■■■ ■■ ■■■■■■■■■■ ■■■ ■■■■■■■■■■■■■■■ ■■■■■■■■■■■■ ■■■■■■■■ ■■■■■■■■■■ ■■■ ■■■■■■■■■ ■■■ ■ ■■■■■■■ ■■■■■■■■ ■■■■■■■■ ■■■■■■■■■■■■■ ■■■■■■■■■■■■ ■■■■■■■■■■■■ ■■■ ■ ■■■■■ ■■■■■■■■■■ ■■ ■■■■■ ■■■■■■■■■■■■■ ■■■■■■■■■■ ■■■ ■■■■■■■■■■■■■ ■■■■■■■■■■■■■■■■■■

Some battery comparisons require current range and seller confirmation before substitution. For Saft, China Shoto, Sacred Sun, Exide Industries Limited, ZTT Group, UCB Power, Sunwoda, Pylontech, Gospower, NPP Power, Amaxpower International Group, BravaBattery, Eco Power Group, Coslight, Southern Batteries Private Limited, Propow Energy Co., Ltd., Saite Power Source (Vietnam) Co., Ltd., and BSB Power, current named-offering attribution and destination fulfillment remain material conditions. ■ ■■■■■■■■■■ ■■■■■■■■ ■■■■■ ■■■■■■■ ■■■■■■■■■ ■■ ■■■■■■■■ ■■■■■■■■■■ ■■■■■ ■■■■■■■■■■ ■■■■ ■■■ ■■■■■■■ ■■■ ■■■■■ ■■■■■■■ ■■■■■■■■■■■■ ■■■■■ ■■■■■■■■■■ ■■■■■■ ■■■■■■■■■■ ■■■■■■■■■■ ■■■■■■■■ ■■■■■■ ■■■■ ■■■■■■■■ ■■■■■■■■■■■■■■ ■■■■■■■■■■■■■

[illegible] Group affiliation or historical application evidence should not be extended automatically to an available destination-specific product. The buyer should obtain the current range, seller, and support commitment before treating a legacy or group-level proposition as an executable alternative.

Battery inclusion remains a decisive configuration question for Green Cubes Technology, OmniOn Power Inc., Shindengen Electric Manufacturing Co., Ltd., FSP Technology Inc., Kehua Data Co., Ltd., Schneider Electric, AEG Power Solutions, APS Energia S.A., Borri, Socomec, Statron AG, Sunlight Group, and Helios Power Solutions. [illegible] This distinction affects prime responsibility and prevents conversion-equipment breadth from being treated as complete backup fulfillment.

Regional equipment and integration attribution is also unresolved for A2Z Telecom Solutions Canada, ESPI Corp, Konnec Télécommunication, Arvio Technology, Magellan Power, PT. [illegible] A buyer should not transfer the continuing backup obligation to these counterparties without an explicit equipment-and-service scope.

Premises and channel comparisons require current product and platform attribution for Belkin International, Inc., Voltronic Power, Shenzhen Richroc Electronics Co., Ltd., Nology (Pty) Ltd, and Syntech. [illegible] Buyers should confirm the exact model, responsible seller, protected devices, and battery-care obligation before substituting a retail or private-label proposition for a provider-supported route.

For Mexican and Latin American counterparties, equipment supply must be distinguished from service execution. [illegible] Destination purchasers should obtain the responsible seller and equipment boundary before comparing these relationships with direct manufacturer supply.

ABM Limited and Scanpotec ApS introduce a separate service-coverage question: a stated manufacturer or service relationship does not establish a battery-inclusive telecom award or an enforceable commitment at the buyer's site. ■■ ■■■■■ ■■■ ■■■ ■■■■■■■■ ■■■■■■■■■■■ ■■■■■ ■■■■ ■■■■■■■ ■■ ■■■■■ ■■■■■■■■■■■■■■■■■ ■■■■■■■ ■■■■■■■■■■■■ ■■■■■■■ ■■■■ ■■■■■■■■ ■■ ■■ ■■■■■■■■■■■ ■■■■■■■■ These distinctions matter when the customer seeks one accountable continuity provider instead of a combination of equipment and separately contracted support.

■■■■■ ■■■■■■■■ ■■■ ■■■■■■■■■■■■■■■ ■■■■■■■■■■ ■■■■■■■ ■■■■■■■■ ■■■ ■■■■■ ■■■■■■■■■■■■■■ ■■■■ ■■■■■■■ ■ ■■■■■■■■■■ ■■■ ■■■■ ■■■■■■■ ■■■■■■■■ ■■■■ ■■■■■■■■ ■■■■ ■■■■ ■■■■■■■■ ■■■■■■ ■■■■■■■ ■■■■■■■■■■ ■■■■■■■■■■■■ ■■■■■ ■■■■■■■■■■■ ■■■■■ ■■■■■ ■■■■■■■■ ■■■■ ■■■■■■■ ■■■■■■■■■■ ■■■■■■ ■■■■■ ■■■■■■ ■■■■■■ ■■■■■■■■■■■ ■■■■ ■■■■■ ■■■■■■■ ■■■ ■■■■ ■■■ ■■■■■■■■ ■■■■ ■■■■■■■■■■ ■ ■■■■■ ■■■■■■■■■■ ■■ ■■■■■ ■■■■ ■■■■■■■■■■■■■■■ Similar names, general battery activity, or power-system context do not establish the same legal seller or battery-inclusive telecom obligation. Commercial commitments should identify the exact counterparty, currently offered equipment, and continuing support before these businesses are treated as substitutes.

Several African and regional service relationships require a current equipment-versus-service boundary. Balancell, maxwell+spark, Metal Manufacturing Nigeria Limited, acmenetwork.net, EMATEL, United Batteries Co., Africa Global Equipments & Consulting, REVOV, BatteryDC (PTY) LTD, Goscor Lift Trucks, Ashmand, AlanDick East Africa, OTL, Chloride Exide (K) Ltd, Bergerat Monnoyeur Algérie, Redress Technology, Vajra Drill, Energize Lithium, Sewia Mining Ltd, Nextgen Networks Limited, and Traction Battery Services require named telecom equipment, seller, or supply-authority confirmation. ■■ ■■■■■■■■■■■■ ■■■■■■■■■■■■■■■■■■ ■■■■■■■■ ■■■■■■■■ ■■ ■■■■■■■■■■■■■■■■■■■ ■■■■■ ■■■■■■ ■■■ ■■■■■■■■■■■■■ ■■ ■■■■■■■■ ■■■■■■■■ ■■■■■■■■ ■■■■■■ ■■■■■■ ■■■■■■■■■■■■■■■

Tele Service Co., Ltd., Genikos Technologies, Inc., MG EXEO, Lemcon Philippines Inc., and 1WAN require current equipment-supply and contractual-role confirmation before comparison with a manufacturer-owned system package. ■ ■■■■■■■■■■■■ ■■■■■■■■■■■■ ■■ ■■■■■■■■■■■ ■■■■■■■■■■■ ■■■■■■■■■ ■■■■ ■■■ ■■■■■■■■■■■■■ ■■■■■■■■■ ■■■■■■■■■■■■ ■■■■■■■■ ■■■■■■■ ■■ ■■■■■■■■■■ ■■■■■■■■ ■■■■■■■■■■ Purchasers should establish who buys the equipment, who approves replacement, and which counterparty remains responsible after handover.

First Battery and Dartcom require a supplier-continuity assessment rather than an ordinary catalog comparison. Metair's classification of First Battery Industrial as discontinued operations does not establish the closure of every First Battery activity or identify a continuing standby seller. ■■■■■■■■■ ■■■■■■■■■■■■■■■ ■■■■■■■■ ■■■ ■■■■■■■■■ ■■■■■ ■■■■■■■■ ■■ ■■■ ■■■■■■■■■ ■ ■■■■■■■■■ ■■■■■■■■ ■■■■■■■■ ■■ ■■■■■■■■■ ■■■■■■■■ ■■■■■■■■■■■■ ■■■■■■■ ■■■■■■■■ ■■ ■■■■■■■ ■■■■■■■■■■■■ ■■■■■■■ ■■■■■■■ ■ ■■■■■■■■ ■■■■■ ■■■■■■■■ ■■■■■■■■■■■ ■■■■■■■■■■■ ■■■ ■■■■■■■■■■■■■■■■ ■■■■■■■■■■■ ■■■■■■■ ■■■■■■■ ■■■■■ ■■■■■■■■■■■ ■■■■■■■■■■■■ ■■■■■■ ■■■■■■■■■■ ■■■■■■■■■■■ ■■■■■■■■ ■■■■■■■■ ■■■■ ■■■■■■■■■■■■■ ■■ ■■■■■■■ ■■■■■■■■ ■■■■■■■■■

Sources & Evidence

1. DC Power Services | Vertiv
   · The offering supports comparison of a supported existing-plant upgrade with a broader package. ([vertiv.com](https://www.vertiv.com/en-us/products/services/dc-power-services/))
2. Battery Backup | Meriwether Lewis Electric Cooperative
   · MLConnect's policy establishes a provider-specific compatibility and responsibility benchmark, not acceptance across all ISPs. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
3. Telecom & Network | Polarium
   · Connected functions are supplier-described capabilities, not independent comparative customer outcomes. ([polarium.com](https://polarium.com/telecom/))
4. Contact | Polarium
   · Polarium's contact record identifies Polarium Energy Solutions AB; it does not reconcile the different governance wording. ([polarium.com](https://polarium.com/contact/))
5. Investor Relations at Polarium
   · Polarium's governance text identifies Polarium Energy Systems AB, leaving a material naming inconsistency with the contact record. ([polarium.com](https://polarium.com/investor-relations/))
6. Products - Li-ion Battery Backup Systems - Delta
   · Delta's specific battery-family catalog supports a component-level procurement benchmark. ([deltaww.com](https://www.deltaww.com/en-US/products/telecom-battery-systems))
7. Telecom Backup Power Solution-LEOCH BATTERY
   · LEOCH's monitoring and anti-theft descriptions establish advertised functions rather than comparative customer outcomes. ([leoch.com](https://www.leoch.com/industries/network-power/telecom-backup-power))
8. Telecom Battery
   · The Vision description is supplier-reported capability positioning, not an independently established comparative outcome. ([vision-batt.com](https://www.vision-batt.com/en/solution/telecombattery.html))
9. Product Datasheets & Ordering Guides - Charles Industries, LLC · An Amphenol Company
   · Battery-backup cabinet listings do not establish battery inclusion in every cabinet quotation. ([charlesindustries.com](https://www.charlesindustries.com/support/resources/product-datasheets-ordering-guides/))
10. Building Systems - Sabre Industries, Inc.
    · The capabilities support an enclosure-versus-battery-inclusive scope benchmark rather than automatic complete-system attribution. ([sabreindustries.com](https://sabreindustries.com/building-systems/))
11. Telecom Power - DC UPS | CyberPower
    · The FTTx catalog establishes equipment positioning, not provider-specific acceptance or an equivalent battery-care obligation. ([cyberpower.com](https://www.cyberpower.com/global/en/product/overview/telecom-power/dc-ups))
12. Arquivos Para sua empresa: Telecom - TS SHARA
    · TS Shara maintains a telecom application page; that page alone does not establish a particular current battery-inclusive configuration. ([tsshara.com.br](https://tsshara.com.br/solucao/telecom/))
13. Aplicações - NHS Soluções em Nobreaks e Inversores Solares Híbridos
    · NHS lists telecom among applications, but the application page does not establish an exact battery-inclusive telecom package. ([nhs.com.br](https://nhs.com.br/aplicacoes/))
14. Construction and Electrical Engineering Contractors | ABM Bermuda
    · ABM states a manufacturer sales/service and turnkey UPS relationship; the record does not establish a particular current battery-inclusive telecom award. ([abm.bm](https://www.abm.bm/))
15. Industrielle Power Løsninger der sikrer dig | Scanpotec
    · Scanpotec describes backup-power and service-partner coverage, without establishing a named telecom battery-system purchase at a particular site. (scanpotec.dk)

16. Results for the six months ended 30 June 2026 - Metair Investments Limited

    · The industrial-business classification qualifies a live-catalog interpretation and leaves the continuing standby seller unresolved. ([metair.co.za](https://metair.co.za/latest_news/results-for-the-six-months-ended-xx.xx-june-2026/))

17. From R565.65 million to zero for South African fibre cable company - MyBroadband

    · The dated account leaves continuing battery fulfillment and successor distribution authority unresolved; no outcome is inferred from the elapsed scheduled date. ([mybroadband.co.za](https://mybroadband.co.za/news/fibre/xx.xx-from-r565-xx.xx-million-to-zero-for-south-african-fibre-cable-company.html))

23. Company Profiles

23.1. EnerSys

EnerSys provides named alternatives for battery-focused telecom procurement. PowerSafe SBS is a lead-based offering for applications including small cells, macro cells, and central offices; PowerSafe NiCd addresses telecommunications, central offices, switching centers, and outside plant. ■■■■ ■■■■ ■■■■■■■■■■■■ ■■■■■■■■■ ■■■■■■■ ■■■■ ■■■■■■■ ■■■■■■■■ ■■■■■■■■■■ ■■■■■■ ■ ■■■■■■■■■■■ ■■■■■■■■■ ■■■ ■■■■ ■■■ ■■■■■■■■■ ■■■■ ■■■■■■■■■ ■■■■■■■■■■■■ ■■■ ■■■■■■■■■■■■■■■ ■■ ■■■■■■■■ ■■ ■■■ ■■■■ ■■■■■■■■■

Its lifecycle proposition is separately consequential. ■■■■■■■ ■■■■■■■■■■ ■■■■■■■■■■ ■■ ■■■■■■ ■■■■■■■■■ ■■■■■■■■■ ■■■■■■■■■■ ■■ ■■■■■■■■■■■■ ■■■■■■■■■■■ ■■ ■■■■■■■■■ ■■■■■■■■■■■■■ ■■■ ■■■■■■■■■ ■■■■■■■ ■■ ■■■■■■■■■ ■■ ■■■■■ ■■■ ■■■■■■■ ■■■■■■■ ■■■ ■■■■■ ■■■■■■■■ ■■■ ■■■■■■■■■■ ■■■■ ■■■■■■■■■■ ■■■■■■■■ ■■■■■ ■■■■■■■■■■■■■■ ■■■■■■■■■■■■■■■■■■■■■■■■ ■■■■■■■■■■ ■■■■■ ■■ ■■■■■ ■■■■■ ■■■■ ■■■ ■■■■■■■ ■■■■ ■■■■■■■■■■ ■■■■■■■■■ ■■■ ■■■■■■■■ ■■■■ ■■■■ ■■■■ ■■■ ■■■■ ■■■■■■■ The documented lead-acid collection scope should not automatically be extended to PowerSafe NiCd.

For an existing network asset owner, the defensible comparison is an accepted battery replacement with separately assigned service and end-of-life obligations versus a broader infrastructure purchase. ■■■■■■■ ■■■■■■■■■■■■ ■■ ■■■ ■■■■■ ■■■■■■■■ ■■■■■■■■■■■■ ■■■■■■■■■ ■■■ ■■■■■■■■■■ ■■■■■■■■■■■■■■ ■■■■■■ ■■■■■■ Retaining existing infrastructure can preserve purchasing flexibility, while a broader contract may consolidate responsibility; neither benefit follows from the battery catalog alone.

Sources & Evidence

1. PowerSafe SBS Batteries | EnerSys
   · EnerSys lists PowerSafe SBS for telecom applications, including small cells, macro cells, and central offices or switching centers, and provides a quotation route. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-sbs/))
2. Recycling | EnerSys
   · EnerSys advertises manufacturer-independent spent lead-acid collection and recycling documentation in North and Central America and South America; the UK-facing page states local unavailability. ([enersys.com](https://www.enersys.com/en-gb/products/services/after-market-services/recycling/))
3. PowerSafe NiCd Batteries | EnerSys
   · EnerSys lists PowerSafe nickel-cadmium batteries for telecommunications, central offices or switching centers, and outside plant, with a manufacturer quotation route. ([enersys.com](https://www.enersys.com/en/products/batteries/powersafe/powersafe-nicd/))
4. EnerSys 2026 Proxy Statement and Annual Report
   · Company verification: EnerSys's fiscal 2026 annual report establishes continuing consolidated operations and an Energy Systems business supplying power conversion, distribution, energy storage, and enclosures to telecommunications and broadband customers. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))
5. Communications Network Power Solutions | EnerSys
   · Company verification: EnerSys publicly offers power and energy-storage solutions for communications networks, including central offices, macro cells, and small-cell infrastructure.

6. PowerSafe SBS EON Technology Batteries - Tescom UPS
   · Company verification: Tescom lists EnerSys PowerSafe SBS EON batteries in its Turkish commercial catalog, establishing a regional channel reference rather than a separate manufacturer identity.
7. EnerSys PowerSafe SBS EON VRLA Battery - Seven Star LLC
   · Company verification: Seven Star LLC's specific product listing provides an Omani channel record for EnerSys PowerSafe SBS EON batteries; it establishes offered availability, not completed shipments.

23.2. Vertiv

Vertiv offers a broader procurement object than a battery alone. ■■■ ■■■■■■■ ■ ■■■■■■ ■■ ■■ ■■■■■■■ ■■■■■■■■ ■■■■■■■■■■ ■■■ ■■■■■■■■ ■■■■■■ ■■■■■■■■■ ■■■■■■■■■ ■ ■■■■■■■■■■■■ ■■■■■■■■ ■■■■ ■■ ■■■■■■ ■■■■■■■■■■■■■■■■■■■■ ■■■■■■■■■■■■ ■■■ ■■■■■■■ ■■■■■■■■ ■■■ ■■■■ ■■■■■■■■■ ■■■■■■■■■ ■■■■■■■■■■■■ ■■■ ■■■■■■■■■ ■■■■■■■■■■■■ ■■■ ■■■■■■■■■■ ■■■■■■■■■ A buyer must nevertheless identify which options are included in the quoted package rather than assume that every enclosure sale includes complete backup responsibility.

■■■■■■■■ ■■ ■■ ■■■■■ ■■■■■■■■ ■■■■■■■■■■■ ■■■■■■■■ ■■■■■■■ ■■■■■■ ■■■■■■■■ ■■■■■■■ ■■■■■■■■■■■■■ ■■■■■■■■■■■■ ■■■ ■■■■■■■ ■■ ■■■■■■■■■■■ ■■■■■■■■■ It explicitly describes circumstances in which replacing an entire DC plant may be unnecessary. This supports an upgrade alternative for existing infrastructure without establishing universal compatibility or continuing warranty acceptance.

