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Greenwheel Insights

Simply the BESSt? A bright future for battery energy storage

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Executive Summary

- **Battery energy storage systems (BESS) are uniquely capable** in delivering crucial services to electricity systems increasingly supplied by intermittent renewables.

- **Annual installations nearly doubled each year** on average for at least the last five years, **while costs have collapsed** with one of the fastest cost declines of any energy technology, ever.

- Demand has centred in China, Europe and the USA **driven by policy support, growing renewable generation, market incentives and declining costs**.

- **A key driver has been** the need for and returns from **'energy arbitrage'** – smoothing electricity supply between periods with mismatched demand, **but 'revenue stacking' across different value streams is becoming increasingly important**.

- **Installation rates are projected to grow 3-5x by 2035**, **but forecasts have consistently underestimated the pace and scale of growth,** even over short time horizons.

Three structural factors are likely to drive growing BESS demand:

1. **Rapid growth in electricity demand and renewables continues to broaden the opportunity set**. Renewables and batteries produce mutually reinforcing opportunities, and due to their flexibility, modularity and rapid deployment, are key enablers in the AI race.

2. **Batteries are uniquely capable and cost-effective, with significant potential for further technology advances and cost reductions**. Battery costs are expected to halve again the coming decade, driven by economies of scale and innovation.

3. **Policy, regulation and market structures are maturing**. Around the world storage is increasingly recognised as a unique and valuable system asset, able to participate directly in electricity markets, and supported by policies ranging from mandates to revenue stability mechanisms.

Preface: The Investor Need

"Batteries are one of the fastest areas of growth for power companies, with opportunities to capture superior returns, depending on location and business model. Several companies have identified storage as a clear differentiating opportunity and are particularly well positioned to become leaders in the space."

Michel Sznajer

Portfolio Manager, Redwheel Next Generation Power Infrastructure Strategy

Why is battery storage important?

Energy storage technologies are a crucial component of electricity systems increasingly dominated by intermittent renewables. They act to smooth differences between electricity supply and demand and can deliver other functions crucial to system stability. There **are four categories of energy storage technology** (Figure 1), **of which batteries** (electrochemical) **are among the most mature**.

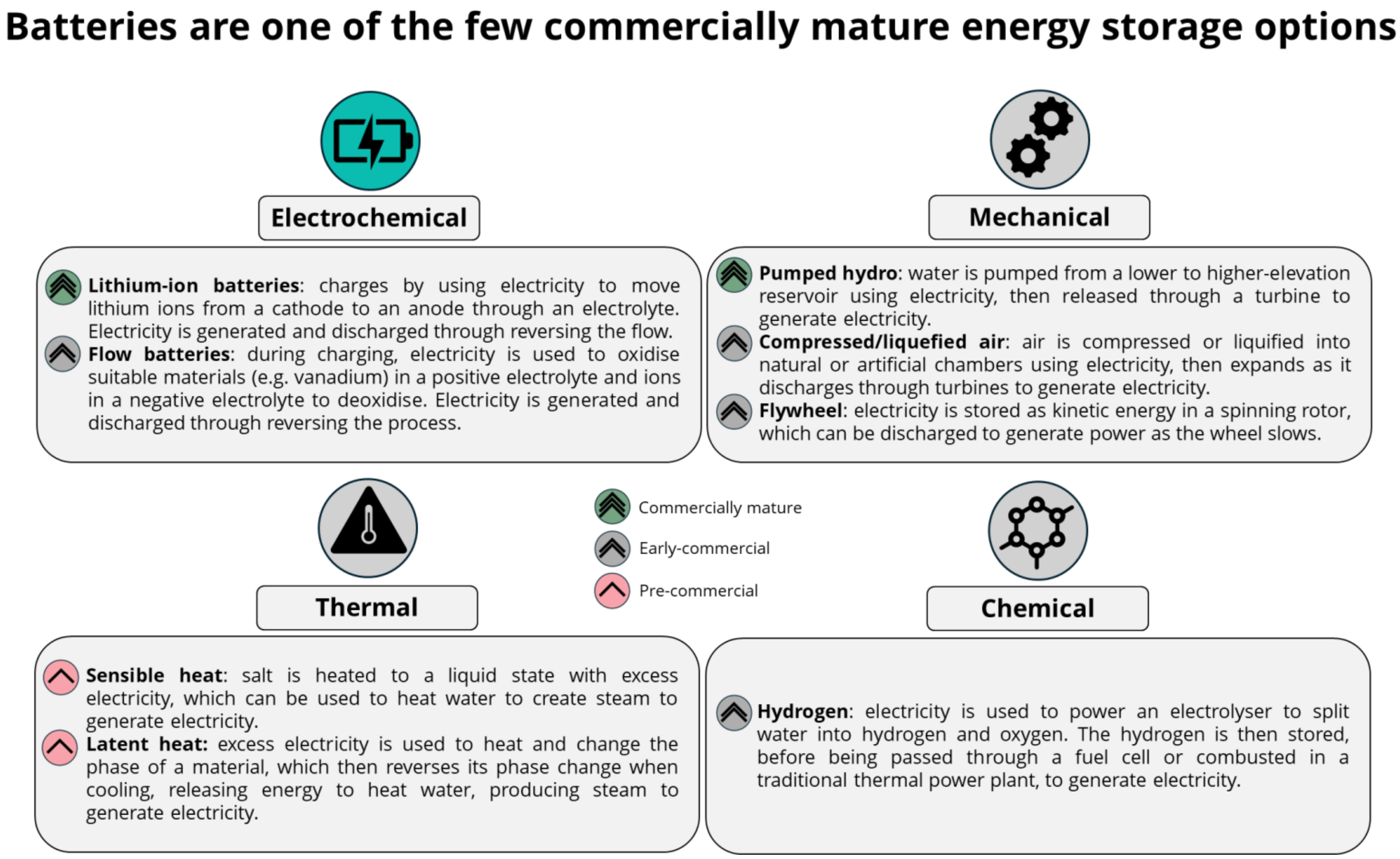


Figure 1 – Four categories of energy storage technologies and their maturity. Various sources including Gronman et al (2025). Note: Examples are not exhaustive with other electrochemical options, such as sodium-ion batteries, not described for simplicity. Graphic created by Greenwheel.

