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U.S. Energy Storage Market Outlook

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All data reported in GWh/GW, MWh/MW, all prices reported in U.S. Dollars (USD) unless otherwise stated.

To purchase the full report, please visit Benchmark's website here.

Introduction to the Report

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SECTION

Executive Summary

BESS market update and outlook

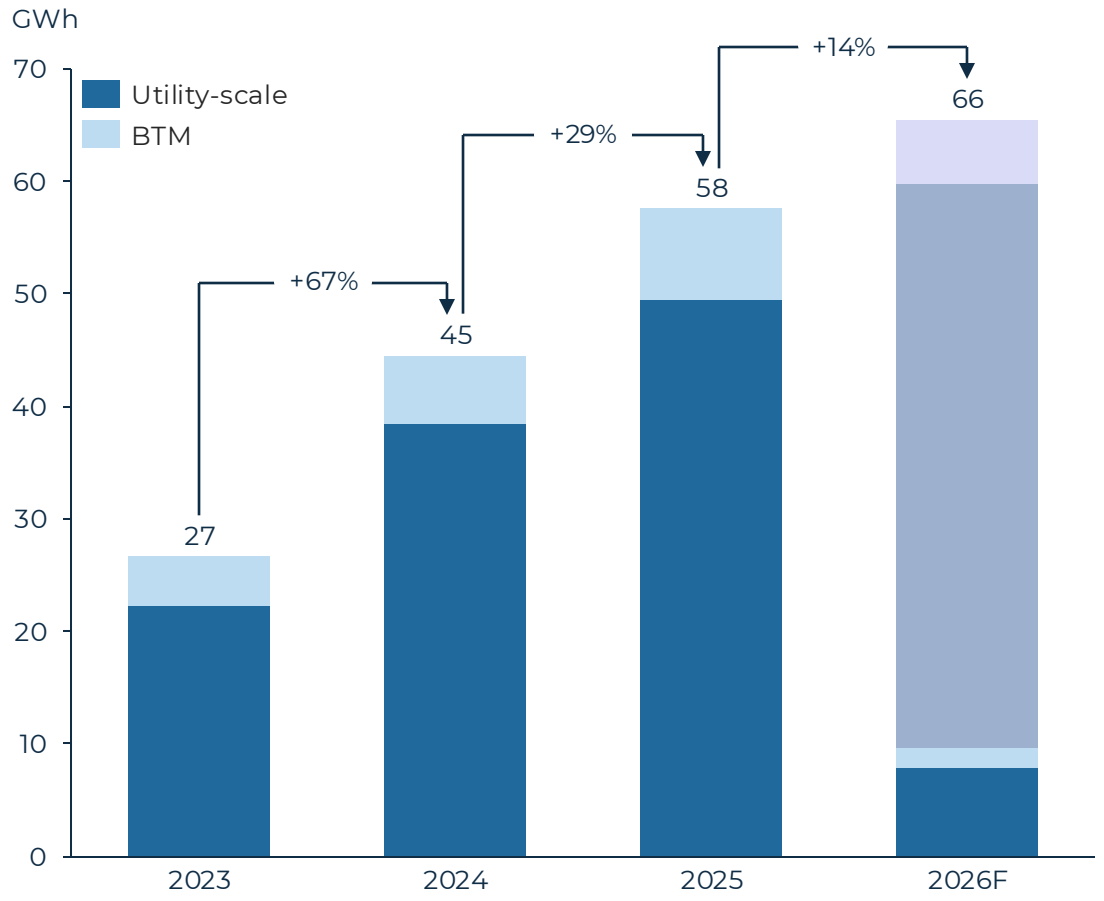
In Q1 2026, just under 10 GWh/6.77 GW of battery energy stationary storage (BESS) entered operation across the utility-scale and behind-the-meter (BTM) markets, a y-o-y increase of 32% (GWh). The utility-scale market continued to underpin growth with 7.8 GWh/1.5G W installed, with six states bringing more than 500 MWh of new capacity online across all sectors.

The tariffs applied to imported BESS cells and systems continued to evolve in the first quarter, following the Section 301 increase from 7.5% to 25% that came into force in January. The previously enforced IEEPA tariffs were ruled unlawful by the Supreme Court in early March. President Trump subsequently enacted Section 122 tariffs on all nations, which can be in place for a maximum of 150 days (~July 2026).

