Batteries & Energy Storage

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IEA Technology Definition

The IEA classifies battery energy storage systems (BESS) and other storage technologies as critical enablers of clean energy transitions. Grid-scale batteries store electricity for later dispatch, providing flexibility, frequency regulation, and peak shaving. The category also includes pumped hydro, compressed air, and emerging long-duration storage technologies such as flow batteries and thermal storage.

Technology Readiness & Deployment

Battery storage is the fastest-growing power technology today. Global deployment reached 108 GW of new battery storage capacity in 2025, up 40% from 2024. Lithium-iron phosphate (LFP) chemistry accounts for approximately 90% of grid-scale deployments. The IEA considers battery storage on track for net zero targets, though long-duration storage (beyond 4-8 hours) remains at early commercial or demonstration stage and needs accelerated deployment.

Key Metrics & Benchmarks

Lithium-ion battery pack costs have fallen below USD 140/kWh on average and continue to decline. Grid-scale BESS typically provides 2-4 hours of storage, with costs around USD 150-250/kWh installed. Battery manufacturing capacity is concentrated in China (over 75% of global cell production). LFP dominates stationary storage while NMC and emerging sodium-ion chemistries compete for different applications.

LATAM Relevance

Battery storage deployment in Latin America is accelerating, driven by the need to integrate growing solar and wind capacity. Chile has commissioned several utility-scale BESS projects to manage grid congestion in the north. Brazil's auction frameworks are beginning to include storage. Argentina and Chile's lithium reserves position the region as a potential battery manufacturing hub, though current value-addition remains focused on raw material extraction.

Critical Minerals Link

Batteries are the single largest driver of critical mineral demand growth. LFP batteries require lithium and phosphate; NMC batteries additionally need nickel, cobalt, and manganese. Chile holds 26% and Argentina 6% of global lithium production. Battery recycling is emerging as a critical supply chain strategy, with cobalt and nickel recovery rates improving.

Cleantech Taxonomy Crosswalk

Maps to Cleantech Taxonomy sectors: ES (Energy Systems) — grid-scale storage, renewable integration; TR (Transport) — EV batteries and vehicle-to-grid; IN (Industry) — battery manufacturing; XS (Cross-Sectoral) — distributed storage, behind-the-meter systems.

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