Figure 2 illustrates the different services energy storage can provide. It indicates that **battery storage (BESS) holds strong technical advantages across a wide range of services** with the current exception of long-duration supply shifting.

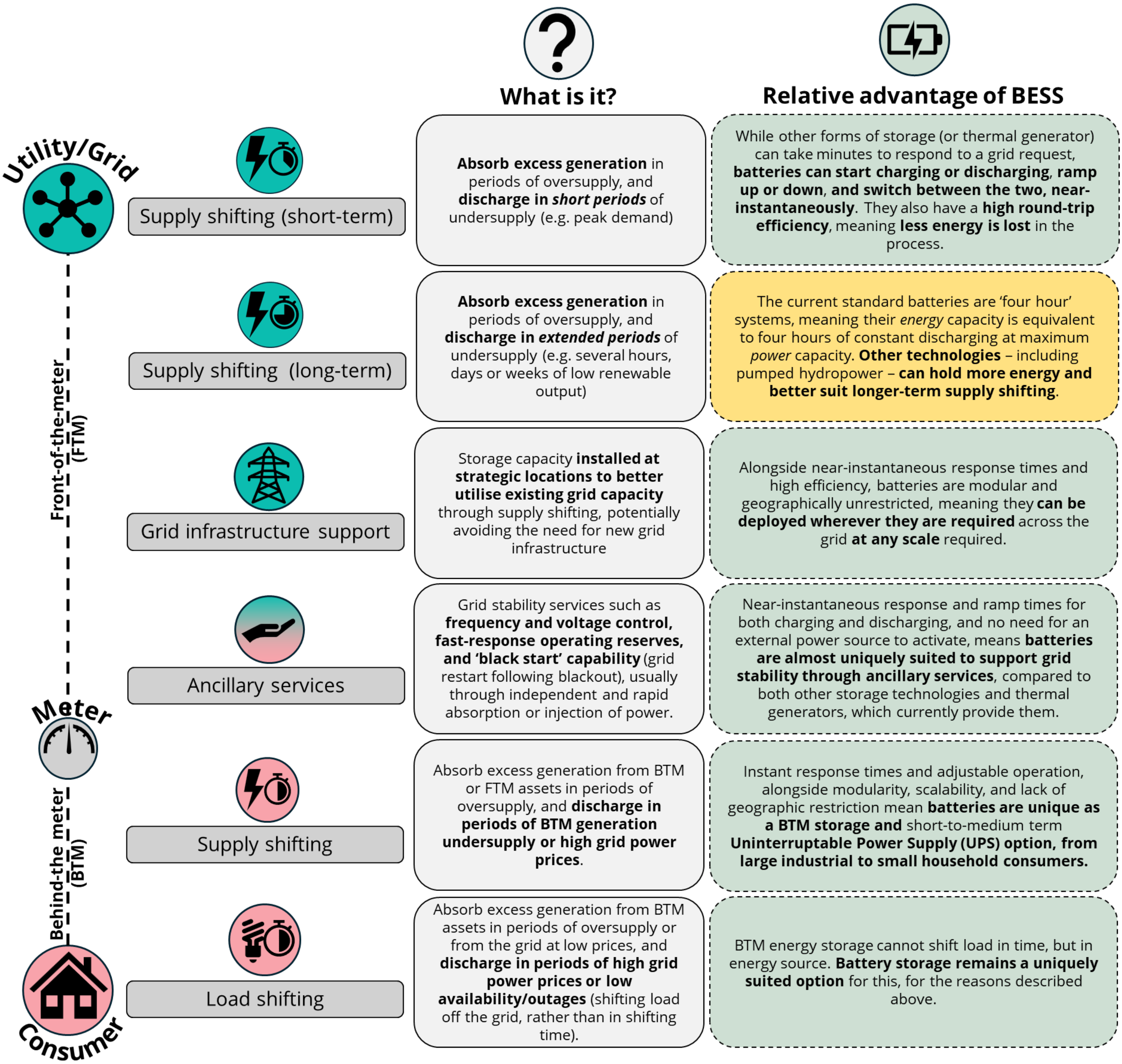


Figure 2 – Services provided by energy storage options and the relative advantage of BESS. Data sources include: IEA (2024), Brown (2025), BloombergNEF (2025a) 2H 2025 Energy Storage Market Outlook. Graphic created by Greenwheel.

Overall, **no other technology can perform as many services, so well**. Systems installed 'behind-the-meter' (BTM) at homes and businesses are also capable of providing ancillary services to the grid directly, as well indirectly supporting wider grid infrastructure and supply shifting services.

As a modular technology batteries can be deployed more rapidly and incrementally than other storage technologies and grid infrastructure, and any individual **failures or maintenance activities are less likely to induce system-wide disruption**. Unlike pumped hydropower in particular, outside of relatively extreme temperatures, **their operation is largely unaffected by climatic conditions or resource availability**, aside from the electricity used to charge.

Figure 3 illustrates the key components of a turnkey BESS system.