In March, the US Trade Representative (USTR) announced two new Section 301 investigations targeting 60 different US trading partners. Imports from these trading partners comprised more than 99% of US imports in 2025. Additionally, the AD/CVD case on anode active materials was dismissed.

The full Energy Storage Market Outlook report covers analysis of state VPP programs, federal policy developments, domestic manufacturing build-out, and the emergence of ultra-long-duration energy storage projects being announced for the data center industry.

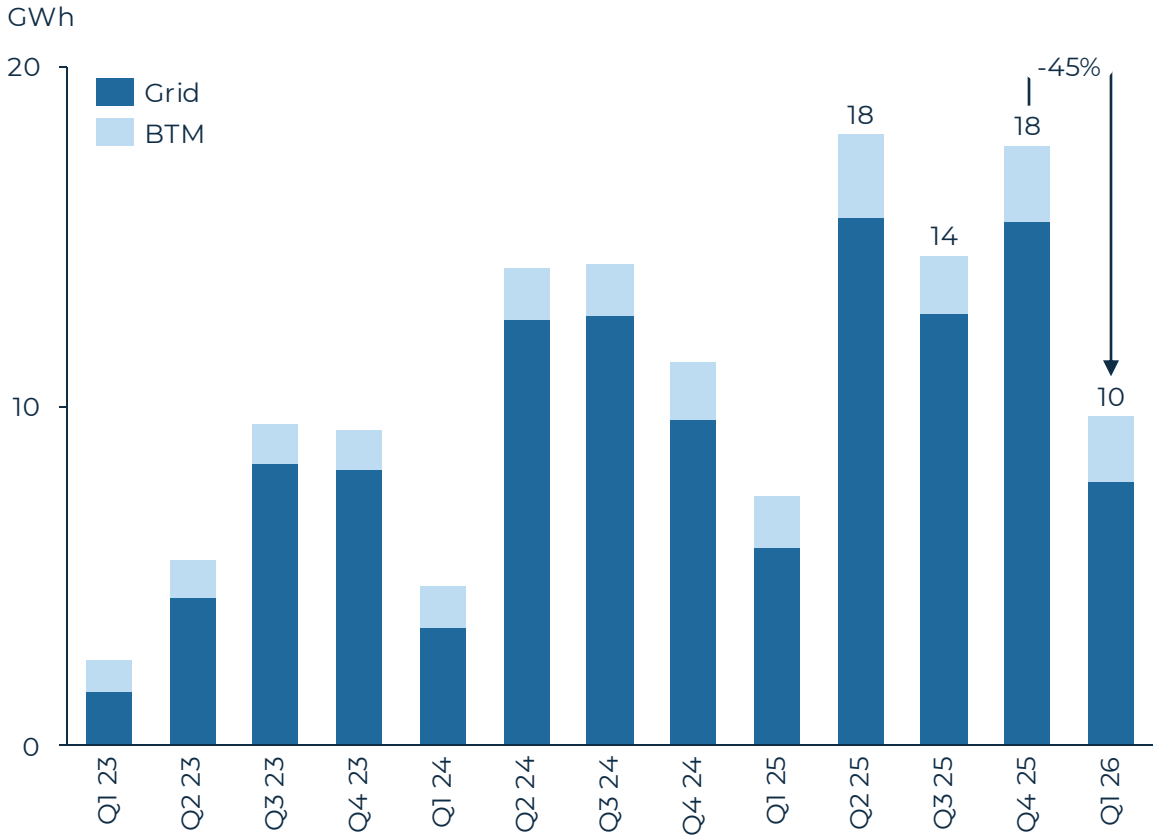
U.S. BESS annual installed capacity outlook by market segment, GWh



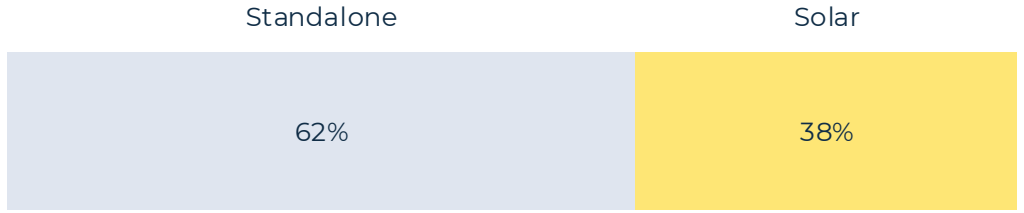
Quarterly market snapshot – Utility-scale & behind the meter

Q1 2026 saw BESS deployments of just under 10 GWh, up 32% compared to Q1 2025. The utility-scale market accounts for over 75% of deployments, as developers continue to see growing markets in capacity, energy arbitrage, and long-term contracts. As data centers and other BTM applications grow in the coming years, we expect this segment's share of the market to grow to 20% by 2030.