Network buyers can therefore request comparable bids for a supported upgrade and a battery-inclusive complete-system package. ■■■ ■■■■■■■ ■■■■■ ■■■ ■■■■■■■■ ■■■■■■■■ ■■■■■■■ ■■■ ■■■■■■■ ■■■■■■■■■■■■■■■■ ■■■■■■■ ■■■■■■■■■■ ■■■ ■■■■■■■■ ■■■■■■■■ ■■■ ■■■■■■■■ ■■■■■■■■■■■■ ■■■■■ ■■■■■■■■ ■■■■■■■■■■■■■■■■■■■■ ■■■■■■■■ ■■■■■■■ ■■■■■■■■■■ ■■■■■■■ ■■ ■■■■■■■■ ■■■■■■■■■■■ ■■■■■■■ ■■■■■■■■ ■■■ ■■■■■ ■■■■■■■■■■■■ ■■■ ■■■■■■■■ ■■■■■ ■■■■■■■■ ■■■ ■■■■■■■■ ■■■■■■■■■■■■■■■■■■ EMEA product descriptions and US service offerings should not be treated as one globally enforceable delivery commitment.

Sources & Evidence

1. Vertiv NetSure M Series
   · Vertiv's EMEA NetSure M Series portfolio describes integrated outdoor telecom enclosures with DC power, climate-management, distribution, and lithium-ion or lead-acid battery options. ([vertiv.com](https://www.vertiv.com/en-emea/products-catalog/facilities-enclosures-and-racks/outdoor-enclosures/netsure-m-series/))
2. DC Power Services | Vertiv
   · Vertiv's US DC Power Services page offers projects across manufacturers, maintenance, and upgrade or replacement support, including alternatives to replacing an entire DC plant. ([vertiv.com](https://www.vertiv.com/en-us/products/services/dc-power-services/))
3. Vertiv Annual Report 2025
   · Company verification: Vertiv's 2025 annual report identifies Vertiv and NetSure among its brands, establishes continuing consolidated operations, and identifies communications networks as a principal customer market for its power-management and energy-storage offerings. ([s205.q4cdn.com](https://s205.q4cdn.com/xx.xx/files/doc_financials/2025/ar/Vertiv-2025-Annual-Report.pdf))
4. Integrated Power Management Systems | Vertiv
   · Company verification: Vertiv markets Integrated Power Management Systems specifically for telecom equipment, coordinating grid, battery, and generator energy sources.

5. Lithium Batteries for Telecom
   · Company verification: Vertiv's July 2022 commercial datasheet identifies lithium batteries for telecom applications and compatibility with its NetSure power-system portfolio.

23.3. Ericsson

Ericsson participates through a network-OEM relationship rather than only standalone battery sales. Its Site energy storage portfolio lists lithium-ion battery systems for RAN applications and ancillaries for lithium-ion and VRLA batteries. ■■■ ■■■■■■■ ■■■■■■■■ ■■■■■■■■■ ■■■■■■■■■■ ■■■■■■■■ ■■■■■■■ ■■■ ■■■■■ ■■■■■■■■■■ ■■■■■■ ■■■■■■■■ ■■■■■■■■ ■■■■■■■■■ ■■■■ ■■■■■■ ■■■■■■■■■■■■■■ ■■■■■■■■■■■ ■■■■■ ■■■ ■■■■■■■■ ■■■■■■■■■■ ■■■ ■■■■■■■■ ■■■■■■■■■■■■■ ■■■■■ ■■■■■■■■■■■ ■■■■■ ■■■ ■■■■■■■■■■ ■■■■■ ■ ■■■■■■■■■■ ■■■■■■■■■ ■■■■■■■■ ■■■■■■■■ ■■■■■■■ ■■■■■■ ■■ ■■■■■■■■■■■ ■■■■■■■■■■

A dated commercialization example strengthens the equipment proposition. ■■ ■■■■■■ ■■■ ■■■■■ ■■■■■■■■ ■■■■■■■■ ■■■■ ■■■ ■■■■■■ ■ ■■■■■■■■■ ■■■■■■■■ ■■■ ■■■■ ■■■■■■■■■■ ■■ ■■■■■■■■■■ ■■■■■■■■ ■■■ ■■■■■■■■■ ■■■■■■■ ■■■■■■■■ ■■■■■ ■■■■■■■■ ■■■■■■ ■■■■■■■■■ ■■■■■■■■■■■ ■■■ ■■■■■■■■■■■ ■■■■■■■■■■■ ■■■■■■■■■■■ This is a reported deployment, not merely a future launch target, but it remains a Swisscom-specific example rather than proof of equivalent acceptance elsewhere.

For operators modernizing RAN sites, an Ericsson-led package may align backup purchasing with the network-management relationship. Separate battery procurement offers more supplier choice but leaves the buyer to resolve equipment acceptance and service interfaces. ■■■■■ ■■■■■■■■■ ■■■ ■■■■■■■■■■■ ■■■■■■■ ■■■■■■■■ ■■■■■■ ■■■■■■■■ ■■■ ■■■■■■■■■ ■■■■■■■■■■■ ■■■■■■■■■ ■■■ ■■■■■■■■■ ■■■ ■■■■■■■■■■ ■■■ ■■■■■■■ ■■■ ■■■■■■■ ■■■■■■■■■■ ■■■■■■■■ ■■■■■■ ■■■ ■■■■■■■■ ■■■■■■■■■■■■■■ ■■■ ■■■■■■■■■ ■■■■■■■■■■ ■■ ■■■ ■■■■■■■ ■■■■■ ■■■■■■■■■■■ ■■■■■■ ■■ ■■■■■■■■■ ■■■■■■■■ ■■ ■■■ ■■■■■■■■■■■■ ■■ ■■■■■ ■■■■■■■ ■■■■■■■■

Sources & Evidence

1. Site energy storage - Ericsson
   · Ericsson's Site energy storage portfolio lists lithium-ion systems for RAN sites and ancillaries for lithium-ion and VRLA batteries; it describes Ericsson-approved systems without identifying every battery's manufacturer. ([ericsson.com](https://www.ericsson.com/en/portfolio/networks/ericsson-radio-system/radio-site-system/site-energy-storage2))
2. Managed Network Services: Empowering networks - Ericsson
   · Ericsson advertises multivendor network and field operations and Energy Infrastructure Operations as managed-service offerings. The portfolio description does not assign customer-specific battery purchasing authority. ([ericsson.com](https://www.ericsson.com/en/managed-services))
3. Ericsson and Swisscom launch next-gen intelligent power platform
   · Ericsson's April xx.xx 2026 announcement reports introduction of its Energy & Enclosure platform in Swisscom's network, combining power systems, energy storage, enclosures, and centralized site-energy management. ([ericsson.com](https://www.ericsson.com/en/press-releases/xx.xx/2026/ericsson-and-swisscom-launch-next-gen-intelligent-power-platform))
4. Energy Ancillary - Ericsson
   · Company verification: Ericsson's site-energy portfolio identifies Ericsson battery systems and ancillaries for lithium-ion and VRLA batteries in RAN sites.

5. Ericsson Site Energy Management and Optimization
   · Company verification: Ericsson documents battery-backed site-energy management and a commercial Deutsche Telekom 5G site application.

23.4. Polarium Energy Solutions AB

Polarium Energy Solutions AB's market-facing proposition combines modular telecom battery backup with connected fleet services. Polarium advertises Connected Batteries with native cellular connectivity and Polarium Cloud integration, including remote monitoring, support, updates, and anti-theft functions. ▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪

The related Polarium Care offering adds operations, maintenance, and lifecycle services, including extended-warranty positioning. ▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪ ▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ Owners retaining their own monitoring arrangements should establish which services and warranties apply without the broader package; a hardware purchase should not be assumed to include every advertised service.

Contracting attribution remains unresolved. ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪ ▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪ ▪▪▪▪▪▪▪▪ ▪ ▪▪▪▪▪▪▪▪▪ ▪▪ ▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪ ▪ ▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪ Before committing a fleet purchase or ongoing cloud relationship, obtain authoritative registration confirmation and identify the entities responsible for equipment warranty and digital services.

Sources & Evidence

1. Telecom & Network | Polarium
   · Polarium markets modular telecom battery backup and Connected Batteries with cellular connectivity and Polarium Cloud integration. These are supplier-described capabilities rather than independent outcome evidence. ([polarium.com](https://polarium.com/telecom/))
   · Company verification: Polarium markets modular battery-backup solutions for telecom networks, including Polarium Battery and Connected Batteries.
2. Connected Batteries - Polarium
   · Polarium advertises cloud-linked Connected Batteries with remote monitoring, support, updates, warranty-management functions, and anti-theft features; the page does not specify a customer's enforceable service terms. ([polarium.com](https://polarium.com/connected-batteries/))
3. Polarium Care - Our Services
   · Polarium Care advertises operations, maintenance, lifecycle management, and extended-warranty services, supporting a distinction between battery ownership and additional service commitments. ([polarium.com](https://polarium.com/services/))

4. Contact | Polarium
   - Polarium's contact page identifies Polarium Energy Solutions AB and offers telecom quotation and partner or reseller routes. It does not reconcile the Systems AB wording elsewhere. ([polarium.com](https://polarium.com/contact/))
   - Company verification: Polarium's official contact page identifies Polarium Energy Solutions AB and registration number xx.xx-xx.xx supporting the retained name without resolving the conflicting Systems AB wording elsewhere on its website. ([polarium.com](https://polarium.com/contact/))
5. Investor Relations at Polarium
   - Polarium's investor-relations governance text names Polarium Energy Systems AB, while its footer names Polarium Energy Solutions AB, leaving a corporate-name inconsistency unresolved. ([polarium.com](https://polarium.com/investor-relations/))
   - Company verification: Polarium's investor-relations page describes its telecom energy-storage business but identifies the legal company as Polarium Energy Systems AB.
   - Company verification: That wording conflicts with the staged Polarium Energy Solutions AB title and the captured May 2025 company announcement; the page does not establish whether a legal rename occurred.
6. Polarium Introduces Connected Batteries: Revolutionizing Fleet Management and Anti-Theft
   - Company verification: The May xx.xx 2025 company announcement identifies Polarium Energy Solutions AB and its Stockholm address.
   - Company verification: The announcement introduces Connected Batteries for telecom fleet management and battery installations.

23.5. Battery Energy Power Solutions

Battery Energy Power Solutions offers an Australian route combining battery supply with communication-power integration. Its telecom portfolio lists PowerLYTE, SunGEL Ultra, and EnerLIFE products alongside turnkey supply, installation, maintenance, project-management, and remote-monitoring capabilities. ■■■■ ■■■■■■■■ ■ ■■■■■■■■ ■■■■■■■■■■■ ■■■■■■■■■■■ ■■■■■■ ■■■■ ■■ ■■■■■■■■■■ ■■■■ ■■■■■■ ■■■■ ■■■■■■■■ ■■■■■■■■■■ ■■■ ■■■■■■■■■ ■■■ ■■■ ■■■■■■■■■■■ ■■■■■ ■■■■■■■■■■■■■■■

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Australian infrastructure buyers can request a Battery Energy prime-contract proposal when regional coordination is important, conditional on confirmation of the exact Enatel relationship and available bundle. The bid should identify the responsible seller, battery and DC-system warranty allocation, installation acceptance, and continuing support. ■■■■■■■■ ■■■■■■■■■ ■■■■■■■■■ ■■■■■■■■ ■■■■■■ ■■■■■■■■ ■ ■■■■■ ■■■■■■■■■■■ ■■■■■ ■■■ ■■■■■■ ■■■■■■■■■■■■ ■■■■■■■■■■ ■■■■ ■■ ■■ ■■■■■■■■ ■■■ ■■■■■■■■■ ■■■■■■■■■■■■ ■■■■■■■■■■ ■■■■■■■■■■■■ ■■■■■■■■ ■■■■ ■■■ ■■■■■■ ■■■■■■■■■ ■■■■■■■■ ■■■■■■■■■■■■■■■ ■■■■■■■■■ ■■ ■■■■■■■ ■■■■■■■■■

Sources & Evidence

1. Telecommunications - Power solutions | Battery Energy Australia
   · Battery Energy's telecom portfolio lists PowerLYTE, SunGEL Ultra, and EnerLIFE, alongside turnkey and maintenance capabilities; its standalone DC Power Solutions entry is labeled coming soon. ([batteryenergy.com.au](https://www.batteryenergy.com.au/applications/telecommunications))
   · Company verification: Battery Energy Power Solutions offers telecom batteries and turnkey communication-power solutions in Australia.
   · Company verification: Its telecom portfolio identifies PowerLYTE, SunGEL Ultra, and EnerLIFE battery products.
2. Battery Energy Power Solutions + Enatel Energy
   · Battery Energy Power Solutions announced signing a strategic partnership agreement with Enatel Energy on September xx.xx 2020; that dated record does not establish contemporary contractual terms. ([batteryenergy.com.au](https://www.batteryenergy.com.au/news/strategic-partnership-enatel-battery-energy))
3. Major Mobiles Carrier - Case studies | Battery Energy Australia
   · Battery Energy's unnamed mobile-carrier case describes a combined package involving Enatel power-management equipment and Battery Energy PowerLYTE+ batteries; the account is supplier-authored. ([batteryenergy.com.au](https://www.batteryenergy.com.au/case-studies/5g-network))
4. Battery Energy and Enatel Case Study
   · Company verification: The partnership case study identifies Battery Energy Power Solutions as Enatel's Australian partner serving telecommunications and other infrastructure applications.

23.6. Moura

Moura's stationary-battery portfolio explicitly addresses telecommunications and telephone exchanges, including the MF, MO, and MX ranges. ■■■ ■■■■■■■■■ ■■■■■■■■ ■■■■■■■■ ■■■■■■■■■ ■■■■ ■■■■■ ■■■■■■■■ ■■■■■■■■■■■■ ■■■ ■■■■■■■ ■■■■■■■■■■■■ ■■■ ■■■■■■■■ ■■■■■■■■■ ■■■■■■■ ■■■■■■■■ ■■■■■■■■■ ■■■■■■ ■■ ■■■■ The distinction is commercially useful: battery sourcing, destination service, and end-of-life collection can be evaluated together without assuming they are automatically included in every purchase.

The Argentina-facing catalog provides a separate regional access record. ■■ ■■■■■ ■■■■■■■■■■ ■■■■■■■ ■■■■■■■■■■■■■ ■■■■■■■ ■■■ ■■■■■■■■■■■■ ■■■■■ ■■■■ ■■■■■ ■■■ ■■■■■■■■■■ ■■■ ■■■■■■■■■■ ■■■■■■ ■■ ■■■■■■■■■■■ ■■■■■■■■■■■ ■■■■ ■■■■■■■■ ■■ ■■■■■■■■■■■■■■■■■ ■■■■■■■■■■■■ ■■■ ■■■■■■■■■ ■■■■■■■■■■■■ ■■ ■■■■■■■■ ■■■■■ ■■■■■■■■■■ ■■■■■ ■■■■■■■■■ Regional branding and catalog coverage do not identify every destination's responsible seller.

Buyers considering Moura should obtain a destination-specific commitment covering the selected battery, local support, and PAM eligibility and documentation. Coordinating replacement and collection may reduce separate contracting, but can introduce supplier-specific conditions compared with independent lifecycle services. ■■■■■ ■■■■■■■■■■ ■■■■■■■■ ■■ ■■■■■■■ ■■■■■■■■ ■■■■■■■■ ■■■■■■■■■■ ■■■■■■■■■■■■■■ ■■■ ■■■■■■■■■ ■■■■■■■■■ ■■■■■■■ ■■■■■■■■■■ ■ ■■■■■■■■■ ■■■■■■■■■■

Sources & Evidence

1. Baterias Estacionárias | Moura
   - Moura's Brazilian stationary portfolio identifies telecom and telephone-exchange applications, MF, MO, and MX ranges, South American distribution and service positioning, and PAM reverse logistics. ([moura.com.br](https://www.moura.com.br/produtos/estacionarias))
   - Company verification: Moura's official stationary-battery portfolio explicitly includes telecom and telephone-exchange applications.
   - Company verification: The portfolio includes MF, MO, and MX battery ranges.
2. Baterias Estacionarias - Moura Baterías
   - Moura's Argentina-facing stationary catalog lists telecom applications and PAM collection linked to replacement purchasing; its footer identifies Acumuladores Moura S.A., without establishing uniform regional contract terms. ([moura.com.ar](https://www.moura.com.ar/productos/estacionarias))
   - Company verification: Moura's Argentina stationary-battery portfolio expressly includes telecom and telephone-exchange applications.
   - Company verification: This establishes an Argentina-facing commercial offering under the existing Moura identity, not another independent company.

23.7. Precision Group

Precision Group's Precision Power portfolio includes Micro UPS, FTTx backup products, telecom batteries, and rack-mounted lithium batteries. It advertises product-specific warranties and US-based onsite and remote support. ■■■■■ ■■■■■■■■■ ■■■■ ■■■■■■■■ ■■■ ■■■■■■■ ■■■■■■■■■■■ ■■■■■■■ ■■■■■■■■■■■■ ■ ■■■■■■■ ■■■■■■■■■■■■ ■■■■■■■■■■■

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For customers on that platform, seller choice therefore does not transfer continuing battery stewardship to the connectivity provider. Confirm the exact model and protected services before purchasing. ■■■■■ ■■■■ ■■■■■■ ■■■■■■■■■ ■■■■■ ■■■ ■■■■■■■■■ ■■■■■■■■■■ ■■■■■■■ ■■■■ ■■■■■■■■■■ ■■■■■■■■■■■ ■■■■■■■■■■■■■■■ ■■■■■■■■■■■ ■■■■■■■■■■■■ ■■■■■■■■ ■■■ ■■■■■■■■■■ ■■■■■■■■ ■■■■■■■■■■■■■■ ■■■ ■■■■■■■ ■■■■■ ■■■■ ■■ ■■■■■■■■■■■■ ■■■■■■■■ ■■■■■■■■ ■■■■■■■■ ■■■■ ■■■■■■■■ ■■■■■■■■ ■■■■■

Sources & Evidence

1. Battery Backup | Meriwether Lewis Electric Cooperative
   - MLConnect recommends Precision Power for its ONT, permits cooperative or direct purchases, distinguishes protected-device configurations, assigns battery care to customers, and excludes backup from its service plan. ([mlec.com](https://mlec.com/mlconnect/battery-backup/))
   - Company verification: MLConnect identifies Precision Power equipment as its compatible ONT battery-backup purchase option.
   - Company verification: States that units and replacement batteries can be purchased through the cooperative or directly from Precision Power.