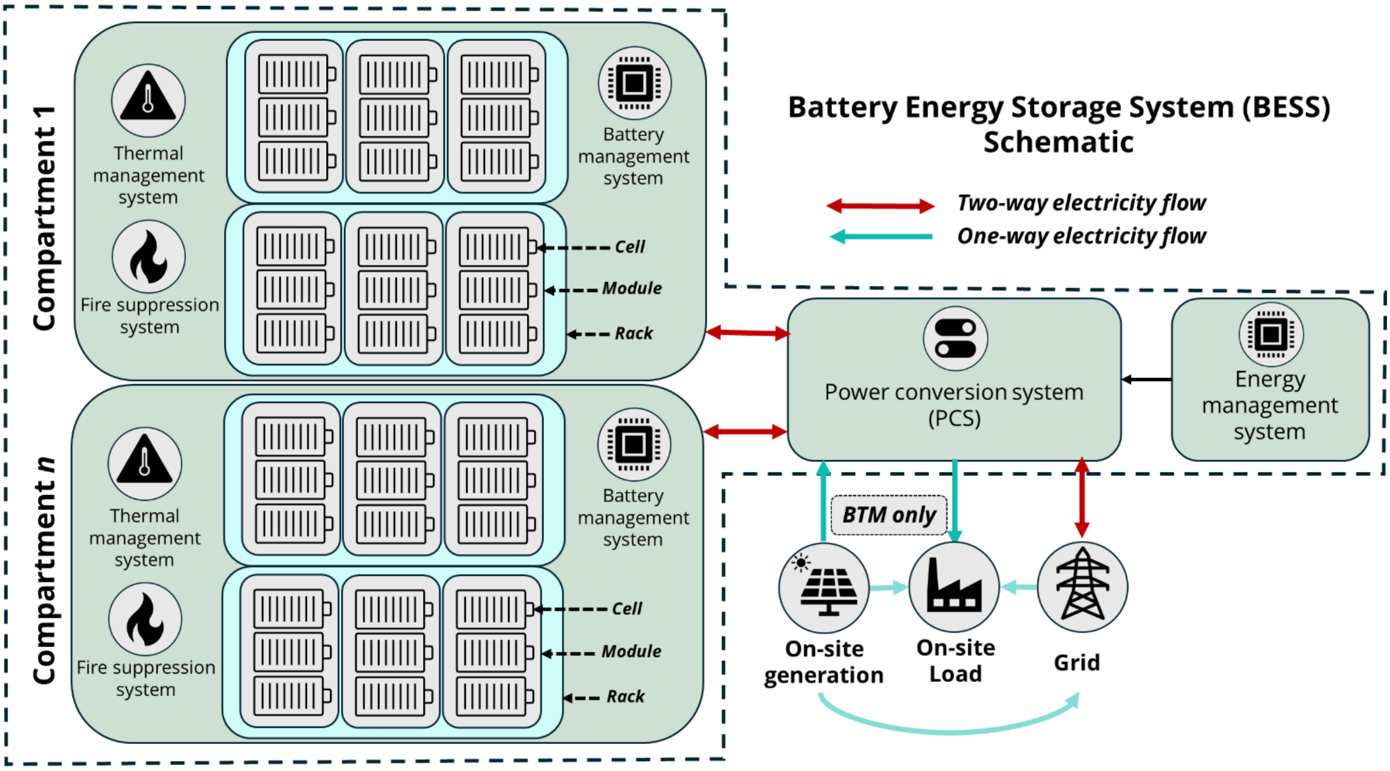


Figure 3 – Battery Energy Storage System (BESS) schematic. Graphic created by Greenwheel.

How does battery storage generate revenue?

BESS can generate returns through **four broad revenue streams** (Figure 4).

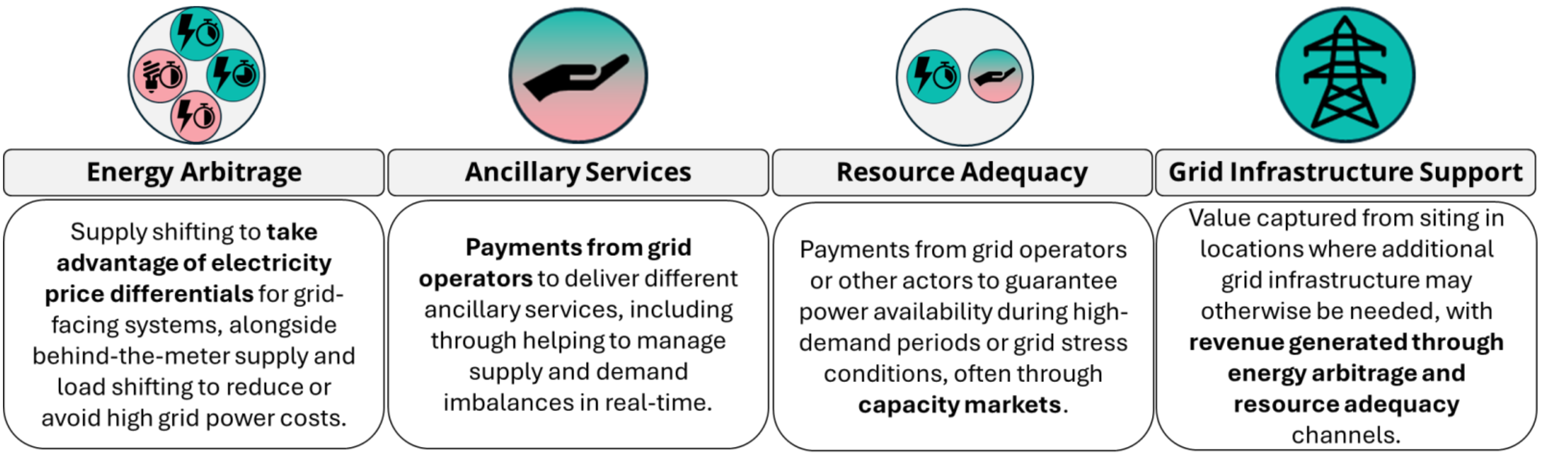


Figure 4 – Potential revenue streams for BESS systems. Graphic created by Greenwheel.

Energy arbitrage is the primary revenue stream for most new and installed capacity, with over two thirds of new capacity installed in 2024 primarily for this purpose.[v] It is an even larger driver for utility-scale projects. However, **'revenue stacking' enables projects to earn revenue across multiple streams is a key driver behind capacity growth in many markets**.

BESS can **engage with these revenue streams through 'merchant', 'contract' ('tolling'), or 'hybrid' operating models** (Figure 5). A merchant approach has a larger potential upside but with greater uncertainty but can face higher cost of capital as a result. A contract approach may attract lower financing costs with lower risk, but with greater opportunity cost. Although the balance varies significantly across markets, in 2024 **most new systems employ hybrid models** to balance these aspects.[viii]

Merchant

- Under a fully merchant model, the BESS asset **operates with complete market exposure** to available revenue streams **without any price or volume guarantees**.
- Asset owners are exposed to **greater potential upsides and downsides**, with revenues driven by electricity price volatility, spreads, and the sophistication of trading strategies.

Contract

- The asset owner **grants a 'toll offtaker' rights to operate** the battery in exchange **for fixed payments**.
- Asset owners receive **revenue certainty, but are not exposed to potential upsides**, which instead accrue to the offtaker.

Hybrid

- **Partial tolling.** Asset owners either split their physical capacity between merchant and contract approaches, or split the revenue streams.
- **Floor pricing**. Asset owner receives a guaranteed floor price, plus a share of revenues exceeding this floor (potentially up to a revenue cap).
- **Optimisation agreements**. A third-party 'optimiser' takes operational responsibility for operating the battery, under guidelines or constraints set by the asset owner, in exchange for a share of revenue. **This can include operation as part of a Virtual Power Plant (VPP)**.
- **Power Purchase Agreements (PPAs).** Either independently between BESS owners/operators and offtakers, or as part of a hybrid/'firmed' PPA with co-located or contractually-linked renewable generation.