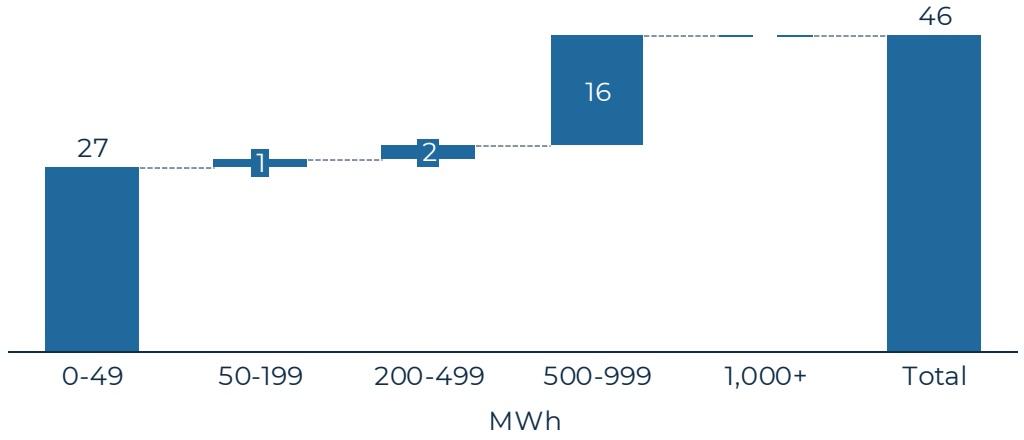
Quarterly deployments by market segment, GWh



Q1 utility-scale capacity additions by paired resource by GWh



Q1 number of utility-scale projects installed by capacity



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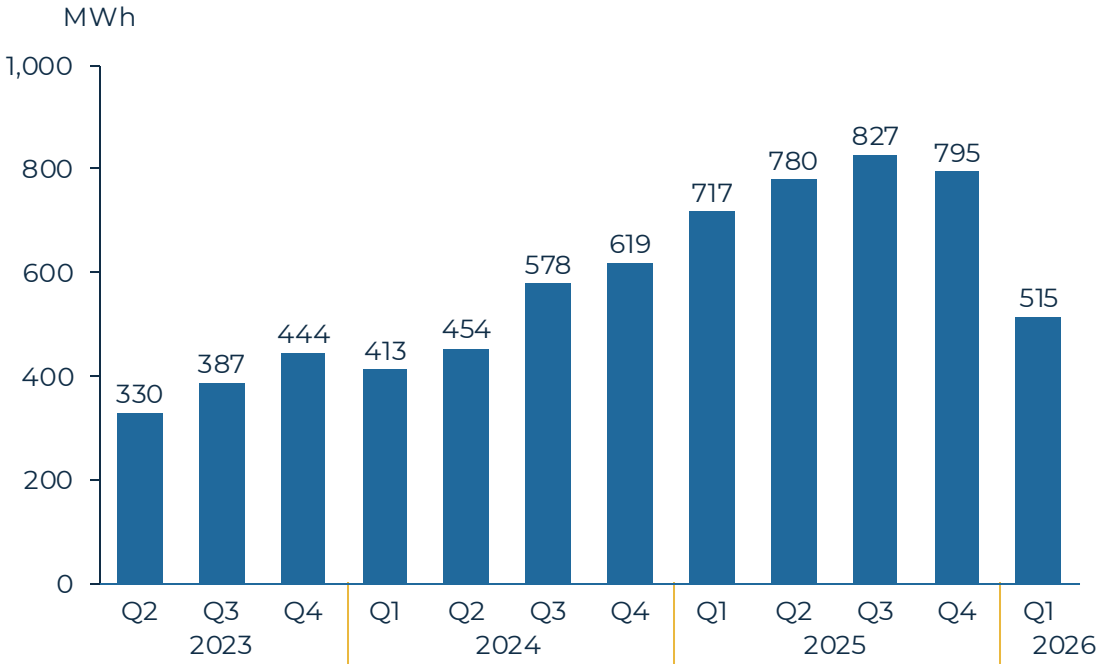
Residential BESS decreases 35% from Q4