2. Precision Power Products - Precision Group
   - Precision Group lists Micro UPS, FTTx products, telecom batteries, and rack-mounted lithium batteries, and advertises product-specific warranties plus US-based onsite and remote support. ([goprecisiongroup.com](https://goprecisiongroup.com/precision-power-products/))
   - Company verification: Identifies Precision Group's Precision Power commercial portfolio.
   - Company verification: Lists Micro UPS, telecom batteries, rack-mounted lithium batteries, and FTTx backup products.

23.8. HORIEN Salt Battery Solutions

HORIEN Salt Battery Solutions provides a commercially identified Sodium-Based alternative for telecom backup. ■■■ ■■■■■■■ ■■■■■■■■■ ■■■■■■■■■ ■■■■■■■■■■■■■■■■■■■■■■ ■■■■■■■ ■■■ ■■■■■■■■■■■■■■■■■■ ■■■■■■■ ■■■■■ ■■■■■■ ■■■■■ ■■■■■■■ ■■■■■ ■■■■■■ ■■ ■■■■■■ ■■■■■■■■■ ■■■ ■■■■■■■ ■■■■ ■■■■■■■■ ■■■ ■■■■ ■■■■■ ■■■ ■■■■■■■■ ■ ■■■■■■■■■ ■■■■■■■ Together these establish a named supplier and channel proposition, not verified stock, customer acceptance, or superior field performance.

■■■ ■■■■■■■ ■■■■■■■■■■■■ ■■ ■■■■■■■■■■ ■■■■■■■■■■■■ ■■■■■■ ■■■■■■■■■■ ■■■■■■■■■■■■■■ ■■■■■■■■■■■■ ■■■■■■■ ■■■■■■ ■■■■■■■■ ■■■ ■■■■■■■■■ ■■■■■■■■■ ■■■ ■■■■■■■■■■■■ ■■■■■■■■■■■ ■■■■ ■■■■■■■■■■■■ ■■■ ■■■■■■ ■■ ■■■ ■■■■■■ ■■■■■■■■■ ■■■ ■■■■■■■■ ■■■■■ ■■■■■■■■■ ■ ■■■■■■■■■■■■■■■■■ ■■■■■■■■ ■■■■■■■■ ■■■■■■■■■ ■■■■■ ■■■ ■■■■■■■■■■■■ ■■■■■■ ■■■■■■■■■■■ ■■■■■■■ ■■■■A. in Italy. These records support branding and commercial contact attribution, but do not fully establish the Italian and Swiss entities' respective seller, warranty, or ownership roles.

Network buyers can compare a quoted TL Range proposition with accepted Lead-Acid or Lithium-Based alternatives when considering a change in battery category. ■■■■■■ ■■■■■■■■■■■■■ ■■■■■■■ ■■■■■■■■ ■■■■■■■■■■ ■■ ■■■ ■■■■■ ■■■■■■■■■ ■■■■■■■ ■■■■■■■■■■■■ ■■■■■■■■■■■■ ■■■ ■■■ ■■■■■■■■■■■■ ■■■■■■■■ ■■■ ■■■■■■■ ■■■ ■■■■■■■■ ■■■■■■■■ ■■■■■■■■■■■■ ■ ■■■■■■■■ ■■■■■ ■■■ ■■■■■■■■ ■■■■■■■ ■■■ ■■■ ■■■■■■■ ■■■■■■■■■■■■■■■ ■■■■■■■■ ■■■■■■■ ■■■ ■■■■■■■■■■■■■■ Former branding should not be used to assign contracts to FIAMM Energy Technology or assume common ownership.

Sources & Evidence

1. HORIEN Salt Battery Solutions and Inlyte Energy Announce a Strategic Partnership
   - HORIEN's March xx.xx 2025 company statement describes sodium-metal-chloride storage and telecom backup and identifies the business as formerly FZSoNick. ([horien.com](https://horien.com/wp-content/uploads/2025/xx.xx/Press-Release_HORIEN-Inlyte-International-Version.pdf))
2. HORIEN TL Range | Telecom Batteries | Alpine Power Systems
   - Alpine Power Systems lists HORIEN TL Range sodium-metal-chloride batteries for telecom base stations and core sites and provides a quotation route; this is a reseller proposition, not confirmed fulfillment. ([alpinepowersystems.com](https://alpinepowersystems.com/products/fzsonick-tl-range-batteries))

3. About - HORIEN - Salt Battery Solutions
   - HORIEN describes a Switzerland-based business formerly FZSoNick and part of HORIEN; its commercial footer identifies SoNick S.p.A. in Italy, without resolving all seller or ownership relationships. ([saltbattery.horien.com](https://saltbattery.horien.com/about/))
   - Company verification: HORIEN's specific company page describes HORIEN Salt Battery Solutions as formerly FZSoNick and part of HORIEN; its commercial footer identifies SoNick S.p.A. This supports branding and group continuity without establishing ultimate ownership or common ownership with FIAMM Energy Technology. ([saltbattery.horien.com](https://saltbattery.horien.com/about/))
4. Service - HORIEN - Salt Battery Solutions
   - HORIEN advertises installation, maintenance, repair, remote support, and recycling services; its after-sales description makes maintenance and repair dependent on the signed contract. ([saltbattery.horien.com](https://saltbattery.horien.com/service/))
5. TL Range - HORIEN Salt Battery Solutions
   - Company verification: HORIEN's TL Range page expressly markets telecom backup batteries.
   - Company verification: The commercial footer identifies SoNick S.p.A. in Italy; it does not establish ultimate ownership or a relationship to FIAMM Energy Technology.

23.9. Gulf Horizon Telecom

Gulf Horizon Telecom advertises a Saudi Arabian route to telecom battery rental as well as purchase. ■■■ ■■■■■■■ ■■■■■■■■■■ ■■■■■■■■■ ■■■■ ■■■■■■ ■■■ ■■■■■■■■■ ■■■■■■■ ■■■ ■■■■■■■■■■■ ■■■■■■■■ ■■■■■ ■■■■■■■■ ■■■■ ■■■ ■■■■■■■■■■■ ■■■■■■■■ ■■■■■■■■ ■■■■■■■■ ■■■■■■■■■■■■■ ■■■ ■■■■■■■■■■■ ■■■■■■■■■■■ ■■ ■■■■■■■■■ ■■■■■■■■■ ■■■■■■ ■■■■■■■■ ■■■■■■■■■ ■■■■■■■■■■ ■■■ ■■ ■■■■■■■■■ ■■■■■■■■■ ■■ ■■■■■■■ ■■■■■■ ■■■■■■■■■ The undated listings establish an advertised offering rather than equipment availability for a particular maintenance window.

A telecom buyer considering rental should obtain a written commitment covering the registered contracting seller, accepted battery offering, delivery window, servicing, replacement remedies, removal, and return obligations. ■■■■■■■■■■■■ ■■■■■■■■ ■■■ ■■■■■■■■ ■■■■■■■■■ ■■■■ ■■■■■■■ ■■■■■■■■■■■■ ■■■■■■ ■■■■■■■ ■■ ■■■ ■■■■■■■■■■ ■■■■■■■ ■■■■■■■■ ■■■■■■■ ■■■■■■ ■■ ■ ■■■■■■■■■■ ■■■■■■ ■■■■ ■■■■■ ■■■■■■■■■■■■ ■■■■■ ■■■■ ■ ■■■■■■■■■■ ■■■■■■■■■■■■ ■■■■■■■■ ■■■■■■■■ ■■■ ■■■■■■■■■■ ■■■■■■■■■■■■ ■■■■ ■■■ ■■■■■ ■■■■■■■ ■■ ■■■■■■ ■■■ ■■■■■■■■■■ ■■■ ■■■■■■■■■ ■■ ■■■■■■■■ ■■■■■■■■■■ ■■ ■■■■■■■■■ ■■■■■■■■■■ ■■■■■■ ■■■■■■■■■■ ■■ ■■■■■■ ■■■■■■■■■■■■ ■■■ ■■■■■■ ■■■■■■ Neither route should be treated as a finance lease or an enforceable continuity service solely because it appears in the catalog.

Sources & Evidence

1. Industrial Battery Rental & Sales in Saudi Arabia | Gulf Horizon Telecom
   - Gulf Horizon Telecom advertises VRLA rental for telecom backup during temporary outages and maintenance windows, and telecom batteries through rental or purchase in Saudi Arabia. These are catalog propositions, not executed customer obligations. ([gulfhorizontele.com](https://www.gulfhorizontele.com/battery-solutions-saudi-arabia))
   - Company verification: Gulf Horizon Telecom offers industrial batteries for rental and purchase across Saudi Arabia.
   - Company verification: Its dedicated offering includes telecom battery backup and VRLA or lithium batteries for telecom sites.

2. VRLA Battery Rental & Sales in Saudi Arabia | Gulf Horizon Telecom
   · The official VRLA listing identifies telecom towers among its applications and directs customers to request availability. It supports the advertised product category, not a dated delivery or servicing commitment. ([gulfhorizontele.com](https://www.gulfhorizontele.com/en/battery-solutions-saudi-arabia/vrla-%28sealed-lead-acid%xx.xx-batteries))
3. Lithium-Ion Battery Rental & Sales in Saudi Arabia | Gulf Horizon Telecom
   · Gulf Horizon Telecom's lithium-ion listing identifies telecom towers as an application and provides an inquiry route for availability. The profile does not adopt its promotional performance claims as independently established outcomes. ([gulfhorizontele.com](https://www.gulfhorizontele.com/en/battery-solutions-saudi-arabia/lithium-ion-batteries))

23.10. IPT PowerTech Group

IPT PowerTech Group offers an energy-service relationship distinct from battery purchase or temporary rental. ■■■ ■■■■■ ■ ■■■■■■■ ■■ ■ ■■■■■■■ ■■■■■■■■■■■ ■■■■■■■ ■■■■■■■■■■■■■ ■■■■■■■■■■ ■■■ ■■■■■■■■■■■ ■■ ■■■ ■■■■■■ ■■■■■■■ ■■ ■■■■ ■■■■ ■■■■■■■■■■■■■■■■■ ■■ ■■■■■■■■■■■■ ■■■■■■■■■■ ■■■■■■■■■■ ■■■ ■■■■■■■ ■■■ ■■■■■ ■■■■■■ This can shift equipment ownership and upkeep to the service provider, but the wider energy arrangement must not be equated automatically with a dedicated telecom backup commitment.

IFC identifies IPI Group Holding Limited as the project company in its IPT financing disclosure and distinguishes long-term T-ESCO contracts from telecom contracting and battery-system supply. ■■■■■ ■■■■■ ■■■ ■■■■ ■■■■■■■■■ ■■■■■■■■■■■■ ■■■■■■■■ ■■■■■■■■■■■■■■ ■■■■■■■■■■ ■■■ ■■■■■■■■■■■ ■■ ■■■■■■■ ■■■■■■ ■■■■■■■ ■■ ■■■■■■■■■ ■■■■■■■■ ■■■ ■■■■■■ ■■■■■■ It establishes a financed expansion initiative, not completion of every deployment or a uniform service commitment across those countries.

■■■■■■■■■ ■■■■■■ ■■■■■■■ ■■■■■ ■■■■■■■ ■■■■■ ■■■■ ■■■ ■■■■■■■■ ■■■■■■■■■■■■■■■■ ■■■■ ■■■■■■■■■ ■■ ■■■ ■■■■■■■■■■ ■■■■ ■■■■ ■■ ■■■■■■■■■ ■■■■■■■■■■■■■■ ■■■■■■ ■■■■■■■ ■■■ ■■■■ ■■ ■■■■■■■■ ■■■■■■■ ■■■■■■■■ ■■■■■■■■■ ■■■ ■■■■■■■■■■■ ■■■■■■■■■■■■■■■ ■■■■■■■■ ■■■■■■ ■■ ■■■ ■■■■■■■■■■■■ ■■■■■ ■■■ ■■■■■■■■ ■■■■■■■ ■■■■■■■■■■■■■■■ ■■■ ■■■ ■■■■■■■■ ■■■■■■ Before committing to the service route, the buyer should identify the local contracting entity, protected telecom service, outage remedies, asset-control rights, and end-of-contract arrangements. Broader provider accountability comes with a longer commercial relationship and less direct asset control; group financing does not substitute for enforceable local fulfillment.

Sources & Evidence

1. IFC Summary of Investment Information - IPT PowerTech, Project 49095
   · IFC identifies IPI Group Holding Limited as the project company and distinguishes IPT's long-term energy-service contracts, telecom services, and power products including battery systems. Its project description concerns modernization, maintenance, and operation in Ethiopia, Sierra Leone, and Liberia. ([disclosures.ifc.org](https://disclosures.ifc.org/project-detail/SII/xx.xx/ipt-powertech))
   · Company verification: IFC's project disclosure identifies IPI Group Holding Limited and describes IPT PowerTech's battery-system, telecom-service and T-ESCO businesses.
   · Company verification: The disclosure identifies private owners and expansion activity in Ethiopia, Liberia and Sierra Leone.
   · Company verification: The record was last updated June xx.xx 2026.

2. Solar & Battery as a Service - IPT Website
   - IPT advertises installation, ownership, and maintenance of solar and battery systems under its Solar & Battery as a Service proposition. It identifies telecom and other users and advertises consumption-based or fixed-payment agreements. ([iptpowertech.com](https://iptpowertech.com/solutions/solar-battery-as-a-service))
   - Company verification: IPT PowerTech markets Solar and Battery as a Service for telecom users.
   - Company verification: The offering states that the company installs, owns, and maintains the energy systems.
3. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone
   - IFC's March xx.xx 2026 announcement establishes financing supporting modernization, operation, and maintenance of solar-and-battery telecom energy systems in Ethiopia, Liberia, and Sierra Leone. Its anticipated benefits do not establish completed fulfillment at every site. ([ifc.org](https://www.ifc.org/en/pressroom/2026/ifc-supports-ipt-powertech-to-deliver-clean-telecom-power-across-ethiopia-liberia-))
   - Company verification: IFC's March xx.xx 2026 announcement establishes financing for IPT PowerTech's solar-and-battery telecom energy expansion in Ethiopia, Liberia and Sierra Leone.
   - Company verification: The announcement describes supported modernization rather than proving every deployment completed.
4. About IPT PowerTech
   - Company verification: IPT PowerTech's official history describes beginning operations in Lebanon supplying telecom batteries and power systems.
   - Company verification: The profile identifies IPT PowerTech Group's Beirut business address and its later telecom energy-system activities.
5. Battery Energy Storage Systems - IPT Website
   - Company verification: IPT PowerTech offers battery energy-storage systems for telecom backup.
   - Company verification: Its business page reports an African footprint including Nigeria and South Africa.

23.11. Phinergy

Phinergy markets aluminum-air backup systems to telecom operators and tower companies, with remote monitoring included in its proposition. Its distinct contribution is a Metal-Air backup alternative, not established interchangeability with an already accepted rechargeable battery offering. [redacted]

Its first-half 2026 disclosure reports a March xx.xx 2026 agreement and an initial demonstration purchase by Swisscom Broadcast AG. The arrangement envisages Swisscom as a Swiss-market distributor and operator providing customer support; further purchasing intentions are nonbinding. [redacted]

Regional commitment requires separate scrutiny. [redacted]

■■■■■■■■■■ ■■■■ ■■■■■■■ ■■■■■■■■■ ■■■■■■■■■■■■■ A local partner can coordinate support, but only an agreed service allocation resolves the additional counterparty relationship.

Sources & Evidence

1. Energy Backup | Phinergy
   - Phinergy markets aluminum-air backup to telecom operators and tower companies and describes remote monitoring and control. This supports a named Metal-Air proposition, not independently established equivalence or superior performance. ([phinergy.com](https://phinergy.com/solutions/energy-backup/))
   - Company verification: Phinergy markets aluminum-air backup systems for telecom operators and tower companies.
2. Phinergy Ltd. Report for the First Half Ended June 30, 2026
   - Phinergy's first-half 2026 report discloses the March xx.xx 2026 Swisscom agreement, an initial demonstration purchase, envisaged distribution and support roles, and nonbinding further purchasing intentions. It also references Cellcom service and reduced Indian joint-venture activity following a focus on data centers. ([ir.phinergy.com](https://ir.phinergy.com/wp-content/uploads/2026/xx.xx/%D7%xx.xx%D7%xx.xx%D7%xx.xx-%D7%A8%D7%xx.xx%D7%A2%D7%xx.xx%D7%9F-xx.xx%D7%xx.xx%D7%A6%D7%xx.xx-%D7%A9%D7%A0%D7%AA%D7%xx.xx-%D7%9C%D7%A9%D7%A0%D7%AA-2026-.pdf))
3. Phinergy Immediate Disclosure Regarding Swisscom Broadcast AG, July 9, 2026
   - Phinergy's July xx.xx 2026 mandatory disclosure states that discussions concerning subsequent commercial stages with Swisscom Broadcast AG were continuing. Further Swiss deployment is described as a forward-looking possibility, not a completed rollout. ([ir.phinergy.com](https://ir.phinergy.com/wp-content/uploads/2026/xx.xx/P1755536-xx.xx.pdf))
4. Company - Phinergy
   - Company verification: Phinergy's official profile identifies its Israeli origin and public listing on the Tel Aviv Stock Exchange.
   - Company verification: The company describes metal-air energy-backup systems.
5. Phinergy Announces the Appointment of Emmanuel Levy as CEO
   - Company verification: Phinergy's May xx.xx 2024 announcement explicitly refers to its commercial telecom activities in Israel and Europe.

23.12. Exicom Tele-Systems Limited

Exicom Tele-Systems Limited markets its EXTB lithium telecom-battery family for base stations, edge sites, and FTTx infrastructure. This establishes a named battery proposition distinct from its broader critical-power portfolio. ■■■■■■ ■■■ ■■■■■■■■■ ■■■■■■■ ■■■■■■■ ■■■■■■■■■■■ ■■■■■■■■■ ■■■■ ■ ■■■■■■■■■■■ ■■■■■■■■ ■■■■■■ ■■■■ ■■■■■■ ■■■■ ■■■■■■ ■■■■■■■ ■■■■■ ■■■■■■■■ ■■■■■■■■ ■■■ ■■■■ ■■■■■■■■■

Exicom's May xx.xx 2026 announcement reports an order for DC power systems from an unnamed Indian telecom customer, scheduled for delivery in fiscal 2027, alongside critical-power export activity in Africa, the Middle East, and Southeast Asia. That announcement does not establish battery inclusion or completed delivery of the reported order. ■■■■■■■■ ■■■■■■■■■■■■■■ ■■■■■■■■ ■■■■ ■■■■ ■■■ ■■■■■■■■■ ■■■■■■■■■■■■■■■■ ■■■■■ ■■■■■■■ ■■■■■■■■■■■■

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obtain a named local seller and service commitment rather than infer telecom-battery support from the company's wider export activity.