Figure 5 – BESS revenue models. Information sources include: Van den Driessche (2025), Enspired (2025). Graphic created by Greenwheel.

How have deployment and costs developed?

BESS installations have seen rapid growth in recent years, averaging >90% annual growth over the last five years, while **installed costs plummeted by 93% over 2010-2024** (Figure 6) - **one of the fastest cost declines of any energy technology, ever.**[i] This was driven by economies of scale in systems and manufacturing, supplier competition, manufacturing and design efficiencies, shifting battery chemistries and materials prices.[v] These continuing trends mean that **2025 additions are likely to have been 50% higher than 2024, with costs dropping by at least one third again**.[ii,iii,iv]

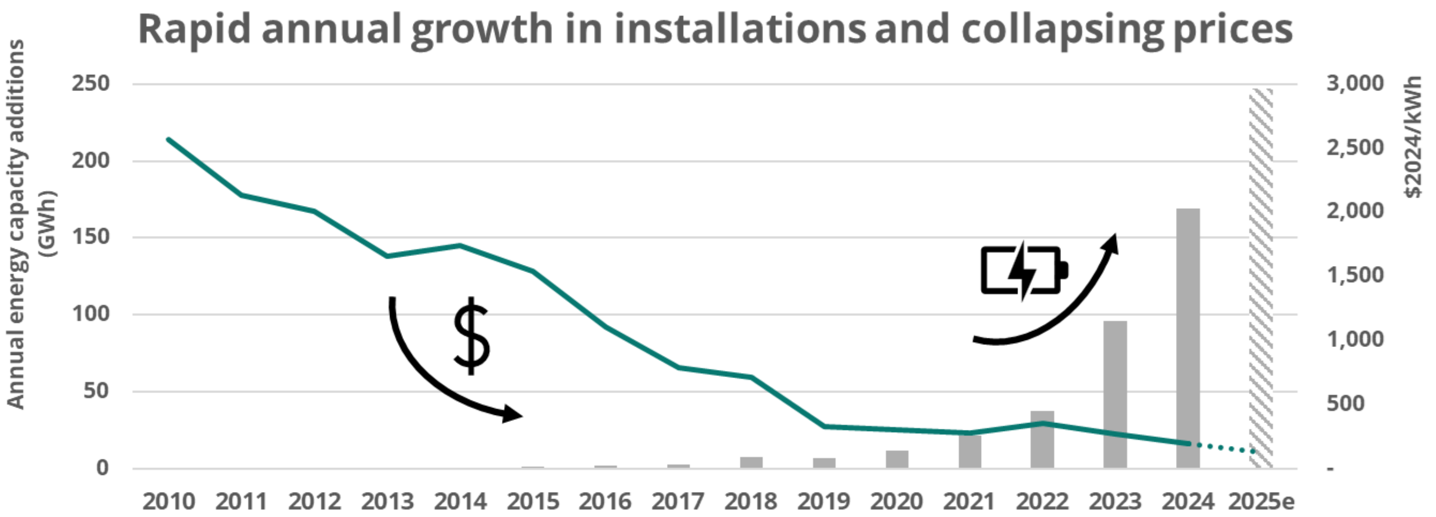


Figure 6 – Global BESS annual capacity additions and costs. Data sources: IRENA (2025); BNEF (2025a), and Ember (2025). Notes: Covers both FTM and BTM installations. 2025 estimated prices are global excluding USA & China, but global average rack prices are estimated to have reduced by 45% by BNEF (2025b). Graphic created by Greenwheel. Past performance is not a guide to future results. Forecasts and estimates are based upon subjective assumptions.

China installed half of all new BESS capacity in 2024, with the USA installing a quarter. **Other key markets include the UK, Germany and Italy.**[v,vi] Over 80% of BESS capacity deployments in 2024 were for grid-level, front-of-meter services, up from around half in 2018.[v]

Until the early 2010s, batteries for storage were of the same lead-acid chemistries used for vehicle electronics. **Since the mid-2010s lithium-ion** (li-ion) **batteries have dominated** due to higher energy densities, more rapid response times, longer lifespans and lower maintenance requirements.[v]

Since around 2020, lithium-iron-phosphate (LFP) batteries have been the li-ion chemistry of choice for BESS systems due to their lower cost, improved safety, longer lifespans and more resilient raw material supply chains compared to prior nickel-manganese-cobalt (NMC) chemistries.[v] LFP batteries have also grown rapidly in EV for these reasons.

Both the power (MW) and energy capacity (MWh) of projects has increased over time. In the UK, for example, average new power capacity increased from 2 MW to 80 MW over the decade to 2023.[vii] In 2020, new global installations could discharge at full power capacity for 1.8 hours to depletion on average. In 2024, this rose to 2.4 hours.[viii] However there is significant regional variation, with Latin America averaging nearly 4.2 hours in 2024.[ix] **Economies of scale mean higher energy capacity systems are cheaper** and have greater revenue generating opportunities.

Global demand for BESS capacity has been driven by a combination of policy support, growing service demand, economic incentives and declining costs, with the combination and structure of these factors varying around the world and over time. The following highlights the key drivers in China, the USA and Europe in recent years.