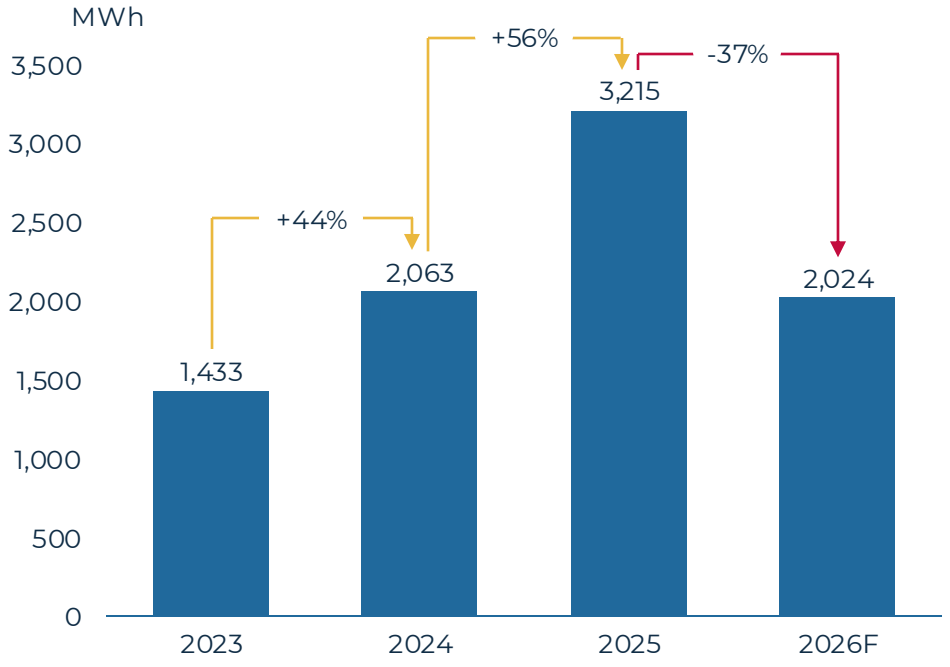
Residential BESS deployments in Q1 2026 reached 515 MWh across the U.S., representing a 28% decrease compared to Q1 2025. This initial contraction will likely continue as the market adjusts to the end of the 25D tax credit. Some projects originally slated for Q1 2026 are likely to have been pulled forward into Q4 2025 to take advantage of the expiring tax credit.

Given the ongoing energy shock across international markets, electricity prices are once again rising, which gives reason to improve the outlook for residential batteries due to improved economics. Tax credit and incentive scheme removals often exhibit sharp but temporary downward impacts on deployments. Looking ahead, we expect continued recovery out to 2030 in the residential storage market.

Quarterly residential BESS deployments, U.S.