Sources & Evidence

1. Telecom Batteries | Critical Power Solutions by Exicom
   - Exicom lists named EXTB lithium telecom batteries and identifies base stations, edge sites, and FTTx deployments as applications. The portfolio establishes battery participation separately from a broader power-system contract. ([exicom.com](https://www.exicom.com/product-family/telecom-batteries))
   - Company verification: Exicom publicly offers its EXTB telecom-battery family for battery backup at base stations, edge sites, and FTTx infrastructure.
2. Exicom Delivers its Strongest Quarter of FY26 as Both Businesses Return to Sharp Growth
   - Exicom's May xx.xx 2026 announcement identifies Exicom Tele-Systems Limited and reports an Indian telecom DC-power-system order scheduled for fiscal 2027, plus critical-power exports to Africa, the Middle East, and Southeast Asia. It does not specify battery inclusion or establish completed delivery of that order. ([exicom.com](https://www.exicom.com/insights/press-releases/exicom-delivers-its-strongest-quarter-of-fy26-as-both-businesses-return-to-sharp-growth))
   - Company verification: Exicom's May xx.xx 2026 results announcement identifies Exicom Tele-Systems Limited, confirms continuing critical-power operations, and reports an Indian telecom DC-power-system order for delivery in FY2027. ([exicom.com](https://www.exicom.com/insights/press-releases/exicom-delivers-its-strongest-quarter-of-fy26-as-both-businesses-return-to-sharp-growth))
   - Company verification: The announcement reports critical-power export activity in Africa, the Middle East, and Southeast Asia; this is supplier-reported activity, not independent confirmation of particular battery shipments.
3. Exicom Investor Relations: Trusted Growth in EV Industry
   - Company verification: The official investor record uses the English company identity Exicom Tele-Systems Limited.
   - Company verification: The record identifies regional subsidiary financial disclosures without requiring separate company rows.

23.13. Nokia

Nokia presents both site-equipment and backup-asset software roles. ■■■ ■■■■■■■■■■■■■■ ■■■■■■■■■ ■■■■■■■■ ■■■■■■ ■■■■■■■■■ ■■■ ■■■■■■■■■■ ■■■■ ■■■■■■■■■■ ■■■■■ ■■■■■■■■ ■■■■■ ■■■■■ ■■■■■■■■■■ ■■■■■■■■ ■■■■■■■■■ ■■■■■■■■■■■■■ ■■■ ■■ ■■■■■■■■ ■■■■■■■■■■■■■ ■■■■■■ ■■■■■■■■ Equipment fulfillment, software licensing, and reserve-market participation are separate commercial obligations, even when offered around the same network infrastructure.

Nokia's February xx.xx 2024 announcement reported completed trials and intended availability later in 2024. ■■■ ■■■■■ ■■■ ■■■■ ■■■■■■■■ ■■■■■■■■■■ ■■■■■■■■■ ■■■■■■■■■■ ■■■■■■■■ ■■■ ■■ ■■■■■■■■■■ ■■■■■■■■■■ ■■■ ■■■ ■■■■■■■■■ ■■■■■■■■■ ■■ ■■■■■■■ ■■■ ■■■■■■■■ ■■■■■ ■■■■■■■■■■ ■■■■■■■■■ ■■■■■■■■■ ■■■■■■■■ ■■■■■■■■■■■■ ■■■ ■■ ■■■ ■■■■■■■ ■■■■■■■■■■■■■■■■■■■■ ■■■■■■■ ■■■■■■■■■■■■■ ■ ■■■■■■■■ ■■■■■■■■■■ ■■■■■■■■■■■ ■■ ■■■■■■■■ ■■■■■■■■■■■■■■■ ■■■■■■■■■■■■■■■■■ The original intended availability date should not be treated as proof of completed commercial delivery.

Finnish infrastructure owners face a separate market-access question: Fingrid requires applicable owner permission, reserve-product agreements, and settlement arrangements. An aggregator interface does not itself establish that Nokia supplies aggregation services or holds

the customer's participation rights. ■■■■■■ ■■■■■■■■■■■■ ■■■■■■■■■■ ■■■■■■ ■■■■■■ ■■■■■■■■■■ ■■■■■■■■ ■■■ ■■■■■■■■ ■■■■■■■■ ■■■■■■■■ ■■■■■■■■ ■■■■■ ■■ ■■■■ ■■■■■■■■■■ ■■■ ■■■ ■■■■■■■■ ■■■■■■■ ■■■■■■■ ■■■■■ ■■■■■■■■■■ ■■■■■■■■ ■■■■■■■■■■ ■■■■■■■■■■■■■■■■■■ ■■■■■■■■■■■■ ■■■■■■■ ■■■■■■■ ■■■■■■■ ■ ■■■■■■■■■■■■■■ ■■■■■■■■■■■■■■ ■■■■■■■ ■■■■ ■■■■■■■ ■■■■■■■■■■ ■■ ■ ■■■■■■■■■■■■ ■■■■■■■■■■■■ ■■■■ ■ ■■■■■■■■■■■■ ■■■■■■■■■ ■■■■■■■■■■■■ ■■■ ■■■ ■■■■■■■■ ■■■■■■■■■■■■ ■■■■■■■ ■■■ ■■■■ ■■■■■■■■■■■■■

Sources & Evidence

1. How to participate in the reserve markets | Fingrid

   · Fingrid requires applicable resource-owner permission, reserve-product agreements, and specified settlement arrangements. Participants may use service-provider assistance, but that route does not waive the documented commercial prerequisites. This supports the profile's distinction between Nokia software and Finnish market participation.
   ([fingrid.fi](https://www.fingrid.fi/en/electricity-market/reserves/reserve-products/how-to-participate-in-the-reserve-markets/))

2. Nokia adds Virtual Power Plant to its leading energy efficiency solution portfolio

   · Nokia's February xx.xx 2024 announcement describes VPP Controller Software for existing base-station backup batteries, reports completed trials, and states intended availability later in 2024. That intention does not establish completed commercial delivery.
   ([nokia.com](https://www.nokia.com/newsroom/nokia-adds-virtual-power-plant-to-its-leading-energy-efficiency-solution-portfolio/))

3. Zero-emission mobile networks | Nokia

   · Nokia's mobile-network portfolio includes backup batteries, integrated site solutions, and VPP control marketed around mobile-network backup assets. The page establishes portfolio positioning rather than destination-specific contracting or market entitlement.
   ([nokia.com](https://www.nokia.com/mobile-networks/sustainability))

   · Company verification: Nokia's official mobile-network portfolio expressly includes backup batteries and integrated site solutions.

   · Company verification: Battery-related software is presented alongside, rather than substituted for, the evidenced site-equipment role.

4. Pioneering sustainable innovation with AI and cloud | Nokia

   · Nokia's March xx.xx 2025 product discussion describes additional VPP features and an aggregator interface. It provides subsequent product-positioning evidence without specifying customer license terms, activation commitments, or executed aggregation obligations.
   ([nokia.com](https://www.nokia.com/blog/pioneering-sustainable-innovation-with-ai-and-cloud/))

24. Companies Covered

Table 785. Global Telecom Battery Backup System Market, Companies Covered

Company
1WAN
A2Z Telecom Solutions Canada
AAGE International
ABM Limited
ACESA
acmenetwork.net
Acumuladores Arizona S.R.L.
AEG Power Solutions
Africa Global Equipments & Consulting
Al Rashid Technology & Power
AlanDick East Africa
Alebel Energy
Altatronic International Co., Ltd.
Amara Raja Energy & Mobility Limited
Amaxpower International Group
Amphenol Corporation
ANAA Holding LLC
Analytic Systems Ware (1993) Ltd.
APS Energia S.A.
Arvio Technology
Ashmand
ASPİLSAN Enerji
ASSAD Group
Aunilec
Avatec Power Pte Ltd
Avtinac Limited
Awal First Industrial Company
BAE Batterien GmbH
Balancell
BASE Technologies

Table 785 - continued

Company
Basic Association of Technology Projects Company Limited
Baterias DECA Guatemala
Baterias Pioneiro
Battery Depot Trinidad Ltd
Battery Energy Power Solutions
Battery Giant de PR
BatteryDC (PTY) LTD
Bazy Trading & Contracting Co
Belkin International, Inc.
BENNING
Bergerat Monnoyeur Algérie
BlueNova
Borri
BPC Energy
BravaBattery
BSB Power
BYD
Camusat
Canbat Technologies Inc.
CE+T Power
Celltech Group
China Shoto
Chloride Exide (K) Ltd
CIA UPS DEL PERU SAC
Coslight
CyberPower
Dada Dada & Cia
Dale Power Solutions Limited
Dartcom
DCPSL
DCS
Delta Electronics, Inc.

Table 785 - continued

Company
Discover Battery
Duncan
DURAPOWER
Eagle Eye Power Solutions
East Penn Manufacturing
Eaton
Eco Power Group
ECOSYS
Efore
Electronic Siblings SAC
EMATEL
Enatel
ENER PLUS
Enerdzhi Treyd
Energitel Group
Energize Lithium
ENERGON
ENERGYSA PERU
EnerSys
EneSolve Holdings, Inc.
Equinox Power
Ericsson
ESİS Enerji ve Elektronik San. Tic. A.Ş.
ESPI Corp
Eternity Technologies FZ-LLC
EVE Energy Co., Ltd.
Exicom Tele-Systems Limited
Exide Industries Limited
Exide Technologies
Fenda
FIAMM Energy Technology S.p.A.
First Battery

Table 785 - continued

Company
FSP Technology Inc.
Genikos Technologies, Inc.
Gerer L'Energie
Ghad Al Taqat
Goscor Lift Trucks
Gospower
Great Power
Green Cubes Technology
GS Yuasa
Gulf Horizon Telecom
Hamand Nirou Gosil
Hankook & Company Co., Ltd.
HBL Engineering Limited
Helios Power Solutions
High Systems
HOPPECKE
HORIEN Salt Battery Solutions
Huawei
IDT
Inala
Ingeniería Caro y Caro Limitada
Innovative Circuit Technology Ltd.
Intelbras
interberg
IPT PowerTech Group
ITEC
Jaguar de México
Kehua Data Co., Ltd.
Kira Power Solutions
Komax
Konnec Télécommunication
KSTAR

Table 785 - continued

Company
Kung Long Batteries Industrial Co., Ltd.
La Casa de las Baterías
La Marche Manufacturing
Lemcon Philippines Inc.
LEOCH
Link Borders Company
Long Chang Battery Co., Ltd.
Lorain Technologies
Magellan Power
maxwell+spark
MBS Maroc
MEE Chile
Megalight Electronics
MERAWEX sp. z o.o.
Metal Manufacturing Nigeria Limited
MG EXEO
MIDAC S.p.A.
Mission Critical Electronics
Monbat AD
Moura
MYADTECH
Métrica
Narada Power
NED Energy Limited
Newpower
Nextgen Networks Limited
NHS Sistemas Eletronicos LTDA.
Nian Battery Khavaran
NIMAC Power Systems (M) Sdn Bhd
Nokia
Nology (Pty) Ltd
NPP Power

Table 785 - continued

Company
NRJSOLAIRE SARL
OHI Telecom
Okaya Power Private Limited
Oman Solar Systems Co. LLC
OmniOn Power Inc.
Orbit Energy
OTL
PHB Eletrônica Ltda.
Phinergy
Polarium Energy Solutions AB
Porsoo Electronic
Power-Sonic
PowerTec Solutions International
POWEST
Precision Group
Projects Execution Development Company Limited
PROLINK Technology
Propow Energy Co., Ltd.
PT Hariff Daya Tunggal Engineering
PT. Nipress, Tbk.
Pulse Supply
Pylontech
Raycap
Redress Technology
Reem Batteries & Power Appliances Co SAOC
REVOV
RIC Electronics Ltd.
Ritar International Group
RITMA
RNB
Roselektronika
Saba Battery

Table 785 - continued

Company
Sabre Industries, Inc.
Sacred Sun
Saft
Saite Power Source (Vietnam) Co., Ltd.
Salicru
Samlex America
Samsung SDI
Scanpotec ApS
Schneider Electric
Sebang Global Battery Co., Ltd.
SEC
SENS
Seven Star LLC
Sewia Mining Ltd
Shenzhen Richroc Electronics Co., Ltd.
Shield Batteries Limited
Shindengen Electric Manufacturing Co., Ltd.
SIESA
Socomec
Solutum de México S de RL de CV
SONELECTRIC S.A.S.
Southern Batteries Private Limited
Starmax Batteries
Statron AG
Stryten Energy LLC
Sunlight Group
Sunwoda
Syntech
TAB
Tamuz Electronics Ltd.
Tect
Tele Service Co., Ltd.

Table 785 - continued

Company
Tele-Serve Engineering Services Limited
Telenetworks
Telzas
Tescom
Traction Battery Services
TS Shara
TSSC
Tudor Baterias
Tycon Systems
UCB Power
United Batteries Co.
UPS Battery Center
USSE
Vajra Drill
Vertiv
Victron Energy
Vision Group
Voltronic Power
Westell Technologies, Inc.
Widala Group
Yiğit Akü Malzemeleri A.Ş.
ZTE Corporation
ZTT Group

Sources & Evidence

1. EnerSys 2026 Proxy Statement and Annual Report

   • Company verification: EnerSys's fiscal 2026 annual report establishes continuing consolidated operations and an Energy Systems business supplying power conversion, distribution, energy storage, and enclosures to telecommunications and broadband customers. ([s206.q4cdn.com](https://s206.q4cdn.com/xx.xx/files/doc_financials/2026/ar/b317caf6-56f8-42fa-bea1-bf685eb4132a.pdf))

2. Vertiv Annual Report 2025

   • Company verification: Vertiv's 2025 annual report identifies Vertiv and NetSure among its brands, establishes continuing consolidated operations, and identifies communications networks as a principal customer market for its power-management and energy-storage offerings. ([s205.q4cdn.com](https://s205.q4cdn.com/xx.xx/files/doc_financials/2025/ar/Vertiv-2025-Annual-Report.pdf))

3. Delta Electronics, Inc. 2025 Annual Report

· Company verification: Delta Electronics, Inc.'s 2025 annual report, printed March xx.xx 2026, establishes the listed parent identity and continuing telecom-infrastructure business, including telecom power systems, controllers, and cabinets.
([filecenter.deltaww.com](https://filecenter.deltaww.com/IR/download/annual_report/2025annual.pdf))

4. About MCE

· Company verification: The corporate record identifies Mission Critical Electronics LLC and places Newmar Power and DuraComm within its brand portfolio, establishing the group reporting relationship for the captured telecom battery offerings.
([mission-critical-electronics.com](https://mission-critical-electronics.com/about/))

5. FIAMM Energy Technologies - AURELIUS

· Company verification: AURELIUS's current investment record identifies FIAMM Energy Technologies as a portfolio business and records 2025 as its acquisition year.

· Company verification: The record supports acquired operating-business treatment rather than relying solely on the earlier announcement of a proposed transaction.

6. Amara Raja Energy & Mobility Limited - Annual Reports

· Company verification: The official company reporting page identifies Amara Raja Energy & Mobility Limited and publishes its 2025-2026 annual-report and subsidiary-reporting records.

· Company verification: This supplements the captured named telecom-battery portfolio with contemporary corporate reporting; it does not establish telecom-specific revenue.

7. Exicom Delivers its Strongest Quarter of FY26 as Both Businesses Return to Sharp Growth

· Company verification: Exicom's May xx.xx 2026 results announcement identifies Exicom Tele-Systems Limited, confirms continuing critical-power operations, and reports an Indian telecom DC-power-system order for delivery in FY2027.
([exicom.com](https://www.exicom.com/insights/press-releases/exicom-delivers-its-strongest-quarter-of-fy26-as-both-businesses-return-to-sharp-growth))

· Company verification: The announcement reports critical-power export activity in Africa, the Middle East, and Southeast Asia; this is supplier-reported activity, not independent confirmation of particular battery shipments.

8. Investor Relations at Polarium

· Company verification: Polarium's investor-relations page describes its telecom energy-storage business but identifies the legal company as Polarium Energy Systems AB.

· Company verification: That wording conflicts with the staged Polarium Energy Solutions AB title and the captured May 2025 company announcement; the page does not establish whether a legal rename occurred.

9. 融合 发展 共赢 | 科信技术-EFORE 交割仪式成功举行

· Company verification: Kexin's April xx.xx 2024 publication reports a completed acquisition of EFORE Fi-System Oy and identifies Efore Telecom Finland Oy, Efore Telecom Oy, Efore AB, and the Suzhou business within the acquired structure.

· Company verification: This establishes a historical ownership relationship but does not independently establish the complete October 2026 Efore selling structure.

10. Results for the six months ended 30 June 2026 - Metair Investments Limited

· Company verification: Metair's August xx.xx 2026 results publication classifies First Battery Industrial as discontinued operations from the second half of 2025.

· Company verification: This qualifies the continuing-availability interpretation of First Battery's live standby-battery catalog; it does not establish discontinuation of the entire First Battery business.