China

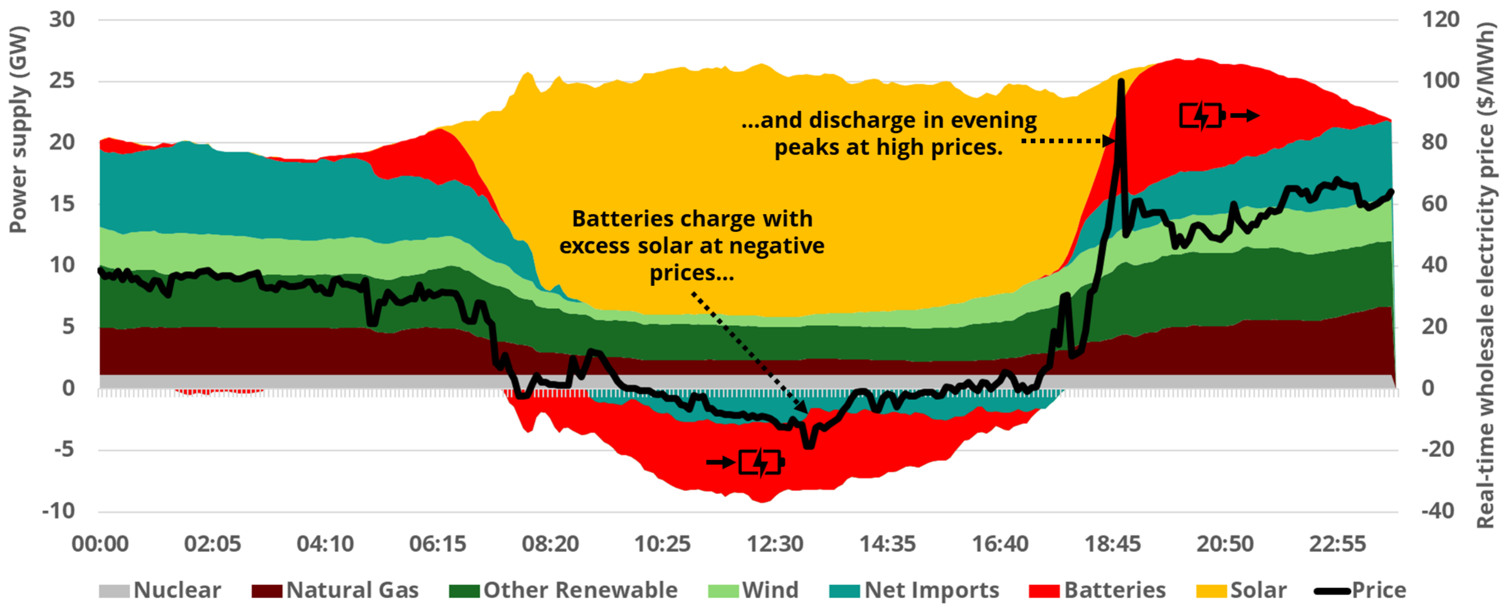
- **National planning & strategic targets**. A national target of 30 GW of non-pumped hydro storage by 2025 was achieved in 2023. A new 'Special Action Plan for Large-Scale Construction of New Energy Storage' targets 180 GW of installed capacity by 2027 and sets out 21 enabling measures.[x]
- **Renewable co-location mandates drove most early deployment**. Since 2022, over 20 provinces required solar and wind projects to allocate 5-30% of their capacity to BESS of 1-4 hour durations.[i] In March 2025, national requirements for these mandates were scrapped, but some provinces have maintained them.[xi]
- **Subsidies & incentives**. Various provincial and municipal subsidies are employed, which have evolved from capacity-based toward operational incentives.[xii]
- **Electricity market reforms allow access to different revenue streams**. This includes recognition of storage assets as market participants for capacity and ancillary service trading, market standards for ancillary services, spot market participation trials and greater wholesale market price variability to encourage arbitrage.[xiii]

United States

- **Growing renewables and policy support in California kick-started deployment…** In 2013, California mandated 1.3GW of BESS by 2020 to support wind and solar, which grew to nearly 40% of the State's generation by 2024.[xiv] Its utility-scale BESS capacity is now nearly 14GW (~50 GWh)[xv], around a third the US total.[xvi] Energy shifting is now a major feature of electricity supply in California (see Figure 7). Arbitrage delivers three quarters of revenues,[xvii] with most of the rest from resource adequacy.
- **…with Texas rapidly gaining ground.** BESS capacity in Texas has grown from negligible in 2020 to around 12GW (~19.4 GWh)[xviii] in 2025– around a quarter of the US total. This has been driven by merchant developers following market incentives as wind and solar grew to 30% of generation in ERCOT[1] in 2024.[xiv] Ancillary services initially delivered the overwhelming proportion of revenues, but with these now well covered by existing capacity, arbitrage now leads.[xix]
- **Federal subsidies, financing & electricity market reforms.** The Inflation Reduction Act (IRA) had offered a minimum 30% investment tax credit for all BESS systems since 2022, plus tax credits for their domestic manufacture. The Bipartisan Infrastructure Law and Department of Energy also provided grants and other concessionary finance. Federal Energy Regulatory Commission (FERC) orders have reduced barriers to BESS participation in markets across system services, such as mandating regional grid operators (ISOs/RTOs) to codify the unique characteristics of storage technologies.[xx]

[1] The Electric Reliability Council of Texas (ERCOT) manages the electricity system for most of Texas.

In California, batteries are sometimes the largest electricity supplier of evening peak demand



Battery storage is a key pillar of California's electricity system, shifting excess midday solar generation to meet morning and evening demand peaks, flattening the 'duck curve'. Batteries delivered nearly 9% of the peak evening load on average in 2024, from less than 2% five years ago.[XXi] **On some days in 2025, batteries were the largest electricity source in evening demand peaks, meeting up to one-third of demand.**[XXii] Solar curtailment and generation from natural gas peakers have also significantly reduced.

Figure 7 – Electricity profile and spot price in CAISO on 21st April 2025. Data Source: Gridstatus (2025). Spot price is from the TH_NP15 node. Graphic created by Greenwheel.

Europe

- **UK: Renewables, advanced market structures, incentives for revenue stacking, and streamlined permitting.**[2] Over one third of the UK's electricity was from solar and wind in 2024. Coupled with grid constraints, this presents revenue opportunities across arbitrage, ancillary services and resource adequacy, with mature market structures facilitating revenue stacking. In recent years, planning requirements for large projects were significantly streamlined while double charges as both an electricity generator and consumer were removed.
- **Germany: Behind-the-meter systems dominate, driven by high electricity prices and on-site renewables, with grid constraints and management driving utility-scale.** Around three-quarters of Germany's 14.5 GW BESS capacity are installed in homes to smooth domestic solar generation profiles and reduce exposure to high retail electricity prices.[xxiii] Utility-scale systems are rapidly growing with revenue stacking across arbitrage and ancillary service markets alongside grid infrastructure support (as 'grid boosters'),[xxiv] supported by grid fee exemptions.

[2] References to the 'UK' refer to the single electricity market of Great Britain (excluding Northern Ireland).