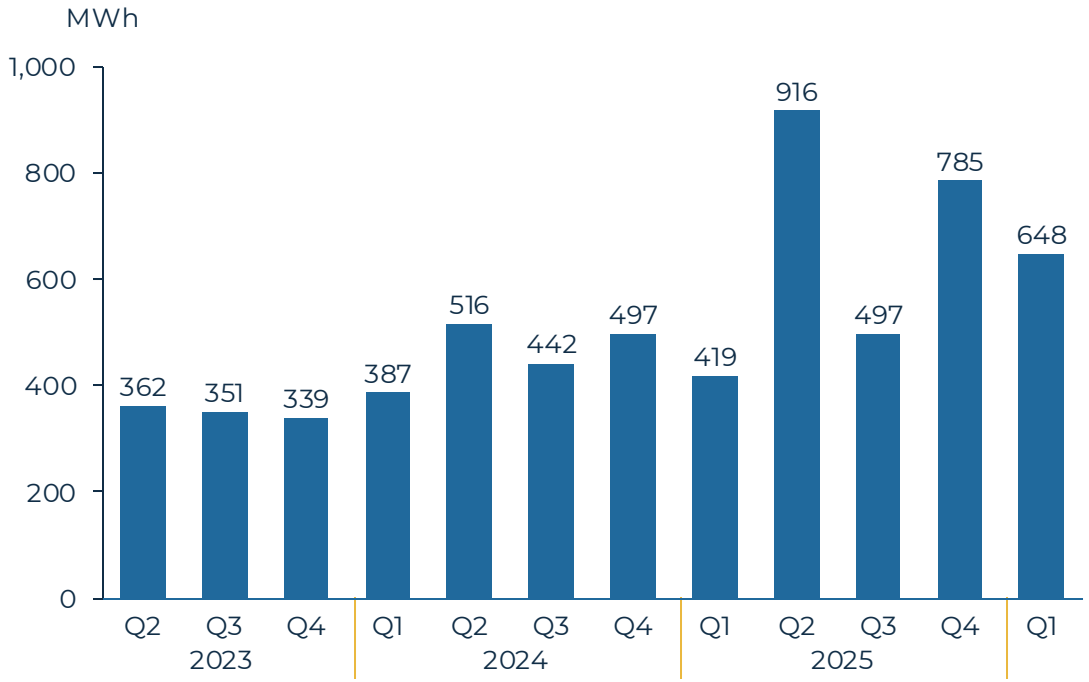
Annual Residential BESS installations, 2023-2026F



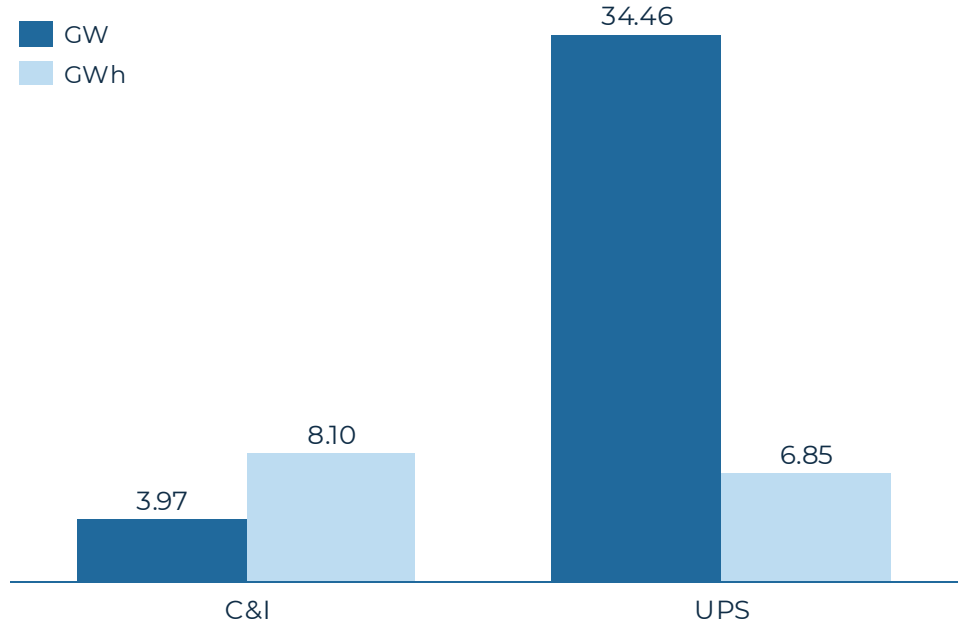
C&I to be driven by data centers

Data center growth in the U.S. is leading to a variety of energy storage approaches from facility developers. In addition to the previously-seen LFP BESS deployments for peak shaving use, Google and Meta are deploying ultra-long-duration energy storage (LDES) to secure 24/7 carbon-free power for their data centers. Google announced plans to install a 30 GWh iron-air system in partnership with Form Energy in Minnesota, while Meta has reserved up to 100 GWh of capacity using Noon Energy's reversible solid oxide fuel cell technology. These systems provide 100+ hours of discharge, enabling these facilities to maintain critical uptime during multiday renewable energy lulls. Other data centers will continue to opt for a multi-stage battery approach, with lithium-ion systems in use for peak shaving outside the facility, and high-power UPS systems within the data center manage load swings.

Quarterly C&I BESS deployments, U.S.