11. From R565.65 million to zero for South African fibre cable company - MyBroadband
    - Company verification: The September xx.xx 2026 report attributes to Dartcom's business-rescue practitioner a statement that Dartcom SA was being wound down, while the fibre business was being marketed as a going concern.
    - Company verification: The report describes a movable-asset auction scheduled for September xx.xx 2026; it does not establish the completed auction outcome or a successor telecom-battery seller.
    - Company verification: The September xx.xx 2026 report states that Dartcom SA was in business rescue.
    - Company verification: It reports an asset auction scheduled for September xx.xx 2026, including industrial batteries and telecom equipment; it does not establish the auction's completed outcome.
12. Exide Industries Limited Annual Report 2022-2023
    - Company verification: The exchange-hosted Exide Industries Limited 2022-2023 annual report establishes the Indian listed-company identity and a telecom business offering NEPST, NMST, and EP solutions.
    - Company verification: This establishes historical direct participation, not current 2026 availability or ownership of the separately staged Exide Technologies business.
13. NETOGY UPS100-PLUS Brochure
    - Company verification: The manufacturer-hosted NETOGY UPS100-PLUS brochure identifies Nology (Pty) Ltd and a named battery-containing DC UPS for network-device backup.
    - Company verification: The brochure supplies product and company attribution but is a legacy record rather than proof of current shipments.
14. Contact Us - NETOGY
    - Company verification: NETOGY's official contact record states that its products are available through Nology, establishing the brand-to-channel relationship.
    - Company verification: The record does not establish ultimate ownership, upstream OEM sourcing, or completed customer purchases.
15. Which GIZZU Mini Ups is Right for You?
    - Company verification: GIZZU's March xx.xx 2023 commercial publication identifies Syntech as the distributor bringing GIZZU to South Africa.
    - Company verification: The named mini-UPS portfolio expressly includes router, ONU, and VoIP backup, establishing historical telecom-directed customer-premises participation.
16. ICT Introduces Modular Power Series 2 and MPS Ultra 2 DC Power Systems
    - Company verification: ICT's January xx.xx 2026 announcement introduces Modular Power Series xx.xx and MPS Ultra xx.xx DC power systems, supporting continuing product-business activity.
    - Company verification: The announcement does not independently establish battery inclusion, telecom shipments, or ultimate ownership.
17. East Penn Manufacturing History
    - Company verification: East Penn's official corporate-history record establishes its company-level manufacturing identity, supplementing the captured dedicated Deka communications-battery portfolio.
    - Company verification: The corporate record is not evidence of a numerical telecom market share.
18. Communications Network Power Solutions | EnerSys
    - Company verification: EnerSys publicly offers power and energy-storage solutions for communications networks, including central offices, macro cells, and small-cell infrastructure.
19. Integrated Power Management Systems | Vertiv
    - Company verification: Vertiv markets Integrated Power Management Systems specifically for telecom equipment, coordinating grid, battery, and generator energy sources.
20. Lithium Batteries for Telecom
    - Company verification: Vertiv's July 2022 commercial datasheet identifies lithium batteries for telecom applications and compatibility with its NetSure power-system portfolio.
21. Products - Li-ion Battery Backup Systems - Delta
    - Company verification: Delta Electronics lists Li-ion Battery Backup Systems within Telecom Infrastructure, including TEB4810, TEB4815, TEB5110, and DUO5128 products.

22. Digitalizing site power for green connectivity and computing - Huawei
- Company verification: Huawei describes its 5G Power site-energy solution and intelligent energy-storage role for telecom networks.

23. Telecom Power-5G power, hybrid and iEnergy network energy management solutions|ZTE
- Company verification: ZTE markets integrated telecom power solutions containing batteries, including PadPower/Pad battery and one-cabinet site offerings.
- Company verification: ZTE's official page reports a SoftBank power-supply framework award in 2020; this is supplier-reported commercial-event evidence.

24. Energy Ancillary - Ericsson
- Company verification: Ericsson's site-energy portfolio identifies Ericsson battery systems and ancillaries for lithium-ion and VRLA batteries in RAN sites.

25. Ericsson Site Energy Management and Optimization
- Company verification: Ericsson documents battery-backed site-energy management and a commercial Deutsche Telekom 5G site application.

26. Telecom | Exide
- Company verification: Exide Technologies offers telecom batteries and UPS-related storage for mobile network operators, tower companies, and BTS equipment manufacturers.
- Company verification: Its telecom portfolio includes Marathon battery ranges and Solition Telecom.

27. Stryten Energy Completes Acquisition of C&D Trojan, Creating a Leading Battery Manufacturing Platform for Transportation, Industrial, Critical Infrastructure, and Military Applications
- Company verification: Stryten Energy LLC announced completion of its acquisition of C&D Technologies and Trojan Battery Company on October xx.xx 2026.
- Company verification: The combined company operates under Stryten Energy while preserving the C&D Technologies and Trojan Battery product brands.

28. C & D Technologies | Telecom
- Company verification: C&D Technologies' official telecommunications category lists telecom batteries, including Broadband BBG gel and Broadband BBA pure-lead AGM products; this portfolio is mapped to its acquired parent Stryten.

29. Telecommunications & 5G Network Backup Batteries - East Penn
- Company verification: East Penn Manufacturing offers communications batteries for 5G small cells, wireline, and cable broadband.
- Company verification: The portfolio includes Deka Unigy and Deka Fahrenheit products, and the company describes a North American distribution network.

30. Communication Batteries - GSYuasa Energy Solutions
- Company verification: GS Yuasa Energy Solutions markets VRLA communication batteries, with Goldtop, PWL, PXL, PYB, and PYL product series.

31. GS YUASA's Offices & Group Companies | GS YUASA
- Company verification: GS Yuasa's official group-company record identifies GS Yuasa Energy Solutions in the United States and regional group operations in Europe and Asia-Pacific.

32. Energysolutions and batteries for telecommunication
- Company verification: HOPPECKE explicitly offers batteries for telecom backup, including grid | Xtreme VR and grid | power VR X-FT.

33. Telecom & Network □ Secure Uptime and Availability | Polarium®
- Company verification: Polarium markets modular battery-backup solutions for telecom networks, including Polarium Battery and Connected Batteries.

34. Polarium Introduces Connected Batteries: Revolutionizing Fleet Management and Anti-Theft
- Company verification: The May xx.xx 2025 company announcement identifies Polarium Energy Solutions AB and its Stockholm address.
- Company verification: The announcement introduces Connected Batteries for telecom fleet management and battery installations.

35. Telecom Backup Power Solution-LEOCH BATTERY
    - Company verification: LEOCH markets telecom backup batteries for operators, tower companies, and system integrators.
    - Company verification: Its portfolio expressly includes telecom lithium batteries and VRLA-AGM products for core, access, tower, and fixed-broadband infrastructure.
36. Telecom - 应用领域 - Narada Power
    - Company verification: Narada Power publicly identifies telecom energy storage as an established business serving telecom operators and equipment integrators.
    - Company verification: The official application page presents battery categories for this business.
37. Telecom Battery
    - Company verification: Vision Group's official telecom battery page presents backup-battery solutions for communication networks, with connected monitoring and anti-theft features.
38. Li-ion Battery System
    - Company verification: Sacred Sun's commercial datasheet identifies a lithium-ion battery system specifically offered for 5G telecom sites.
39. Sacred Sun won the bid for China Mobile's centralized procurement of lead-acid batteries
    - Company verification: Sacred Sun's September xx.xx 2023 announcement reports an award in China Mobile's 2023-2025 centralized lead-acid battery procurement; the event is supplier-reported.
40. Amara Raja Energy & Mobility Limited - Telecom
    - Company verification: Amara Raja Energy & Mobility Limited markets telecom backup batteries under AMARON SLEEK and AMARON VOLT.
    - Company verification: The official telecom page describes an installed base in emerging-country markets without independently establishing a market rank.
41. Intimation of Change of Name of the Company
    - Company verification: The official stock-exchange notification establishes the change from HBL Power Systems Limited to HBL Engineering Limited effective November xx.xx 2024.
42. HBL Power Systems Limited Annual Report 2019-2020
    - Company verification: HBL's 2019-2020 annual report identifies telecom as a lead-acid battery business and reports historical broadband-connectivity battery supply.
    - Company verification: This record establishes historical activity, not a current named product offering.
43. HBL - Vision & Mission
    - Company verification: HBL's public business description includes telecom among the sectors it serves; it does not identify a current telecom battery range.
44. FT Series Lead-Acid Batteries for Sale | China Manufacturer | Ritar
    - Company verification: Ritar markets its FT front-terminal lead-acid battery series specifically for telecom use.
45. Telecom Base Station Energy Storage Battery | Ritar
    - Company verification: Ritar International Group publicly offers telecom base-station energy-storage solutions.
    - Company verification: The application page reports dated telecom projects in China and historical supply to Ethiopian telecommunications.
46. FIAMM FIT Battery Range
    - Company verification: The manufacturer-authored FIT catalog identifies FIAMM Energy Technology S.p.A. and states that FIT batteries are intended for front-terminal telecom installations.
47. Telecom Power Supply Systems - BENNING
    - Company verification: BENNING offers telecom power systems using TEBECHOP SE or SLIMLINE NG rectifier systems and modular inverters for complete battery-supported backup supplies.

48. UltraCompact DC Power System
- Company verification: Enatel's UltraCompact DC Power System is marketed for telecom access nodes, radio base stations, mobile networks, and central offices.
- Company verification: The product includes battery distribution, and the document identifies New Zealand-made modules.

49. Battery Energy and Enatel Case Study
- Company verification: Enatel documents a commercial partnership with Battery Energy Power Solutions involving Enatel DC systems and Battery Energy batteries for Australian infrastructure applications.
- Company verification: The partnership case study identifies Battery Energy Power Solutions as Enatel's Australian partner serving telecommunications and other infrastructure applications.

50. Telecommunications - Power solutions | Battery Energy Australia
- Company verification: Battery Energy Power Solutions offers telecom batteries and turnkey communication-power solutions in Australia.
- Company verification: Its telecom portfolio identifies PowerLYTE, SunGEL Ultra, and EnerLIFE battery products.

51. Telecom - Green Cubes Technology
- Company verification: Green Cubes Technology markets Guardian Battery Units for telecom backup and compatible Guardian/Aspiro DC systems.
- Company verification: The company describes lithium battery and connected-management offerings and references formerly UNIPOWER-branded software.

52. OmniOn Power BPS System Ordering Guide
- Company verification: OmniOn Power Inc.'s BPS commercial ordering guide identifies battery-supported DC power systems for wireless telecom, cable networks, transmission sites, and customer points of presence.

53. 2026 PSI Product Catalog
- Company verification: PowerTec Solutions International's 2026 catalog markets ONT backup supplies and a 48V Rackmount Battery Series specifically for telecom standby power.

54. Telecom Power - DC UPS | CyberPower
- Company verification: CyberPower's Telecom Power portfolio offers indoor and outdoor DC UPS products for FTTx systems.

55. Fiamm | Telzas - Power systems for telecommunications
- Company verification: Telzas publicly offers stationary FIAMM batteries through its specialized power business and identifies cooperation with FIAMM.
- Company verification: The specialized channel lists FIAMM FIT and other stationary-battery ranges, providing an additional commercial channel path for FIAMM.

56. Baterias Estacionárias | Moura
- Company verification: Moura's official stationary-battery portfolio explicitly includes telecom and telephone-exchange applications.
- Company verification: The portfolio includes MF, MO, and MX battery ranges.

57. Contact Us - Balancell
- Company verification: Balancell's official contact page identifies its battery business and Cape Town address; it does not establish telecom-specific participation.
- Company verification: Balancell publishes a public business contact record for its South African battery business.
- Company verification: The contact record does not establish telecom-specific participation.

58. About ICT - Innovative Circuit Technology
- Company verification: Identifies Innovative Circuit Technology Ltd. and its Langley, British Columbia address.
- Company verification: Describes DC backup systems and other power products for fixed wireless broadband, small-cell, and communications-site markets.

59. Telecom Lithium Batteries - LiFePO4 Telecom Batteries Canada Supplier
    - Company verification: Identifies Canbat Technologies Inc. as the company behind the catalog.
    - Company verification: Publicly offers lithium telecom backup batteries together with battery racks and cabinets for Canadian and export telecom applications.
60. Telecom - Starmax Batteries
    - Company verification: Lists Starmax Batteries' Canadian head-office address in Delta, British Columbia.
    - Company verification: Publishes a telecom battery portfolio for base stations, central stations, and remote communications infrastructure.
61. About - Analytic Systems Power Conversion Solutions
    - Company verification: Identifies Analytic Systems Ware (1993) Ltd. in the company footer.
    - Company verification: Describes Canadian facilities near Vancouver and the company's battery-charger and power-conversion business.
62. Telecommunications - Analytic Systems Power Conversion Solutions
    - Company verification: Markets battery chargers, rack-mounted power supplies, converters, and inverters to telecommunications and cable-communications providers.
    - Company verification: Establishes a telecom component-supply role, but does not itself demonstrate complete battery-backup system supply.
63. HYBRID UPS SYSTEM
    - Company verification: Publicly offers RIC Electronics' custom AC/DC Hybrid UPS systems.
    - Company verification: Describes integrated backup-system offerings, without establishing a particular telecom customer or deployment.
64. Home - RIC Electronics
    - Company verification: Identifies RIC Electronics Ltd. and a Burnaby, British Columbia business location.
    - Company verification: Lists DC and AC UPS systems in its commercial portfolio and telecom among the sectors served.
65. Products | Equinox Power
    - Company verification: Describes Equinox Power UPS solutions for telecom and other critical infrastructure.
    - Company verification: Supports a public portfolio claim, not independently established product shipments or customer purchases.
66. A2Z Telecom Solutions Canada
    - Company verification: Identifies A2Z Telecom Solutions Canada and its Oakville, Ontario address.
    - Company verification: Explicitly advertises lithium-ion battery-backup solutions for telecom.
67. Telecom System Batteries in Toronto, Canada
    - Company verification: Offers telecom and broadband battery replacements under UPS Battery Center's business identity.
    - Company verification: States availability for Toronto pickup and shipping, with named ONT and residential-gateway replacement applications.
68. Power Supply Solutions for Critical Communications | Samlex America
    - Company verification: Markets Samlex America power and backup solutions for critical communications, including telecom and DAS applications.
    - Company verification: Does not establish telecom-specific sales volume or a particular regional customer purchase.
69. 100-240V 11 Amp Switching Power Supply | SEC-1212P | Samlex America
    - Company verification: The product description advertises SEC-HCP systems with integrated battery-backup capability for telecommunications and network infrastructure.
    - Company verification: The retrieved page title references SEC-1212P, creating an unresolved model-metadata inconsistency.

70. About Newmar | Powering the Network | Telecom | Wireless | Public Safety DAS | Oil & Gas | Industrial | Land Mobile | Newmar Powering the Network
    - Company verification: Identifies Mission Critical Electronics as Newmar's parent and states its Costa Mesa, California headquarters.
    - Company verification: Places Newmar and DuraComm within MCE's Network & Industrial business.
    - Company verification: Lists telecom power-system integration and power supplies with built-in battery backup.
71. Batteries | Battery Strings | Telecom | Public Safety | Industrial | Rack Mount | DIN Rail Mount | Newmar Powering the Network
    - Company verification: Newmar markets NPFC-series lithium battery modules for telecom and outside-plant applications.
    - Company verification: Provides product-level support for MCE's battery-supply participation through Newmar.
72. Telecom Battery Solutions | Power-Sonic
    - Company verification: Power-Sonic publicly offers telecom battery systems and replacements for telecom cabinets, shelters, and tower backup.
    - Company verification: Lists front-terminal VRLA, tubular-gel, and other stationary battery categories for telecom networks.
73. Precision Power Products - Precision Group
    - Company verification: Identifies Precision Group's Precision Power commercial portfolio.
    - Company verification: Lists Micro UPS, telecom batteries, rack-mounted lithium batteries, and FTTx backup products.
74. Battery Backup - Meriwether Lewis Electric Cooperative
    - Company verification: MLConnect identifies Precision Power equipment as its compatible ONT battery-backup purchase option.
    - Company verification: States that units and replacement batteries can be purchased through the cooperative or directly from Precision Power.
75. Home | ESPI Corp
    - Company verification: Identifies ESPI's Clay Center, Kansas business presence.
    - Company verification: Markets named Wi-Fi UPS products for ONTs, fixed-wireless CPE, routers, and ISP channels.
    - Company verification: Describes telecom backup applications at customer premises and small-tower deployments.
76. DC Power Systems - DC Power Equipment - Telecommunications
    - Company verification: Eagle Eye Power Solutions publicly offers stationary batteries and battery chargers for telecom backup.
    - Company verification: Describes equipment delivery and installation/service support for telecom infrastructure, establishing more than a monitoring-only role.
77. Telecom Equipment Manufacturer | Telecom Manufacturing Company
    - Company verification: Identifies Charles Industries, LLC as an Amphenol company.
    - Company verification: States Charles' Illinois business location and North American manufacturing footprint.
78. Product Datasheets & Ordering Guides - Charles Industries, LLC • An Amphenol Company
    - Company verification: Charles Industries' telecom and wireless catalog lists CUBE BBU battery-backup cabinets and site-support cabinet ranges.
    - Company verification: Supports dedicated backup-system enclosure participation through Amphenol's Charles business, not an inference that batteries are included in every sale.
79. DCPS 4RU Telecom System (12kW with Distribution)
    - Company verification: La Marche publicly offers the DCPS Telecom System.
    - Company verification: Describes an integrated DC power solution with battery distribution, battery management, and remote monitoring.

80. Power Supply & Power Distribution
    - Company verification: Raycap markets power supplies and power-distribution solutions for wireless network operators.
    - Company verification: Its portfolio includes UPS systems and battery-management functions for telecom-site power.
81. Telecom & Wireless Power Solutions | SENS
    - Company verification: SENS' cable, telecom, and wireless portfolio lists the MicroCab xx.xx outdoor DC UPS.
    - Company verification: Establishes a marketed telecom-related DC backup-system role distinct from its generator-starting and monitoring offerings.
82. CS19-BBU-004, BDA Battery Back-Up Unit :: Westell Technologies, Inc. (WSTL)
    - Company verification: Identifies Westell Technologies, Inc. in its official product-page title.
    - Company verification: Markets the CS19-BBU-xx.xx integrated battery-backup unit for public-safety bi-directional amplifier systems.
83. Building Systems - Sabre Industries, Inc.
    - Company verification: Sabre Industries publicly offers engineered building-system integration that includes batteries and DC power systems.
    - Company verification: Its portfolio includes telecom equipment enclosures and integrated power-management solutions; a named telecom battery-backup configuration is not established by this page.
84. Off-Grid Solar & Backup Power | Tycon Solar® | Tycon Systems®
    - Company verification: Tycon Systems markets UPSPro outdoor UPS and battery-backup systems.
    - Company verification: The commercial catalog also positions RemotePro systems for wireless equipment and remote communications applications.
85. About Tycon Systems | Utah-Built Remote Power Solutions
    - Company verification: Identifies Tycon Systems' Utah business origins and remote-power business.
    - Company verification: Describes battery-backup systems for outdoor network equipment and wireless communications applications.
86. Telecom Power System - Battery Rack System - Telecom Backup
    - Company verification: Pulse Supply publicly offers telecom backup batteries, battery racks, UPS products, and related power-system equipment.
    - Company verification: Describes manufacturer partnerships, establishing a channel role rather than battery manufacturing.
87. Solutum de México | Soluciones en respaldo de energía
    - Company verification: Identifies Solutum de México S de RL de CV as a Mexican backup-system business.
    - Company verification: Publicly offers telecom batteries, AC/DC UPS systems, DC power plants, and integrated telecom power solutions.
88. Jaguar de México | Tailor-made technological solutions | Telecom engineering, EMS and engineering design
    - Company verification: Identifies Jaguar de México as a Mexican technology business.
    - Company verification: Its SHIELD division publicly offers DC power supplies and backup batteries for FTTH, 4G, and 5G infrastructure.
89. RITMA · Sistemas de energía en corriente directa y almacenamiento
    - Company verification: Identifies RITMA as a Mexican DC power and storage business.
    - Company verification: Publicly offers battery banks for telecom backup and integrated DC power systems.
90. interberg® - Baterías industriales de níquel-cadmio y plomo-ácido
    - Company verification: Publishes interberg's stationary industrial battery catalog for the Mexican market.
    - Company verification: Explicitly lists telecommunications, cellular sites, and outdoor cabinets among its backup-battery applications.