- **Italy: strong policy support and renewables growth, coupled with grid constraints, mature market mechanisms and early subsidies**. As in Germany, most batteries are installed in homes with solar systems, supported by tax incentives and the ability to participate in grid management.[xxv] Utility-scale systems have recently seen significant growth driven by national targets, renewables curtailment and grid congestion (particularly between north and south Italy) opening arbitrage opportunities, and attractive resource adequacy and ancillary service markets.[xxvi]

Three structural drivers for accelerated growth

The rate of BESS capacity growth is set to accelerate significantly over the coming decade (Figure 8). Even under a scenario with conservative assumptions (the IEA's 'current policies' scenario), growth in new BESS installations remains significant. **China, the USA and Europe are set to continue dominating global growth**, with other countries and regions taking increasingly meaningful shares.

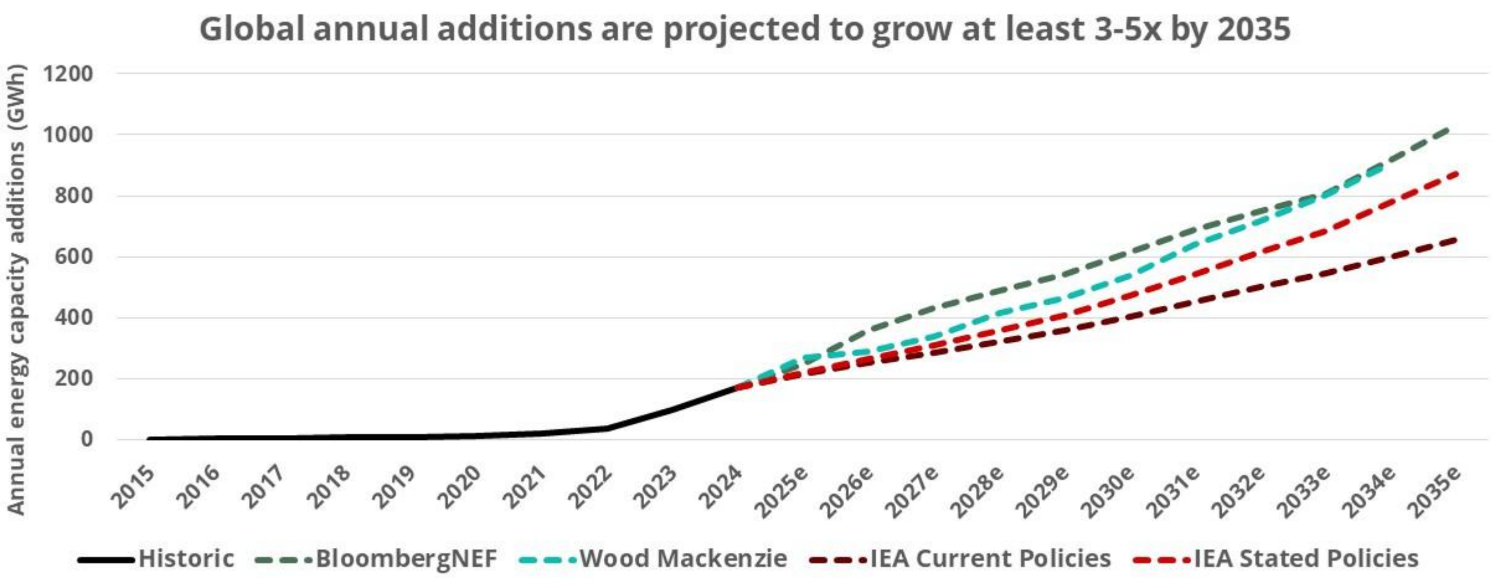


Figure 8 – Projections for global annual energy capacity additions to 2035. Data sources: IEA (2025), Wood Mackenzie (2025), BloombergNEF (2025) 2H 2025 Energy Storage Market Outlook. IEA and Wood Mackenzie data originally reported in GW, converted to GWh using factors derived from BNEF (2025a). Graphic created by Greenwheel. Past performance is not a guide to future results. Forecasts and estimates are based upon subjective assumptions.

However, projections frequently underestimate the pace and scale of battery deployment. BloombergNEF, which present the most bullish forecast in Figure 8, have increased their forecasts to 2030 each year since at least 2019 (and every six months since 2023) - with their **projection for cumulative installations by 2030 now 3x what they projected in 2019.**[iii] Projections under the IEA's Stated Policies scenario have also been consistently uplifted.

There are **three key structural drivers behind continued BESS demand growth**:

1 Rapid growth in electricity demand and renewable generation continues to widen the opportunity set

Over the coming decade, global electricity demand growth is expected to accelerate, including a return to meaningful growth in regions where demand had stagnated, such as the US and Europe. **Renewables are set to capture a growing share of increasing demand, thereby increasing electricity supply and price volatility** (Figure 9). **This will continue to drive open the opportunity set for storage**, across the range of services described in Figure 2.