BTM BESS installations – C&I and UPS applications, 2024-2026F



BESS manufacturing & technology trends

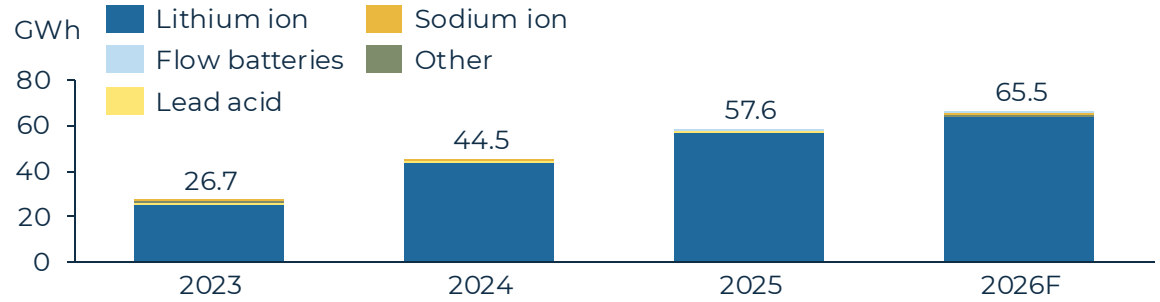
Manufacturing updates

This quarter's manufacturing spotlight focuses on Ford's announcement to pivot to energy storage through its new subsidiary: Ford Energy. The new company, which will make use of Ford's existing manufacturing facilities, aims to deploy 20 GWh annually, with initial deliveries starting in 2027.

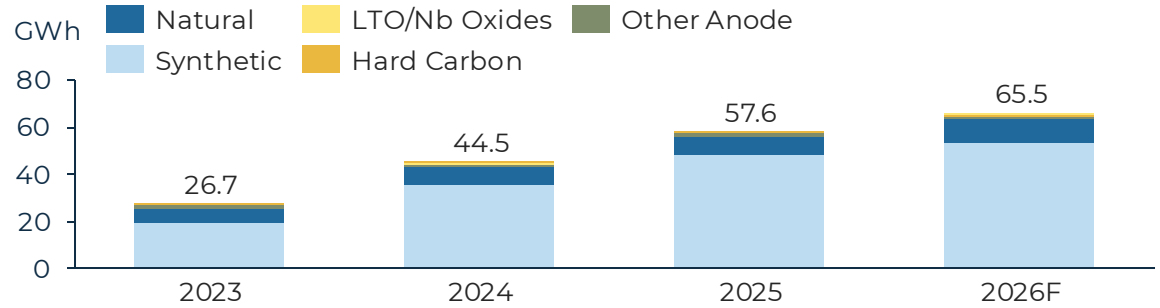
In April, Chinese cell major Envision AESC announced the sale of a controlling stake in its nameplate 10 GWh LFP factory to Fixx Energy, an American company. Production at the facility had been on hold whilst Envision AESC sought a resolution to difficulties arising from the PFE rules restricting tax credits. Envision will continue to serve as technology partner at the site.

Ultium Cells announced a $70 million investment to retool its Spring Hill, Tennessee facility to produce lithium-iron phosphate battery cells for energy storage systems. The company operates as a joint venture between General Motors and LG Energy Solution. Production is scheduled to begin in the second quarter of 2026, and the completed cells will be supplied to LG Energy Solution-Vertech for use in grid-scale and artificial intelligence data center applications.