91. lorain technologies -
    - Company verification: Describes Lorain Technologies as a Mexican electrical-protection and telecommunications business.
    - Company verification: Advertises telecom batteries and telecom power-backup systems.
92. Fabricación de Baterías de Litio en México - MYADTECH
    - Company verification: MYADTECH advertises custom industrial lithium batteries in Mexico and lists a Mexico City contact address.
    - Company verification: Lists backup systems and telecommunications among applications, without identifying a named telecom-backup deployment.
93. Construction and Electrical Engineering Contractors | ABM Bermuda
    - Company verification: Identifies ABM Limited and its Bermuda business address.
    - Company verification: States an APC sales/service relationship and turnkey UPS offerings for customers that include Bermuda telecom providers.
94. Industrielle Power Løsninger der sikrer dig | Scanpotec
    - Company verification: Identifies Scanpotec ApS and publicly lists battery, DC UPS, and other backup-power offerings.
    - Company verification: States approved service-partner coverage for BENNING, CENTIEL, and GENESAL ENERGY that includes Greenland.
    - Company verification: Does not establish a Greenland telecom battery-backup sale or deployment.
95. Características Estacionária | Tudor Baterias
    - Company verification: Tudor's stationary-battery portfolio expressly identifies telephone exchanges, radio base stations, fiber networks, GSM networks, and other telecom applications.
96. CERTIFICADO DE CONFORMIDADE
    - Company verification: The CPQD conformity certificate identifies Indústrias Tudor S.P. de Baterias Ltda. and a stationary lead-acid product category.
    - Company verification: The certificate is identity and conformity evidence; it is not treated as proof of current telecom sales or final Anatel authorization.
97. Tudo o que você precisa saber sobre Baterias Estacionárias - Pioneiro Baterias
    - Company verification: Baterias Pioneiro identifies its own Pioneiro Tech stationary-battery line and includes telephone exchanges among stationary-battery applications.
    - Company verification: The company page provides a business address in Treze Tílias, Santa Catarina, Brazil.
98. Arquivos Para sua empresa: Telecom - TS SHARA
    - Company verification: TS Shara maintains a telecom-specific commercial application page within its backup-power portfolio.
    - Company verification: The page identifies the TS Shara business, a São Paulo address, and CNPJ xx.xx.xx.xx/xx.xx-xx.xx; current battery-inclusive configurations are not established by that application page alone.
99. Aplicações - NHS Soluções em Nobreaks e Inversores Solares Híbridos
    - Company verification: NHS lists telecom among the commercial applications for its nobreak solutions.
    - Company verification: The official page identifies NHS Sistemas Eletronicos LTDA. in its footer; the application listing alone does not establish a particular battery-inclusive telecom configuration.
100. Fonte Nobreak 12V 1A EFB 1201 com Bateria Intelbras - Intelbras
    - Company verification: Intelbras directly offers the EFB xx.xx backup power supply with an included battery through its Brazilian commercial store.
    - Company verification: The offering expressly includes network and IP-telephone applications, establishing a customer-premises communications-backup role.

101. Entrevista com Pedro Bet, representante da PHB Solar - PHB Solar
    - Company verification: The company's May xx.xx 2021 interview describes PHB's history of developing products for the telecom sector.
    - Company verification: This establishes historical business context, not a currently inspected telecom battery-backup range.
102. :: Acumuladores Arizona ::
    - Company verification: The company's own history and footer identify Acumuladores Arizona S.R.L. and its Argentine business address.
    - Company verification: The page describes communications-energy and turnkey-energy activities and a lithium-battery business for telecom.
    - Company verification: Acumuladores Arizona reports obtaining representation of Brazilian Newpower batteries in 2014.
    - Company verification: This is a historical supplier/channel link; the page does not establish Newpower's current legal identity or continuing telecom commercialization.
103. Sistemas de Respaldo de Energía - Duncan
    - Company verification: Duncan's Colombia-facing backup-system portfolio expressly offers UPS for critical telecom equipment.
104. SONELECTRIC S.A.S. | UPS, Baterías y Respaldo Energético Colombia
    - Company verification: SONELECTRIC S.A.S. identifies a Colombian business supplying and integrating UPS, batteries, and backup-energy systems.
    - Company verification: Its commercial portfolio expressly markets CSB AGM batteries for telecom.
    - Company verification: SONELECTRIC lists Powest/Nicomar among the UPS brands it distributes, providing a Colombian channel record without resolving POWEST's legal-parent identity.
105. Sobre Nosotros - ICETEL
    - Company verification: ICETEL's company record identifies Ingeniería Caro y Caro Limitada and describes a business in energy conversion/storage and telecom services.
106. ICETEL
    - Company verification: ICETEL's commercial page offers battery banks, DC-energy systems, and turnkey supply/integration of conversion and storage systems in Chile.
    - Company verification: The company identifies telecom customers and an EnerSys distribution relationship; these are supplier-reported relationships rather than independently verified awards.
107. BATERÍAS ALLSAI OPzV CFPV Y LFPV - MEE CHILE
    - Company verification: MEE Chile's specific ALLSAI OPzV CFPV/LFPV battery offering identifies telecom equipment among its applications and provides a commercial quotation channel.
108. YUASA | CIA UPS DEL PERU SAC
    - Company verification: CIA UPS DEL PERU SAC markets Yuasa NP-series batteries and expressly includes telecom systems among their applications.
    - Company verification: The page provides the company's Peruvian commercial contact channel.
109. Gerer L'Energie, administración y el tratamiento de la energía
    - Company verification: Gerer L'Energie states that it represents SEC batteries in Peru and distributes batteries for telecom and backup applications.
    - Company verification: The page dates the beginning of that representation to 2009 but does not independently establish current authorization or sales.
110. Electronic Siblings Perú | Baterías, Paneles Solares e Inversores - Energía Renovable en Perú: Electronic Siblings SAC
    - Company verification: Electronic Siblings SAC identifies a Peru-based battery and backup-energy business operating from Lima.
    - Company verification: Its commercial offering expressly includes batteries for telecom applications.

111. BATERIAS - ENERGYSA PERU
    - Company verification: ENERGYSA PERU's battery-business page expressly states that it commercializes batteries for telecom applications.
112. La Casa de las Baterías Guatemala | Somos Energía
    - Company verification: La Casa de las Baterías' Guatemala-facing commercial site markets DC-energy solutions for telecom and industrial applications.
    - Company verification: The record supports a regional channel-facing business identity, not separate manufacturer identities for its branches.
113. Productos
    - Company verification: SIESA's Panama-facing product catalog offers batteries for telecom applications and states that VRLA batteries are held for replacement battery banks.
114. DC Power - Batteries - Telenetworks
    - Company verification: Telenetworks publicly offers DC-power and battery-bank integration for telecom/network infrastructure.
    - Company verification: The service record identifies San Juan, Puerto Rico, and broader Caribbean service positioning; it does not establish equipment resale or availability on each island.
115. Quiénes somos BatteryOnePR
    - Company verification: The May xx.xx 2024 company account identifies BatteryOnePR as the digital branch of Battery Giant de PR in Guaynabo, Puerto Rico.
    - Company verification: It describes a backup-battery customer base including remote telecom sites and identifies Victron Energy as a principal brand used by the business.
116. ABOUT DCPSL
    - Company verification: DCPSL's company brochure advertises AC/DC power-system supply and service and identifies an office/warehouse in Balmain, Couva, Trinidad.
    - Company verification: The inspected business facts do not establish a telecom-specific battery offering.
117. Dada Dada & Cia - Dada Dada & Cia
    - Company verification: Dada Dada & Cia's commercial site describes telecom technology solutions, includes battery banks in its portfolio context, and provides El Salvador and Guatemala contact channels.
    - Company verification: The site-level portfolio does not independently establish a particular telecom battery-system supply contract.
118. Nuestros servicios - Energitel Group Guatemala
    - Company verification: Energitel Group's services page lists battery-bank work and telecom-network services.
    - Company verification: The page provides a Guatemala business address; equipment resale versus service-only participation remains unresolved.
119. EMPRESA | Misitio
    - Company verification: DURAPOWER describes an Ecuadorian import, representation, distribution, and commercialization business covering telecom technology, UPS, and batteries.
    - Company verification: The company description does not identify a specific current telecom battery-backup range.
120. Powest | UPS, Baterías y Soluciones de Energía - POWEST
    - Company verification: POWEST's official commercial portfolio includes UPS and batteries and identifies telecom among its business sectors.
    - Company verification: Its commercial site includes Ecuador-facing business context, but country-specific telecom sales and the Nicomar legal-parent relationship remain unresolved.
121. Registro 001652/2023 | Avaliação da Conformidade
    - Company verification: INMETRO registration xx.xx/2023 identifies UNICOBA INDUSTRIA DE COMPONENTES ELETRONICOS E INFORMATICA S.A. as the manufacturer associated with the UPLFP family.
    - Company verification: The record lists UNIPOWER-branded UPLFP entries and concerns photovoltaic systems/equipment; it does not establish telecom authorization or current telecom sales.

122. Unicoba anuncia novo nome e agora é UCB | Portal Solar
    - Company verification: A June xx.xx 2023 dated business report records Unicoba's adoption of the UCB name as a rebranding event.
    - Company verification: This corroborates group/brand continuity but does not establish the exact current legal selling entity for the saved UCB Power row.
123. Baterias Estacionarias - Moura Baterías
    - Company verification: Moura's Argentina stationary-battery portfolio expressly includes telecom and telephone-exchange applications.
    - Company verification: This establishes an Argentina-facing commercial offering under the existing Moura identity, not another independent company.
124. BAE Batterien GmbH
    - Company verification: BAE markets stationary batteries for UPS and telecommunications installations.
    - Company verification: The commercial page identifies the BAE business at a Berlin, Germany address.
125. Industrial Batteries - Monbat
    - Company verification: Monbat's industrial battery portfolio explicitly includes telecom and reserve-power applications.
126. Contacts - Monbat
    - Company verification: The official contact record identifies MONBAT AD in Montana, Bulgaria and Monbat Group headquarters in Sofia.
127. OPzS CELLS & BLOCKS - TAB
    - Company verification: TAB markets OPzS and OGi stationary batteries for telecommunications equipment.
    - Company verification: The product page identifies the TAB business at Mežica, Slovenia.
128. Telecom - CE+T Power
    - Company verification: CE+T Power offers telecom power solutions with backup and energy-management capabilities.
    - Company verification: The telecom page explicitly includes battery backup for remote network applications.
129. Where we are - CE+T Power
    - Company verification: CE+T Power identifies headquarters in Wandre, Belgium and an R&D center in Troisvierges, Luxembourg.
130. Telecommunications | Dale Power Solutions
    - Company verification: Dale supplies UPS and battery-energy-storage backup solutions for telecommunications.
    - Company verification: The page describes a battery-backed DC UPS supplied to a telecommunications provider.
    - Company verification: The footer identifies Dale Power Solutions Limited, registered in England and Wales, with a Scarborough address.
131. ABOUT SEC UK BATTERIES
    - Company verification: SEC UK is identified as a division of Shield Batteries Ltd.
    - Company verification: The division supplies industrial batteries and complete battery-related solutions and lists telecommunications among its core industries.
    - Company verification: The page identifies Shield Batteries Limited and a United Kingdom head-office address.
132. Telecom Batteries | Victron Energy
    - Company verification: Victron Energy's Telecom Batteries page markets a dedicated AGM battery series designed for telecom systems and rack-based applications.
133. Telecom Solutions - Efore
    - Company verification: Efore offers a telecom power unit with lithium battery backup and battery-containing telecom cabinets.
    - Company verification: Its advertised telecom battery portfolio includes the IBUE and SmartLi families.

134. Infrastructure Energy Storage and Power Supply | Celltech Group
    - Company verification: Celltech Group markets lead-acid and lithium-ion batteries and tailored power systems for telecom backup.
135. TPL VRLA AGM Battery | Celltech
    - Company verification: Celltech's Finnish-facing catalog offers CSB TPL front-terminal batteries for emergency backup in telecommunications and broadband.
136. TELECOM - Midac Batteries
    - Company verification: MIDAC markets OPzV and MFT batteries specifically for telecom cabinets, points of presence, shelters, and energy stations.
    - Company verification: The page identifies MIDAC S.p.A. at Soave, Italy.
137. MXL 7.2-12 - MERAWEX - producent zasilaczy przemysłowych i systemów zasilania
    - Company verification: MERAWEX markets the MXL xx.xx-xx.xx battery for telecom and UPS applications.
    - Company verification: The product page identifies MERAWEX sp. z o.o. at Gliwice, Poland.
138. Производитель аккумуляторов AGM, GEL и OPzV в России| RNB
    - Company verification: The official business page identifies ООО «РНБ» as a Russian battery manufacturer serving telecommunications and backup-power applications.
    - Company verification: The footer identifies the business in Novosibirsk.
139. Аккумуляторы телеком-оборудования и ретрансляторов | Производство литиевых батарей
    - Company verification: The commercial page offers battery systems for telecom cabinets, communications nodes, and base-station backup.
    - Company verification: The footer identifies the legal selling business as ООО «Энерджи Трейд» with Moscow addresses.
140. ЭНЕРГОН
    - Company verification: ENERGON offers stationary batteries under the Russian DELTA brand, including series positioned for telecommunications and communications systems.
141. О компании ЭНЕРГОН
    - Company verification: ENERGON identifies industrial batteries as a principal business and telecommunications and uninterruptible power as commercial applications.
142. Protection products category
    - Company verification: Aunilec markets AUPUS HE redundant backup power systems for telecommunications.
    - Company verification: The advertised DC system includes battery connections and power distribution rather than a standalone rectifier-only offering.
143. SPS NET2 - O mini UPS CC inteligente e eficiente - Salicru
    - Company verification: Salicru markets SPS NET2 as a battery-containing DC UPS for maintaining network-device connectivity during power outages.
    - Company verification: The inspected Portuguese-language product page is Angola-facing and does not independently establish European local availability.
144. BORRI INDUSTRIAL POWER SOLUTIONS
    - Company verification: Borri's corporate record identifies its origin in Bibbiena, Italy and an AC/DC power-system portfolio.
    - Company verification: Telecom is listed among the commercial applications served by that portfolio.
145. AC and DC UPS for industrial power applications - Borri
    - Company verification: Borri's current industrial-power business page advertises AC and DC UPS offerings.
146. Li-Ion Battery UPS | Socomec
    - Company verification: Socomec advertises lithium-ion battery UPS systems and explicitly identifies telecom power availability as an application.
    - Company verification: The inspected product record belongs to its APAC catalog.

147. Custom power conversion solutions
    - Company verification: Eaton advertises complete DC power solutions for telecommunications, including integrated battery-backup and alternative-energy hybrid solutions.
    - Company verification: The inspected record is a US catalog page, not proof of current European country sales.
148. UPS systems, industrial UPS, battery charging systems, battery storage systems and modular power supplies
    - Company verification: Statron's official catalog offers stationary lead, nickel, and lithium batteries, UPS systems, and battery charging systems.
    - Company verification: The catalog includes a telecom segment filter and identifies Statron AG headquarters in Mägenwil, Switzerland; a particular telecom battery-backed configuration is not established by the filter alone.
149. Sunlight Group | Global Leader in Industrial Batteries & ESS
    - Company verification: Sunlight Group's companies record identifies Greek operating facilities.
    - Company verification: The group describes Israeli Industrial Batteries as a business supplying batteries for telecom systems.
150. Contact - Eternity Technologies
    - Company verification: The official contact page identifies Eternity Technologies FZ-LLC at Al Hamra Industrial Zone, Ras Al Khaimah, United Arab Emirates.
151. ET-LI-ION Battery - Eternity Technologies
    - Company verification: Eternity markets the named ET-LI-ION battery module for telecom power and backup systems.
152. Domestic Lithium Battery Collaboration from Türk Telekom and ASPİLSAN Enerji
    - Company verification: ASPİLSAN Enerji's January xx.xx 2022 announcement reports commercial use of its telecom lithium batteries on Türk Telekom's network.
    - Company verification: The announcement connects the named supplier and its Turkish business operations to a telecom-specific battery offering.
153. Telecommunication Energy Storage Systems - Orbit Energy
    - Company verification: Orbit Energy markets Orbit Telecom Series battery systems for telecom infrastructure, outdoor cabinets, and base stations.
    - Company verification: The product page identifies business addresses in İzmir and Manisa, Turkey.
154. Front Terminal Batteries | Telecom & UPS | Yiğit Akü
    - Company verification: Yiğit Akü's official front-terminal battery catalog explicitly lists telecom base stations as an application and identifies named YGY front-terminal products.
155. Yiğit Akü lithium battery and energy-storage product catalog
    - Company verification: The company catalog identifies Yiğit Akü Malzemeleri A.Ş. and its Ankara business address.
    - Company verification: The catalog includes a lithium battery pack explicitly positioned for base stations.
156. PowerSafe SBS EON Technology Batteries - Tescom UPS
    - Company verification: Tescom's official sales catalog offers PowerSafe SBS EON batteries for telecom backup applications.
    - Company verification: The page provides an offer-request route and identifies EnerSys battery catalogs.
    - Company verification: Tescom lists EnerSys PowerSafe SBS EON batteries in its Turkish commercial catalog, establishing a regional channel reference rather than a separate manufacturer identity.
157. EGE 300K Online UPS - Esis Power
    - Company verification: The EGE 300K product page markets a UPS with built-in batteries for telecom among other critical applications.
    - Company verification: The page identifies the company as ESİS ENERJİ ve ELEKTRONİK SAN.TİC.A.Ş.