Renewables will cover a larger share of growing electricity demand

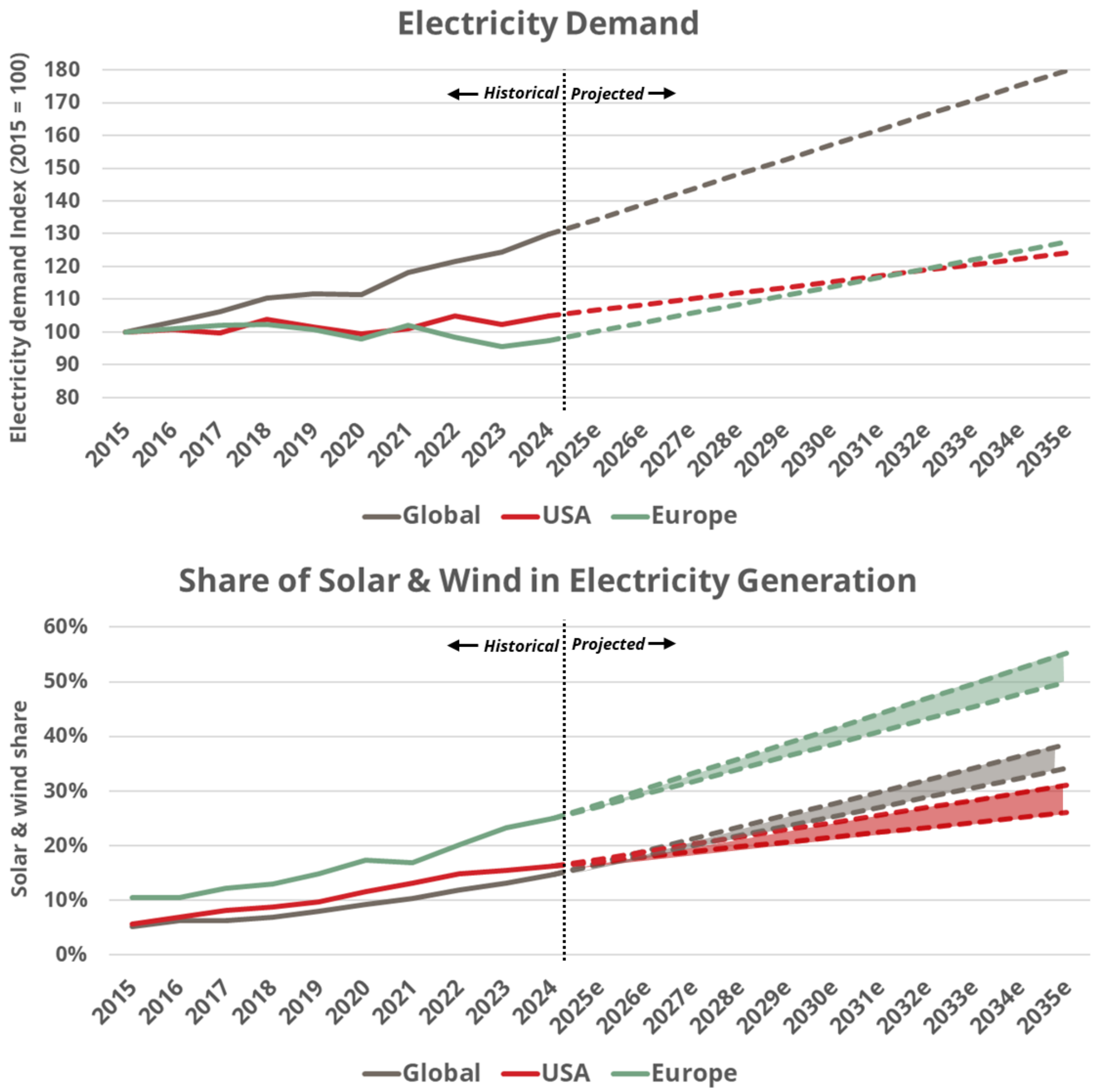


Figure 9 – Historical and projected electricity demand and share of solar and wind - Global, US and Europe. Data source: IEA (2025). Projections in the bottom panel reflect differences in the IEA's Current Policies and Stated Policies scenarios. Graphic created by Greenwheel. Past performance is not a guide to future results. Forecasts and estimates are based upon subjective assumptions.

Data centres are expected to account for just around 10% of total global electricity demand growth to 2035.[i] In the USA they are likely to account for a significantly greater share, with batteries a potentially critical tool in enabling this growth.

Batteries are a key enabler in the AI race

Data centre developers require high volumes of reliable power, and quickly. However, the queue for new grid connections runs to several years in many US markets, with supply chain constraints limiting access to increasingly expensive gas turbines.

Onsite **renewables co-located with BESS and an existing gas generator may offer one of the fastest routes to power**, with technologies that are quick to deploy and that place little additional strain on grids. The RMI estimate that over 50 GW, or **two-thirds of new US data centre capacity expected to come online by 2035 could be powered this way**, at less than $100/MWh for 30 GW and less than $200/MWh for the remainder.[xxvi]

Flexibility to reduce demand from the grid at peak times, largely enabled by BESS, could allow even greater data centre capacity to be integrated into the US grid, *without additional generation capacity*. In PJM, the US electricity market under greatest pressure from new data centres, **storage-enabled load flexibility may allow grid interconnection 3-5 years faster** than through a traditional interconnection process, and avoid almost any additional cost to ratepayers.[xxvii]

A concern over the prospects for storage is the cannibalisation of its own market, e.g. the more BESS is available, the less electricity price volatility there is likely to be, meaning less opportunity for arbitrage. **The same logic is applied to renewables** with near-zero marginal costs, such as solar and wind, which **drive increasing prevalence of very low or negative prices which in turn disincentivises new capacity**.

However, together, renewables and batteries produce mutually reinforcing opportunities – illustrated by Figure 10, below.

2 Batteries are uniquely capable and cost-effective, with significant potential for further technology advances and cost reductions

Batteries are unique in their combination of deployment speed, flexibility and modularly, and the range and quality services they can provide. The rate and scale of their cost declines mean they are now able to deliver these services cost-effectively.

In some cities with strong solar resource, it may **already be economically viable for solar and batteries to deliver power for almost every hour of the year**.[xxix] The IEA estimate that **by 2035, solar co-located with storage will be more competitive than standalone solar in most major markets**, as the added value of dispatchability outweighs the additional cost.[i] The high and growing value of co-location smooths the otherwise cyclical nature of the dynamics in Figure 10.