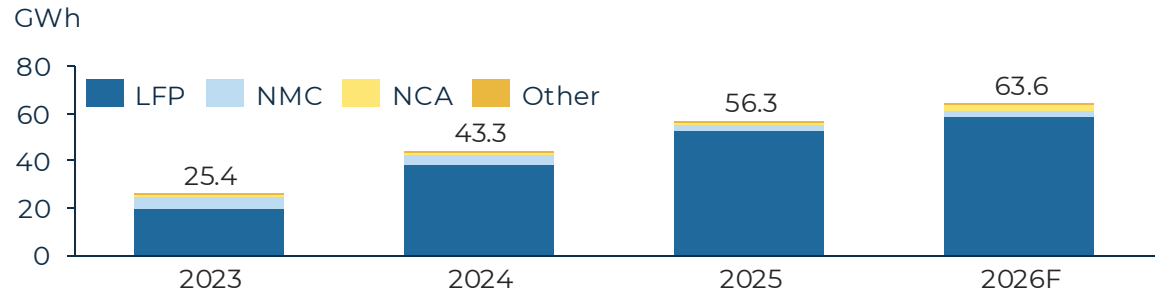
BESS outlook by battery type



Annual installed capacity BESS by anode

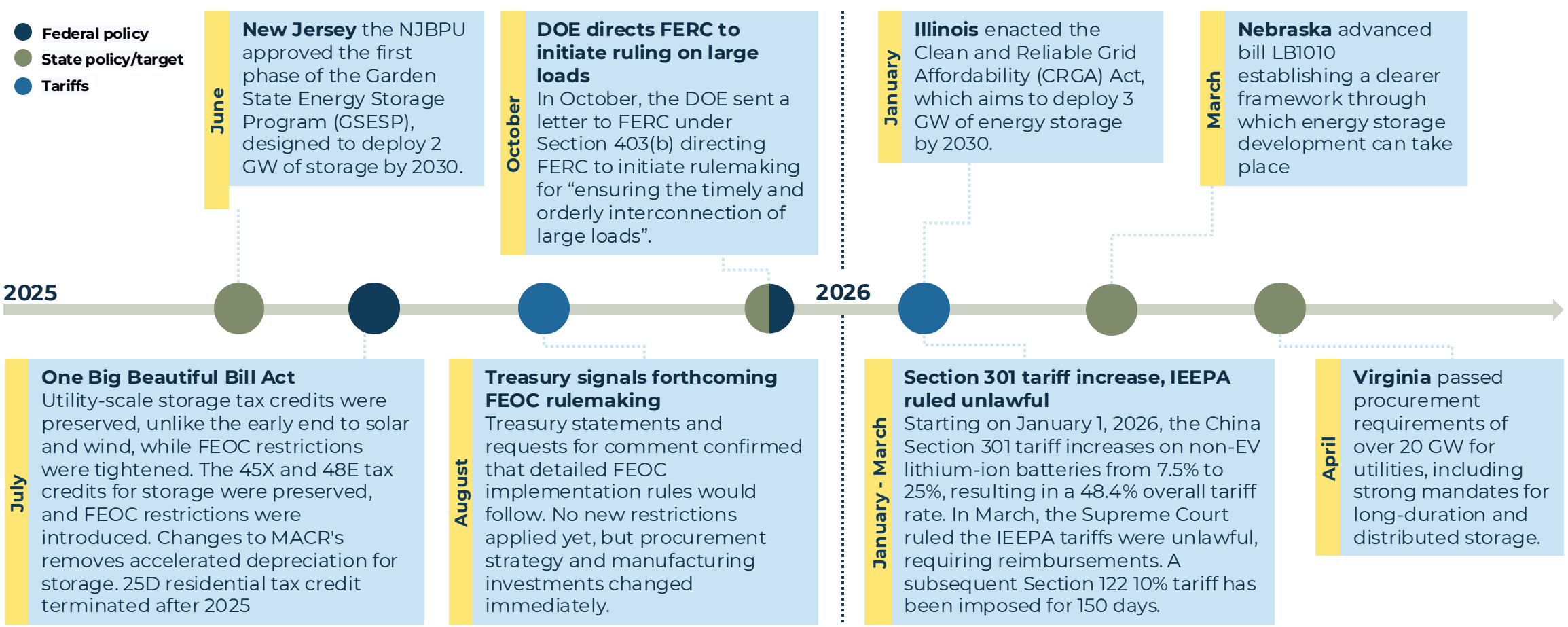


Li-ion BESS outlook by cathode type



Key policy updates

The U.S. policy landscape for BESS over the last 12 months has been a balancing act between domestic manufacturing ambitions, immediate grid needs and energy security. Though final guidance regarding the precise methodology for Material Assistance Cost Ratio (MACR) calculations has been a gradual process, we have seen a plethora of announcements from states to codify the importance of energy storage by announcing targets and incentive structures. Given the expected load growth across U.S. grids being driven by industries such as AI, we expect more of these announcements in future.