158. Site & Power - Al Rashid Technology & Power
    - Company verification: Al Rashid Technology & Power offers telecom DC backup solutions comprising batteries, rectifiers, and inverters from its Saudi business.
    - Company verification: The company names STC, Mobily, and Zain as customers; these relationships are supplier-reported.
    - Company verification: The page identifies ARTAR Holding as the organization that introduced the business.
159. About - Alawal Group
    - Company verification: The official corporate profile identifies Awal First Industrial Company and describes its telecom, ICT, and power business.
160. AWAL Lithium Batteries - Alawal Group
    - Company verification: The company markets named AWAL lithium batteries for GSM tower backup.
    - Company verification: The product page identifies Saudi business contact details in Riyadh.
161. FIAMM SONICK 48TL Batteries - PEDCO
    - Company verification: Projects Execution Development Company Limited identifies its Saudi business and offers FIAMM SONICK 48TL batteries specifically for telecom backup.
    - Company verification: The listing supports a named battery-channel role, not ownership of the battery manufacturer.
162. Supply - Fenda
    - Company verification: Fenda states that it supplies and integrates lithium battery systems for telecom operations.
    - Company verification: Its offering includes telecom DC systems and battery-storage cabinets, and the page identifies Riyadh headquarters.
163. Industrial Battery Rental & Sales in Saudi Arabia - Gulf Horizon Telecom
    - Company verification: Gulf Horizon Telecom offers industrial batteries for rental and purchase across Saudi Arabia.
    - Company verification: Its dedicated offering includes telecom battery backup and VRLA or lithium batteries for telecom sites.
164. Batteries - Ghad Al Taqat
    - Company verification: Ghad Al Taqat offers battery supply for telecom and other backup applications across Saudi Arabia.
    - Company verification: The page identifies a Riyadh head office and a third-party battery sourcing role.
165. About Us - Bazy Trading & Contracting Co
    - Company verification: The official corporate profile identifies the Bazy Trading & Contracting Co business name.
166. About Us - ANAA Holding LLC
    - Company verification: The official profile identifies ANAA Holding LLC and its Dubai business locations.
    - Company verification: ANAA describes battery supply, installation, and power-infrastructure services; this record does not by itself establish a current telecom-specific product.
167. About IPT PowerTech
    - Company verification: IPT PowerTech's official history describes beginning operations in Lebanon supplying telecom batteries and power systems.
    - Company verification: The profile identifies IPT PowerTech Group's Beirut business address and its later telecom energy-system activities.
168. Solar & Battery as a Service - IPT PowerTech
    - Company verification: IPT PowerTech markets Solar and Battery as a Service for telecom users.
    - Company verification: The offering states that the company installs, owns, and maintains the energy systems.

169. About ITEC
    - Company verification: ITEC's official profile identifies a Palestinian telecom systems-integrator business and states its affiliation with MOSECO Group.
    - Company verification: The profile includes telecom DC power solutions.
170. Power System Solutions for Telecom Applications - ITEC
    - Company verification: ITEC describes supplying telecom power solutions containing lead-acid, AGM, and lithium batteries.
    - Company verification: The page names customers in Palestine, Jordan, and Iraq and gives a Nablus business address; customer relationships remain supplier-reported.
171. Power - DCS
    - Company verification: DCS's official power portfolio offers batteries for telecom equipment.
    - Company verification: The portfolio also includes telecom inverters and DC power systems and identifies Lebanese business contact information.
172. DC Telco Power Solutions - ITG
    - Company verification: ITG's dedicated DC telecom power page attributes industrial battery, inverter, and rectifier offerings to ECOSYS.
    - Company verification: The page reports telecom infrastructure deployments in Lebanon; these deployments are supplier-reported.
173. Company - Phinergy
    - Company verification: Phinergy's official profile identifies its Israeli origin and public listing on the Tel Aviv Stock Exchange.
    - Company verification: The company describes metal-air energy-backup systems.
174. Energy Backup - Phinergy
    - Company verification: Phinergy markets aluminum-air backup systems for telecom operators and tower companies.
175. Phinergy Announces the Appointment of Emmanuel Levy as CEO
    - Company verification: Phinergy's May xx.xx 2024 announcement explicitly refers to its commercial telecom activities in Israel and Europe.
176. About Us - Tamuz Electronics
    - Company verification: Tamuz Electronics Ltd.'s official profile identifies an Israeli company based in Kfar Saba and describes telecom-sector customers.
    - Company verification: The profile describes battery-backup product lines, but does not establish a named current telecom-network backup deployment.
177. Plant - □□□□□□□□□ □□□□ □□□□□
    - Company verification: Porsoo Electronic markets its Plant telecom charging system and identifies an Iranian business address.
    - Company verification: The offering references a battery rack, but does not establish that batteries are supplied with the system.
178. Oman Solar Systems Major Project Reference List, 1990-2023
    - Company verification: Oman Solar Systems' project-reference list covering 1990-2023 includes battery-supported solar power for microwave repeater stations and a Kuwait Telecom Company customer reference.
    - Company verification: The record supports historical telecom-related system participation, not current local sales.
179. EnerSys PowerSafe SBS EON VRLA Battery - Seven Star LLC
    - Company verification: Seven Star LLC lists EnerSys PowerSafe SBS EON telecom batteries for supply on request from Muscat, Oman.
    - Company verification: Seven Star LLC's specific product listing provides an Omani channel record for EnerSys PowerSafe SBS EON batteries; it establishes offered availability, not completed shipments.

180. Stocking of Sealed Lead-Acid Batteries - Komax
    - Company verification: Komax's official service listing offers sealed lead-acid batteries for telecom applications.
    - Company verification: The listing identifies an Ardiya, Kuwait business address.
181. Solutions
    - Company verification: Inala markets lithium batteries for African telecommunications sites.
    - Company verification: Its portfolio includes custom hybrid power-system engineering, procurement, installation and support.
182. Contact
    - Company verification: Inala publishes corporate and warehouse contacts in South Africa and a Mauritius office.
183. Micro-grid Solutions - BlueNova
    - Company verification: BlueNova markets battery-based micro-grid solutions that include backing up telecommunications infrastructure.
184. About Us - BlueNova
    - Company verification: BlueNova identifies itself as a South African energy-storage business established in 2015.
185. Network Power - ASSAD Group
    - Company verification: ASSAD Group's Network Power portfolio offers stationary batteries for telecommunications and other critical infrastructure.
    - Company verification: The page supplies Tunisian business contacts for the group and its industrial-battery business.
186. We achieve milestone with Vodacom High Security Battery Cabinet (HSBC) Installation! - maxwell+spark
    - Company verification: The October xx.xx 2023 company publication reports installation of a Vodacom High Security Battery Cabinet south of Durban.
    - Company verification: The record establishes a telecom battery-cabinet supply role, not complete battery-pack manufacturing.
187. Connect with us - maxwell+spark
    - Company verification: The contact record identifies Maxwell and Spark Pty Ltd in Durban and Maxwell and Spark B.V. as the Netherlands headquarters.
188. About US - Star Plus Batteries
    - Company verification: The Star Plus website identifies Metal Manufacturing Nigeria Limited.
    - Company verification: Its battery business expressly includes telecom power applications.
189. Metal Manufacturing Nigeria - Star Plus Batteries
    - Company verification: The company profile connects Metal Manufacturing Nigeria Limited to the StarPlus battery brand.
190. Solar and Backup Power Batteries | Reliable Energy Storage
    - Company verification: First Battery offers Solar, Standby & Backup Power batteries and lists microwave stations and radio repeaters among applications.
191. Power Solutions - Dartcom | Fiber Optic Cables
    - Company verification: Dartcom markets reserve and standby batteries for telecommunications.
    - Company verification: The page identifies Narada battery distribution and lithium batteries for telecom base stations, with a Pretoria business address.
192. Our Partnership with EnerSys - Global Leader in Stored Energy - Kira Power Solution (KPS)
    - Company verification: The July xx.xx 2025 company announcement connects Kira Power Solutions to an EnerSys battery portfolio serving Egypt.
    - Company verification: It identifies PowerSafe batteries for telecom and utility applications.

193. EnerSys PowerSafe Batteries Egypt | OPzV, OPzS, SBS | KPS
    - Company verification: KPS offers EnerSys PowerSafe stationary batteries in Egypt, expressly including telecom applications.
    - Company verification: The seller describes itself as an authorized distributor; upstream authorization was not independently corroborated.
194. MBS : A propos de nous - Qui sommes-nous?
    - Company verification: MBS Maroc's company material identifies a business supplying telecom-environment equipment.
195. MBS : Produits - Energie
    - Company verification: MBS Maroc's energy portfolio offers EnerSys industrial batteries.
    - Company verification: The page is undated and does not establish current inventory or sales.
196. Batteries VRLA / AGM / GEL - ENER PLUS -
    - Company verification: ENER PLUS's battery catalog lists telecommunications, telephone exchanges and communication systems among applications.
    - Company verification: The catalog includes stationary battery categories used for backup power.
197. Battery Energy Storage Systems - IPT Website
    - Company verification: IPT PowerTech offers battery energy-storage systems for telecom backup.
    - Company verification: Its business page reports an African footprint including Nigeria and South Africa.
198. 49095 - IPT PowerTech
    - Company verification: IFC's project disclosure identifies IPI Group Holding Limited and describes IPT PowerTech's battery-system, telecom-service and T-ESCO businesses.
    - Company verification: The disclosure identifies private owners and expansion activity in Ethiopia, Liberia and Sierra Leone.
    - Company verification: The record was last updated June xx.xx 2026.
199. IFC Supports IPT PowerTech to Deliver Clean Telecom Power Across Ethiopia, Liberia, and Sierra Leone
    - Company verification: IFC's March xx.xx 2026 announcement establishes financing for IPT PowerTech's solar-and-battery telecom energy expansion in Ethiopia, Liberia and Sierra Leone.
    - Company verification: The announcement describes supported modernization rather than proving every deployment completed.
200. Power Systems & Renewable Energies - Camusat
    - Company verification: Camusat offers turnkey telecom power solutions that combine backup batteries with other energy sources.
    - Company verification: Its portfolio names Classic & Hybrid Power Systems and e.power.
201. Camusat Group access €49.9 M new financing for Aktivco’s further expansion in Africa - Camusat
    - Company verification: The September xx.xx 2023 announcement identifies Aktivco as Camusat Group's InfraCo division.
    - Company verification: It reports financing supporting African expansion and an awarded Senegal ESCO project.
202. Batteries
    - Company verification: Tele-Serve Engineering Services Limited offers lead-acid and lithium backup battery solutions for telecom central stations and BTS sites.
    - Company verification: The commercial page supplies an Accra, Ghana contact.
203. acmenetwork.net
    - Company verification: The commercial service portfolio at acmenetwork.net lists batteries among telecom equipment supplied.
    - Company verification: It reports operations in Kenya, Ethiopia and Madagascar and a Mauritius headquarters.
    - Company verification: These business facts do not resolve the company's registered English name.

204. EMATEL - Entreprise de Materiel Electrique
    - Company verification: EMATEL's supplier-authored references report lead-acid or stationary-battery supply to Côte d'Ivoire Telecom, MTN CI and MOOV CI.
    - Company verification: The references are undated and do not independently establish current contracts.
205. Énergie Solaire Télécom Afrique - Sites BTS | NRJSOLAIRE | NRJ SOLAIRE
    - Company verification: NRJSOLAIRE SARL markets battery-backed DC and solar-hybrid power systems for telecom sites in Senegal.
206. United For Liquid Batteries - EECE EECE
    - Company verification: The Engineering Export Council company record identifies United Batteries Co. in 10th of Ramadan City, Egypt.
    - Company verification: Its featured products include Telecom Battery.
207. AGEC
    - Company verification: AGEC's company brochure identifies Africa Global Equipments & Consulting as a Senegal-based business.
    - Company verification: The commercial offering includes telecom batteries and accessories.
208. BATPCO Renewable Energy
    - Company verification: BATPCO's published business portfolio identifies Basic Association of Technology Projects Company Limited in Tanzania.
    - Company verification: Its Telecom Energy offering includes solar, battery and hybrid-energy solutions.
209. Chloride Exide Batteries & Power Tanzania | Widala
    - Company verification: Widala Group offers Chloride Exide batteries in Tanzania and expressly includes telecom applications.
    - Company verification: Its catalog describes an authorized-distributor relationship; upstream confirmation remains outstanding.
210. Safetech Nigeria - Solid-State Batteries | Avtinac Limited
    - Company verification: The Safetech Nigeria catalog identifies Avtinac Limited as the Nigerian distributor of Safetech (SAFE)-branded batteries and supplies an Abuja address.
    - Company verification: Its product categories include telecom backup; exclusivity, performance and technology claims were not independently verified.
211. Energy Storage | Chloride Exide
    - Company verification: Chloride Exide's energy-storage portfolio offers commercial and industrial battery-backed power solutions.
    - Company verification: This page does not by itself establish a telecom-specific offering.
212. Telecom Batteries | Critical Power Solutions by Exicom
    - Company verification: Exicom publicly offers its EXTB telecom-battery family for battery backup at base stations, edge sites, and FTTx infrastructure.
213. Exicom Investor Relations: Trusted Growth in EV Industry
    - Company verification: The official investor record uses the English company identity Exicom Tele-Systems Limited.
    - Company verification: The record identifies regional subsidiary financial disclosures without requiring separate company rows.
214. Energy Storage Solutions for Sustainable Power | OKAYA Power
    - Company verification: Okaya markets an integrated power unit for mobile telecom operators, including a VRLA-battery configuration.
    - Company verification: The page identifies Okaya Power Private Limited and its New Delhi business address; lithium batteries are not represented as included in the described IPU.
215. Welcome to NED Energy
    - Company verification: NED Energy maintains a dedicated commercial application record for telecom batteries.

216. Lithium Battery Series for Telecom-Product-Kung Long Batteries
- Company verification: Kung Long's official product catalog includes a lithium-battery series expressly positioned for telecom.

217. Company Profile-Kung Long Batteries
- Company verification: The company profile identifies the English legal name Kung Long Batteries Industrial Co., Ltd. and operations in Taiwan and Vietnam.
- Company verification: The company reports VNPT telecom-battery deliveries beginning in June 2017 and Mobifone supply in January 2019; these are dated supplier-reported relationships.

218. Industrial Battery
- Company verification: Sebang's Korean-language industrial-battery catalog lists ES-series standby batteries with communications-equipment applications.
- Company verification: The catalog supports a telecom-related industrial-battery category but does not establish current local sales.

219. Uninterruptible Power System Application | FSP TECHNOLOGY INC.
- Company verification: FSP's official UPS application page expressly includes protection of telecommunications equipment during power interruption.

220. Sunwoda: Quality at the Core, Ensuring Stable AIDC Operations Through Reliable Delivery Sunwoda - Every Battery Carefully Crafted
- Company verification: Sunwoda describes telecom backup power as an application within its network-energy solutions business.
- Company verification: The company reports delivery activity spanning telecom base stations and other network-energy applications; no leadership or share assertion is accepted.

221. 产品列表 - 派能科技 派能科技官网|让储能服务亿万大众
- Company verification: Pylontech's Chinese-language commercial product catalog lists communications backup-power systems and 5G backup-power systems within its ICT reserve-power portfolio.

222. Product center
- Company verification: Gospower's communications-power product catalog includes a base-station battery-module category.

223. NPP | Trusted Battery Manufacturer for UPS, Telecom & Energy Storage
- Company verification: NPP Power's official business record identifies battery operations in China and Vietnam.
- Company verification: The record establishes the observed business identity and regional footprint, not a specific inspected telecom product range.

224. Wholesale Manufacturer from Vietnam - CONTACT - BRAVA
- Company verification: BravaBattery's business record identifies China/Vietnam battery operations and offers AGM, gel, and front-terminal batteries with telecom-system applications.

225. Telecom Base Station Power Supply - Eco Power Group
- Company verification: Eco Power Group markets battery systems specifically for telecom base-station backup.
- Company verification: The company describes a Philippines telecom base-station project; the customer and procurement record are not independently established.

226. PROLINK Technology - PROLINK Technology
- Company verification: PROLINK describes its own Vietnam distribution of industrial batteries for applications including telecom infrastructure.
- Company verification: Its offered brands include BSB Power, GNB/Exide, and GAZ.
- Company verification: PROLINK's Vietnam distribution portfolio identifies BSB Power-branded VRLA and lithium batteries, establishing a channel connection rather than BSB's legal identity or manufacturing ownership.

227. Tele Service Co., Ltd. - Telecom Solutions
   - Company verification: Tele Service Co., Ltd.'s telecom portfolio includes UPS and battery-pack power-supply solutions.
   - Company verification: The business page identifies a Bangkok, Thailand address.
228. home_learn more | GENIKOS TECHNOLOGIES INC.
   - Company verification: Genikos Technologies, Inc. describes its Manila battery-supply business and offers VRLA batteries for telecom base stations and transmitters.
229. Telecom & Fiber Optic Contractor, Philippines | MG EXEO
   - Company verification: MG EXEO's Philippine telecom business includes DC power plants, rectifiers, and batteries.
   - Company verification: The company reports Globe/Huawei core rectifier and battery-replacement work in Visayas and Mindanao during 2011-2015; current equipment sales are not established by that history.
230. ICT Solutions - 1wan
   - Company verification: 1WAN's Philippine ICT offering includes telecom power systems with battery backup and management.
   - Company verification: The page identifies a Makati business address and describes an unnamed US-based parent.
231. Helios_Utility_Catalogue_V1-COMBINED
   - Company verification: Helios markets a SOL-series DC power/UPS system with battery backup and identifies a business footprint including Australia, New Zealand, and Southeast Asia.
   - Company verification: This record does not independently establish a current telecom deployment.
232. Profile 2020_18.3.20
   - Company verification: BASE Technologies' 2020 disclosure identifies its LiGRT lithium telecom-battery offering.
   - Company verification: The company reports historical telecom-battery supply in Bangladesh, Malaysia, Pakistan, Sri Lanka, and Myanmar; current sales are not established.
233. APC Symmetra Battery Systems | Schneider Electric USA
   - Company verification: The official APC Symmetra Battery Systems portfolio expressly positions the named battery systems for networks and telecommunications under Schneider Electric.
234. Learn About Battery Backup - AT&T Internet Customer Support
   - Company verification: AT&T identifies APC Smart UPS-X equipment and battery packs for certain network-termination equipment.
   - Company verification: AT&T identifies PSI battery kits as backup options for named gateways and ONT equipment.
   - Company verification: AT&T identifies the GS Battery GT12080-HG extended-power kit as an ONT backup option.
235. Getting to know the Belkin Residential Gateway Battery Backup REV B, BU3DC001-12V
   - Company verification: Belkin's official support record identifies the BU3DC001-12V Residential Gateway Battery Backup for AT&T U-verse gateway and voice service.
   - Company verification: The record establishes a named legacy communications-backup product, not current new-product availability.
236. 企業情報｜エネソルブホールディングス
   - Company verification: The official corporate record gives the English name EneSolve Holdings, Inc., an April xx.xx 2026 business commencement date, and group-company links to Energywith and Furukawa Battery.
237. Energywith Company Profile 2026
   - Company verification: Energywith's 2026 company profile describes Energywith and Furukawa Battery as members of the common EneSolve holding structure.
238. Energywith Global Catalog: Stationary and E-mobility Batteries
   - Company verification: Energywith's group battery catalog includes named MSJ offerings with telecommunications applications and presents the CSB portfolio within its group catalog.