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Key terms & glossary

Energy:
BESS - Battery Energy Stationary Storage
RES - Renewable Energy Source
VRE - Variable Renewable Energy
DSR - Demand Side Response
DSM - Demand Side Management
LCOE – The Levelized Cost of Energy/Electricity
BTM – Behind the meter

Battery:
LTO - Lithium–Titanate
LFP - Lithium Iron Phosphate
LMNO – Lithium Manganese Nickel Oxide
LMO - Lithium Manganese Oxide
NMC/NCM - Lithium Nickel Manganese Cobalt Oxide
NCA - Lithium Nickel Cobalt Aluminum Oxide
LCO - Lithium Cobalt Oxide
VRFB - Vanadium Redox Flow Battery
Na-ion – Sodium ion

Other Storage types:
CAESS - Compressed Air Energy Storage System
FESS - Flywheel Energy Storage System
PHSS - Pumped Hydro Storage System
TESS - Thermal Energy Storage System

General:
RHS – Right hand side
LHS – Left hand side
YTD – Year-to-date
y-o-y – Year-over-Year

Terminology:
Rated Power Capacity [GW/MW] - how much power can flow in/out a battery at a given time

Energy Storage Capacity [GWh/MWh] - how much energy can be stored

Storage Duration [hour] - amount of time storage can discharge at its power capacity before depleting its energy capacity

Round-trip efficiency [%] - the quantity of electricity which can be recovered as a percentage of the electricity used to charge and discharge the device.

Notes on battery chemistry classifications:
The chemistry classifications used in this report are designed to provide representative coverage of the total market, while still being broad enough to facilitate a useful comparative analysis between categories.

It should be noted that within categories there is significant variation in the actual chemistry and material mix. In addition, different chemistry cathodes are often blended in order to achieve certain performance or cost parameters for a given projects.

The classifications used in this report are below, along with subcategories included in each broader grouping. These groupings are open to review as new chemistries become more dominant.

Cathode:
LFP, LMO, NCA, NMC111, NMC523, NMC622 (includes NMC613, NMC712), NMC811 (includes NMCA), Other (includes Lithium Sulphur, Metal Air and other early stage technologies)

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Key terms & glossary

Energy storage: The capture of energy produced at one time for use at a later time. Storage involves the conversion of energy from a form that is difficult to store to a form that is more convenient or economical to store for a longer period of time. Storage technologies can be the following:

Electro chemical	**Batteries**	Rechargeable batteries range in size from button cells to MW grid-scale, and store energy in an electrochemical cell. Battery chemistries include lithium-ion, lead acid, sodium based and nickel based. Flow batteries operate by passing a solution over a membrane where ions exchange to charge or discharge the cell.
Mechanical	**Hydropower**	The oldest form of energy storage, it currently accounts for over 90% of the global energy storage capacity. Stores energy by using off-peak electricity to pump water from a lower reservoir to an upper reservoir, and recovers energy at peak times by turbine generation when the water flows back to the lower reservoir.
	Flywheel	Stores energy in the form of rotational kinetic by accelerating a rotor/flywheel to a very high speed, added energy increases the speed, extracted energy decreases the speed.
	Compressed Air	Stores energy in an underground structure or an above-ground system, by running an electric motor to compress air at times of low demand and then releasing it through a turbine to generate energy at times of high-energy demand.
Thermal	**Sensible heat**	The temporary storage of energy in the form of heat, utilizing the sensible heat of a material, materials can be stored in contained aquifers, geological features like bedrock or old mines with the heat or cold from the material used months to years later.
	Latent heat	Latent heat storage works by the transfer of heat to or from a material to change its phase, e.g. a steam accumulator utilizing the phase change of water from liquid to gas.
Chemical	**Hydrogen**	Stored hydrogen is a form of energy, it can be used to produce electricity via a hydrogen fuel cell through the process of electrolysis. Hydrogen can either be produced in situ or produced elsewhere and delivered.
Other	**Other**	There are many other technologies in use, being explored and developed, including capacitors. chemical storage, superconducting magnets, solid mass-gravitational storage, cryogenic thermal and biological storage

Key terms & glossary

Utility-scale and BTM ESS

- Energy Stationary Storage (ESS) applications can be split into two broad categories, with the BTM market further classified into two broad markets:
- Utility-Scale, storage connected to distribution or transmission networks, or in connection with electricity generation.
- Front-of-the-meter distribution connected (Middle Market), systems 1-20 MW (2-4 MWhs) connected to the distribution grid used for peak shaving, renewable integration, avoided distribution grid upgrades, and grid support.
- Behind the meter (BTM), storage interconnected behind the utility meter of commercial, industrial or residential customers, primarily aiming at electricity bill savings, and energy resiliency.