239. Telecom - CSB Energy Technology Co., Ltd.
   - Company verification: The CSB commercial catalog expressly offers XTV, TPL, MSJ, MSV, and MU battery ranges for telecom or broadband backup.
   - Company verification: The source establishes the operating portfolio; complete holding-company attribution remains qualified.
240. Shindengen Corporate Profile 2025
   - Company verification: Shindengen's 2025 corporate profile identifies telecommunications power supplies and lithium-ion energy-storage systems within its power-systems business.
241. Telecommunication Power Supplies | Shindengen
   - Company verification: The official telecom power portfolio describes battery-supported power-supply systems and lists telecom rectifier and inverter offerings.
   - Company verification: It does not establish battery inclusion in every equipment sale.
242. Zero-emission mobile networks | Nokia
   - Company verification: Nokia's official mobile-network portfolio expressly includes backup batteries and integrated site solutions.
   - Company verification: Battery-related software is presented alongside, rather than substituted for, the evidenced site-equipment role.
243. 3U Series Backup Battery - BYD Singapore
   - Company verification: The Singapore-facing BYD catalog offers the U3A1-50P-A 3U Series lithium battery for telecom equipment backup.
244. Samsung SDI ESS Batteries, March 2017
   - Company verification: Samsung SDI's March 2017 ESS brochure expressly includes telecom applications and a residential-and-telecom module category.
   - Company verification: This is historical portfolio evidence and does not establish a currently marketed telecom range.
245. GEL Battery | KSTAR
   - Company verification: KSTAR's official GEL Battery page names the GEL Series and expressly lists telecommunications among its applications.
246. Company Profile | KSTAR
   - Company verification: KSTAR's specific official corporate-profile page establishes the market-facing supplier identity and its power-equipment business.
247. Great Power Company Introduction, 2026
   - Company verification: Great Power's 2026 company introduction identifies battery packs and racks serving UPS backup for communications stations.
   - Company verification: Shipment rankings and other leadership assertions in the document are not used.
248. Discover AES
   - Company verification: Discover Battery's manufacturer-hosted legacy AES portfolio names lithium battery products and explicitly includes telecom/UPS applications.
   - Company verification: The legacy record does not establish current range availability.
249. Voltronic Power DC & Standby UPS ePower
   - Company verification: Voltronic's named ePower DC UPS includes an integrated lithium battery and targets routers, modems, VoIP equipment, and other telecom devices.
250. UPS1202A Mini UPS - Reliable Backup Power for Routers & IoT Devices
   - Company verification: A June xx.xx 2025 official commercial record identifies Shenzhen Richroc Electronics Co., Ltd. and the WGP UPS1202A.
   - Company verification: The named product is positioned for routers, modems, and fiber ONU backup.
251. Kehua Data Co., Ltd. Business Summary
   - Company verification: The issuer business record identifies Kehua Data Co., Ltd. and lists telecom UPS, DC UPS, batteries, and accessories in its commercial portfolio.

252. Kehua, a Power Enabler of 5G Construction
    - Company verification: Kehua's official 2021 commercial announcement identifies its 125K modular UPS offering and telecom among its reported applications.
    - Company verification: Leadership and market-share statements are not accepted.
253. Battery Storage for Telecom Towers & Data Centres | Arvio Technology
    - Company verification: Arvio Technology's dedicated commercial page offers battery-storage integration for telecom towers and remote communications infrastructure.
    - Company verification: The page establishes an integration offering, not a named completed deployment.
254. Shuangdeng Group Co., Ltd. Global Offering Prospectus, August 18, 2025
    - Company verification: The mandatory prospectus identifies Shuangdeng Group Co., Ltd., connects its business to the Shoto brand, and documents telecom-base-station battery activity.
    - Company verification: Excluded analyst-house rankings and estimates embedded in the prospectus are not used.
255. Telecom Power System - ZTT Group
    - Company verification: ZTT's named Telecom Power System offering expressly incorporates lithium backup and battery-backup units in communications-site systems.
256. Energy Storage and Telecom ESS | EVE Energy
    - Company verification: EVE's specific Telecom ESS portfolio offers backup battery packs for telecom base stations.
    - Company verification: Its reported operator use remains supplier-authored rather than independent procurement confirmation.
257. HBL Engineering Limited Annual Report 2024-2025
    - Company verification: HBL's FY2025 annual report establishes telecom lead-acid battery activity and planned reduction of 2V-VRLA capacity.
    - Company verification: The report states that HBL was not participating in telecom lithium packs during that reporting period.
258. Telecom | HBL Batteries
    - Company verification: HBL's official telecom page advertises lead-acid and nickel-cadmium battery offerings for communications backup.
    - Company verification: Supplier scale and ranking assertions on the page are not used.
259. TL Range - HORIEN Salt Battery Solutions
    - Company verification: HORIEN's TL Range page expressly markets telecom backup batteries.
    - Company verification: The commercial footer identifies SoNick S.p.A. in Italy; it does not establish ultimate ownership or a relationship to FIAMM Energy Technology.
260. BPC PowerStor Battery Catalog
    - Company verification: The manufacturer-hosted PowerStor battery catalog expressly includes telecom equipment among its commercial applications.
    - Company verification: The legacy catalog does not establish current product availability.
261. Contact Us □ Our Locations, Inquiries, Technical support, & Press
    - Company verification: Polarium's official contact page identifies Polarium Energy Solutions AB and registration number xx.xx-xx.xx supporting the retained name without resolving the conflicting Systems AB wording elsewhere on its website. ([polarium.com](https://polarium.com/contact/))
262. Our Battery-Based Energy Storage projects and achievements | TotalEnergies.com
    - Company verification: TotalEnergies identifies Saft Groupe, abbreviated Saft, as its subsidiary and describes its continuing battery-storage business. This establishes ownership context, not telecom-specific commercialization. ([totalenergies.com](https://totalenergies.com/features/our-battery-based-energy-storage-projects-and-achievements))

263. acmenetwork.net

· Company verification: The site's specific company-history page identifies the market-facing business as ACME Network Services Group and describes a 2021 rebranding from its earlier identity. The protected acmenetwork.net row is retained rather than creating another representation. ([acmenetwork.net](https://acmenetwork.net/about))

· Company verification: The company describes telecom infrastructure and managed-services operations in Kenya, Ethiopia, Madagascar, and Saudi Arabia; this page does not establish a current battery-equipment sale. ([acmenetwork.net](https://acmenetwork.net/about))

264. About Us - Green Cubes Technology

· Company verification: Green Cubes' corporate history records its acquisition of stationary-power company Unipower in 2020, strengthening the historical business relationship behind its captured telecom portfolio. ([greencubes.com](https://greencubes.com/about-us/))

265. ABB Completes Power Conversion Division Sale | OmniOn Power

· Company verification: The July xx.xx 2023 announcement establishes completion of AcBel Polytech Inc.'s acquisition of ABB's Power Conversion division and identifies the acquired business's U.S. telecom-infrastructure role. ([omnionpower.com](https://www.omnionpower.com/about/news/press-releases/abb-completes-sale-of-power-conversion-division-to-acbel))

266. Press Release: Introducing OmniOn Power | OmniOn Power

· Company verification: The October xx.xx 2023 announcement connects the acquired former ABB Power Conversion division to its OmniOn Power identity. Only the rebranding and acquisition relationship are used, not the accompanying market-research report. ([omnionpower.com](https://www.omnionpower.com/about/news/press-releases/introducing-omnion-power-decades-of-industry-leading-power-conversion-product-with-a-new-name))

267. Sustainability | Celltech Group

· Company verification: Celltech's specific corporate sustainability page explicitly identifies Addtech as its parent company and Addtech AB as its owner. This establishes group attribution, not telecom sales by individual subsidiaries. ([celltech-group.com](https://celltech-group.com/sustainable-batteries/))

268. About - HORIEN - Salt Battery Solutions

· Company verification: HORIEN's specific company page describes HORIEN Salt Battery Solutions as formerly FZSoNick and part of HORIEN; its commercial footer identifies SoNick S.p.A. This supports branding and group continuity without establishing ultimate ownership or common ownership with FIAMM Energy Technology. ([saltbattery.horien.com](https://saltbattery.horien.com/about/))

269. Discover Battery at CONEXPO - CON/AGG 2026

· Company verification: Discover Battery's March xx.xx 2026 publication identifies it as a SOLV4EX Group company and includes telecom systems and backup power among its battery applications. It does not establish current availability of every legacy AES product. ([blog.discoverbattery.com](https://blog.discoverbattery.com/discover-battery-future-of-construction-conexpo))

25. Key Experts

[redacted]

Organizations including Amara Raja Energy & Mobility, EnerSys, MTN Group, stc Group, industry associations, and universities connect the roster to both supply and buyer contexts across Africa, the Middle East, Asia-Pacific, Europe, and the Americas. These professional identities contextualize the expertise represented without implying uniform views or market-wide representation.

Table 786. Global Telecom Battery Backup System Market, Key Experts

Name	Professional Role	Organization	Country
Abdulla Jehad	Chief Network Officer	Batelco	Bahrain
Ahmad Al-Neama	Group Chief Technology and Information Officer	Ooredoo Group	Qatar
Ahmet Turan Özdemir	General Manager	ASPİLSAN Enerji	Turkey
Akhil Gupta	Vice Chairman	Bharti Enterprises	India
Alaa Malki	Chief Technology Officer	Mobily	Saudi Arabia
Alex Eller	Research Director, Energy Storage	Guidehouse Insights	United States
Alex Holland	Research Director	IDTechEx	United Kingdom
Alex Kovarsky	Chief Technology Officer	Phinergy	Israel
Alison Gillwald	Executive Director	Research ICT Africa	South Africa
Andy Bush	Managing Director	International Lead Association	United Kingdom
Angela Wamola	Head of Sub-Saharan Africa	GSMA	Kenya
Ankit Jain	Vice President and Sector Head, Corporate Ratings	ICRA	India
Anton du Plessis	Co-founder	Freedom Won	South Africa
Anuj Sethi	Senior Director	CRISIL Ratings	India
Arthur Goldstuck	Managing Director	World Wide Worx	South Africa
Ashraf Yehia	Managing Director, Middle East	Eaton	United Arab Emirates
Avik Kumar Roy	Managing Director and Chief Executive Officer	Exide Industries	India
Beverley Ngwenya	Technology Director	Vodacom South Africa	South Africa
Brian Neilson	Chief Executive Officer	BMIT	South Africa
Bruce Cole	Senior Vice President, Industrial Division	East Penn Manufacturing	United States

Table 786 - continued

Name	Professional Role	Organization	Country
Chris Yelland	Managing Director	EE Business Intelligence	South Africa
Christophe Pillot	Director	AVICENNE Energy	France
Claude Chanson	General Manager	RECHARGE	Belgium
Daniel Zywietz	Founder and Chief Executive Officer	Enerwhere	United Arab Emirates
David M. Shaffer	Former President and Chief Executive Officer	EnerSys	United States
David Mayer	Chief Executive Officer	Phinergy	Israel
Debi Prasad Dash	Executive Director	India Energy Storage Alliance	India
Dejan Kastelic	Group Chief Technology Officer	Vodacom Group	South Africa
Dobek Pater	Director and Telecommunications Analyst	Africa Analysis	South Africa
Doron Aurbach	Professor of Chemistry and Head of the Electrochemistry Group	Bar-Ilan University	Israel
Earl Lum	President and Founder	EJL Wireless Research	United States
Eduardo Tude	President	Teleco	Brazil
Emanuel Kolta	Lead Analyst, Network Sustainability and Innovation	GSMA Intelligence	United Kingdom
Felix von Bormann	Co-founder and Director	REVOV	South Africa
Filippo Marbach	Co-founder and Chief Technology Officer	Centiel	Switzerland
Gbenga Adebayo	Chairman	Association of Licensed Telecommunications Operators of Nigeria	Nigeria
George Bem	Technology and Innovation Director	UCB Power	Brazil
Gert Meylemans	General Manager	EUROBAT	Belgium
Haithem Alfaraj	Group Chief Technology Officer	stc Group	Saudi Arabia
Harshavardhana Gourineni	Executive Director, Automotive & Industrial Batteries	Amara Raja Energy & Mobility	India
Hervé Amossé	Executive Vice President	Saft	France
Isidor Buchmann	Founder	Cadex Electronics	Canada
James Greenberger	Executive Director	NAATBatt International	United States
James Verster	Chief Executive Officer	BlueNova Energy	South Africa
Jerry Barker	Founder and Chief Technology Officer	Faradion	United Kingdom

Table 786 - continued

Name	Professional Role	Organization	Country
Jim McDowall	Former Business Development Manager, Industrial Batteries	Saft	United States
John Omo	Secretary General	African Telecommunications Union	Kenya
Khalid Murshed	Chief Technology and Information Officer	e& UAE	United Arab Emirates
Kieron Osmotherly	Founder	TowerXchange	United Kingdom
Lance Dickerson	Co-founder and Managing Director	REVOV	South Africa
Laurent Longuet	Chief Executive Officer	SirajPower	United Arab Emirates
Liu Jianhua	President	EVE Energy	China
Liu Jincheng	Founder and Chairman	EVE Energy	China
Manoj Kumar Singh	Director General	Digital Infrastructure Providers Association	India
Manoj Kumar Upadhyay	Founder and Chairman	ACME Group	India
Marc Zoellner	Managing Partner	HOPPECKE	Germany
Marcelo Rodrigues	Vice President	UCB Power	Brazil
Marco Di Costanzo	Chief Technology and Information Officer	TIM Brasil	Brazil
Mark Matthews	President, Energy Systems	EnerSys	United States
Markus Vlasits	President	Associação Brasileira de Soluções de Armazenamento de Energia	Brazil
Mazen Mroué	Group Chief Technology and Information Officer	MTN Group	South Africa
Michael Lippert	Director of Innovations and Solutions	Saft	France
Michele Gamberini	Chief Technology and Information Officer	MTN South Africa	South Africa
Miguel Fernández	Chief Technology Officer	Telecom Argentina	Argentina
Mike Elms	Managing Director	Centiel UK Ltd	United Kingdom
Mike Judd	President and Chief Executive Officer	Stryten Energy	United States
Mohamad Darwish	Co-founder and Chief Executive Officer, IHS Nigeria	IHS Towers	Nigeria
Mohammed Alhakbani	Chief Executive Officer	TAWAL	Saudi Arabia

Table 786 - continued

Name	Professional Role	Organization	Country
Morten Schøyen	Chief Marketing Officer	Eltek	Norway
Munawar Misbah Moin	Group Director	Rahimafrooz	Bangladesh
Márcio Takata	Founder and Director	Greener	Brazil
Niranjan Nayak	Managing Director	Delta Electronics India	India
Patrick Halley	President and Chief Executive Officer	Wireless Infrastructure Association	United States
Paul Colmer	Executive Management Committee Member	Wireless Access Providers' Association	South Africa
Paulo Sales	Chairman of the Board	Grupo Moura	Brazil
Peter DeMar	Co-Founder	Battery Research and Testing	United States
Peter Panfil	Vice President, Global Power	Vertiv	United States
Peter Stevenson	Senior Technical Coordinator	GS Yuasa Battery Sales UK Ltd	United Kingdom
Pierre Blanc	Chief Executive Officer	Leclanché	Switzerland
Rafael Garrido	Vice President, Latin America	Vertiv	Brazil
Rami Reshef	Co-Founder and Chief Executive Officer	GenCell	Israel
Ramy Boctor	Chief Technology Officer	Vodafone Qatar	Qatar
Ricardo Rüther	Professor and Coordinator, Fotovoltaica/UFSC	Universidade Federal de Santa Catarina	Brazil
Robert Eyben	Chief Executive Officer	CE+T Power	Belgium
Rodrigo Ramírez Pino	President	Cámara Chilena de Infraestructura Digital	Chile
Roger Miksad	President and Executive Director	Battery Council International	United States
Ronaldo Gerdes	Chief Executive Officer	UCB Power	Brazil
S. Vijayanand	President, New Energy Business	Amara Raja Energy & Mobility	India
Saleem AlBlooshi	Chief Technology Officer	du	United Arab Emirates
Sam Jaffe	Vice President, Battery Solutions	E Source	United States
Scott Armul	Executive Vice President, Global Portfolio and Business Units	Vertiv	United States
Scott Childers	Vice President, Essential Power	Stryten Energy	United States
Sebastián Cabello	Chief Executive Officer	SmC+	Argentina
Simon Hackett	Former System Integration Architect	Redflow	Australia

Table 786 - continued

Name	Professional Role	Organization	Country
Stefan Jansson	Founder	Polarium	Sweden
Steve Binks	Regulatory Affairs Director	International Lead Association	United Kingdom
Subir Chakraborty	Former Managing Director and Chief Executive Officer	Exide Industries	India
Susan Bernard	Director of Regulatory and Technical Affairs	Battery Council International	United States
Sushil Kumar Chaturvedi	Group Chief Executive Officer	Ascend Telecom Infrastructure	India
Svetoslav Stankov	Founder and Chief Executive Officer	Solar MD	South Africa
Tassos Peppas	Regional Director, Middle East, Turkey and Central Asia	Vertiv	United Arab Emirates
Tejinder Kalra	Chief Operating Officer	Indus Towers	India
Thomas Bawart	Technical Managing Director	Banner Batterien	Austria
Tilak Raj Dua	Former Director General	Digital Infrastructure Providers Association	India
Tim Harris	Former Chief Executive Officer	Redflow	Australia
Yahaya Ibrahim	Chief Technical Officer	MTN Nigeria	Nigeria
Yair Ein-Eli	Professor of Materials Science and Engineering	Technion - Israel Institute of Technology	Israel
Yayoi Sekine	Head of Energy Storage	BloombergNEF	United States
Yossi Finkelshtain	Co-Founder and Chief Technology Officer	GenCell	Israel

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