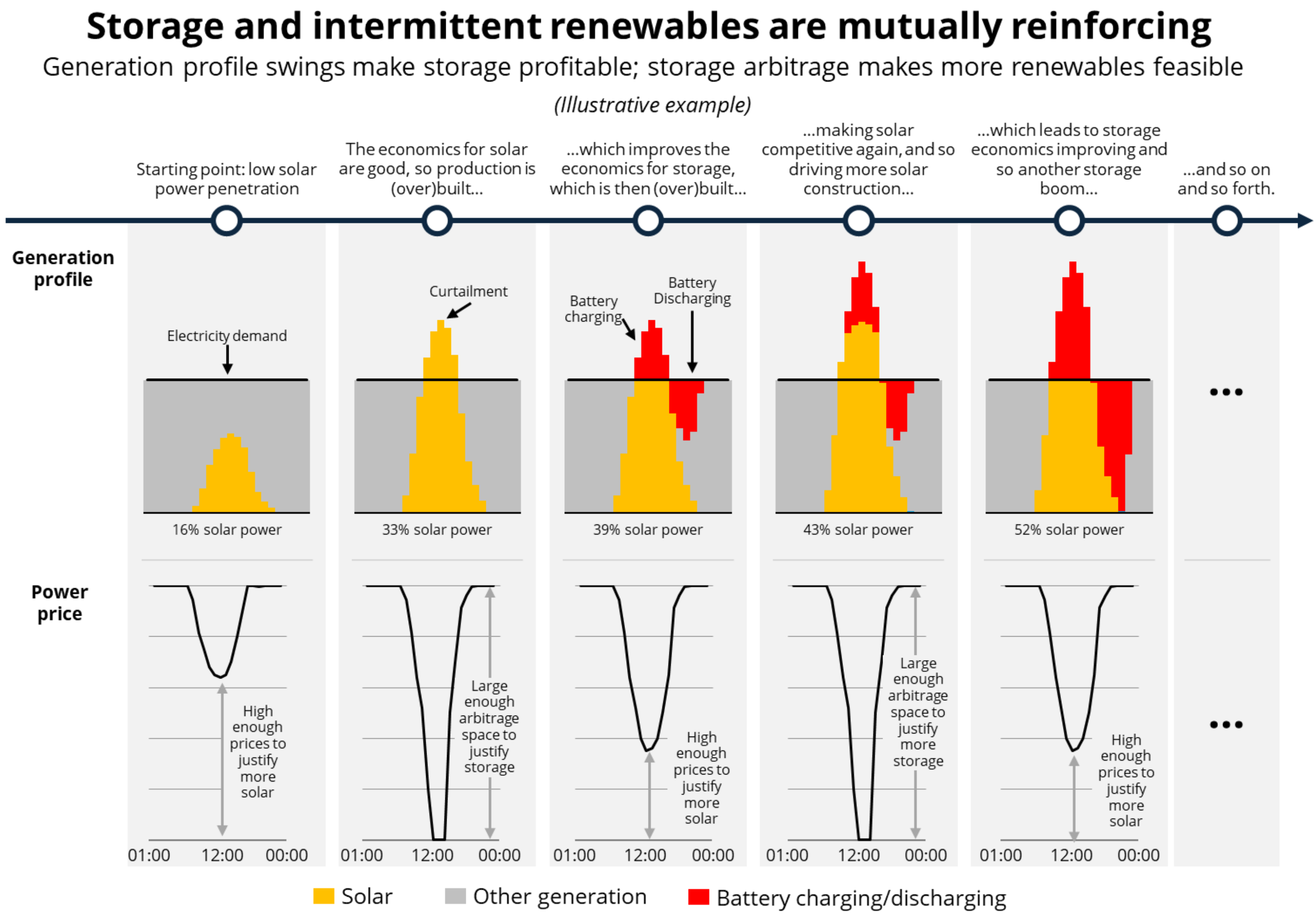


Figure 10 – Stylised progression of variable renewables and storage incentives. Adapted by Greenwheel from [Ember (2025)](), with permission.

Battery costs are expected to halve *again* over the coming decade[iv,xxx] driven by three key factors:

- **Economies of scale and learning through *manufacturing***. A significant driver of cost reduction to date has been process and product standardisation, automation and other improvements, as well as growing manufacturing scale efficiencies. This is likely to continue as demand grows in both the storage and electric vehicle markets, supported by intense competition between suppliers in the near-term.[iv]

- **Economies of scale and learning through *deployment***. Individual system power and energy capacities have grown significantly, reducing unit ancillary costs. Average new system durations are set to grow from ~2.5 hours in 2025 to >4 hours by 2035,[iii] with **some systems extending toward 8-hour durations, allowing BESS to engage in longer-term supply shifting**. System designs – including the integration of the various hardware and software elements illustrated in Figure 3 – have become more efficient, with continued improvements expected.[iv]

- **Chemistry and materials innovation**. Cell densities have doubled since 2000, reducing costs, with improvement rates accelerating over the last decade.[xxxi] The switch to LFP chemistries, which use cheaper materials, also reduced costs. While LFP is likely to remain dominant over the next decade, sodium-ion chemistries, which are less energy dense but use even cheaper materials, may begin to take a material share of the global BESS market.[i] In the longer term, the millions of potential cathode material combinations alone[xiv] may continue to deliver cost declines.

3 Policy, regulation and market structures continue to mature

As costs decline and demand for their services increase, policy support for BESS continues to focus on reducing barriers in regulatory and market structures.

United States

Unlike other technologies, **tax credit rates for BESS remained untouched** by the 'One Big Beautiful Bill Act' (OBBBA). **However, new 'Foreign Entity of Concern' (FEOC) restrictions are likely to disqualify many new installations** due to the reliance on supply chains linked to China. Additionally, various **import tariffs on batteries manufactured in China are set to reach nearly 50% from 2026** (although this is significantly lower than the >150% experienced for part of 2025, it is higher than the ~10% levied in January 2025).[iv]

These changes will increase costs, either as developers avoid tariffs and retain tax credits by sourcing from more expensive domestic or non-FEOC international suppliers or pay tariffs and receive no tax credit support on lower-cost Chinese imports. **This may slow US deployment in the near-term, but significant growth toward 2035 is still expected** as demand grows, technology costs decline, and supply chains reconfigure.[iii]

The federal energy regulator (FERC) has issued a range of orders for US electricity markets to reduce barriers to storage by instituting market access, facilitating grid connection, setting technical standards, and developing long-term system plans. **Most of these are yet to take full effect**.

For example, most major US markets are yet to implement rules allowing aggregation of storage assets into VPPs (only California has yet done so), with finalisation expected in most markets by early 2028 (Order 2222).[xxxii] Reforms to interconnection queues to replace the current 'first-come, first-served' approach with a 'first-ready, first-served' process (Order 2023) are not likely to deliver significant benefits until later in the decade , while long-term transmission plans required by Order 1920 - which must explicitly consider the role of storage as grid infrastructure support - are not due until 2026/27.[xxxiii]

US states hold significant sway over their electricity systems. 24 states (plus Washington DC) have targets for 100% clean energy, with different timelines and levels of legal force.[xxxiv] **13 states have legislated goals, targets or mandates for energy storage deployment** (Figure 11). Excluding California, **the capacity that remains to be delivered by 2030 under state requirements would alone nearly double existing capacity** in the US from 2024 levels (of 26 GW of cumulative requirements, with less than 2 GW delivered to date).[xvi,xxxv]

State-level storage mandates support substantial growth

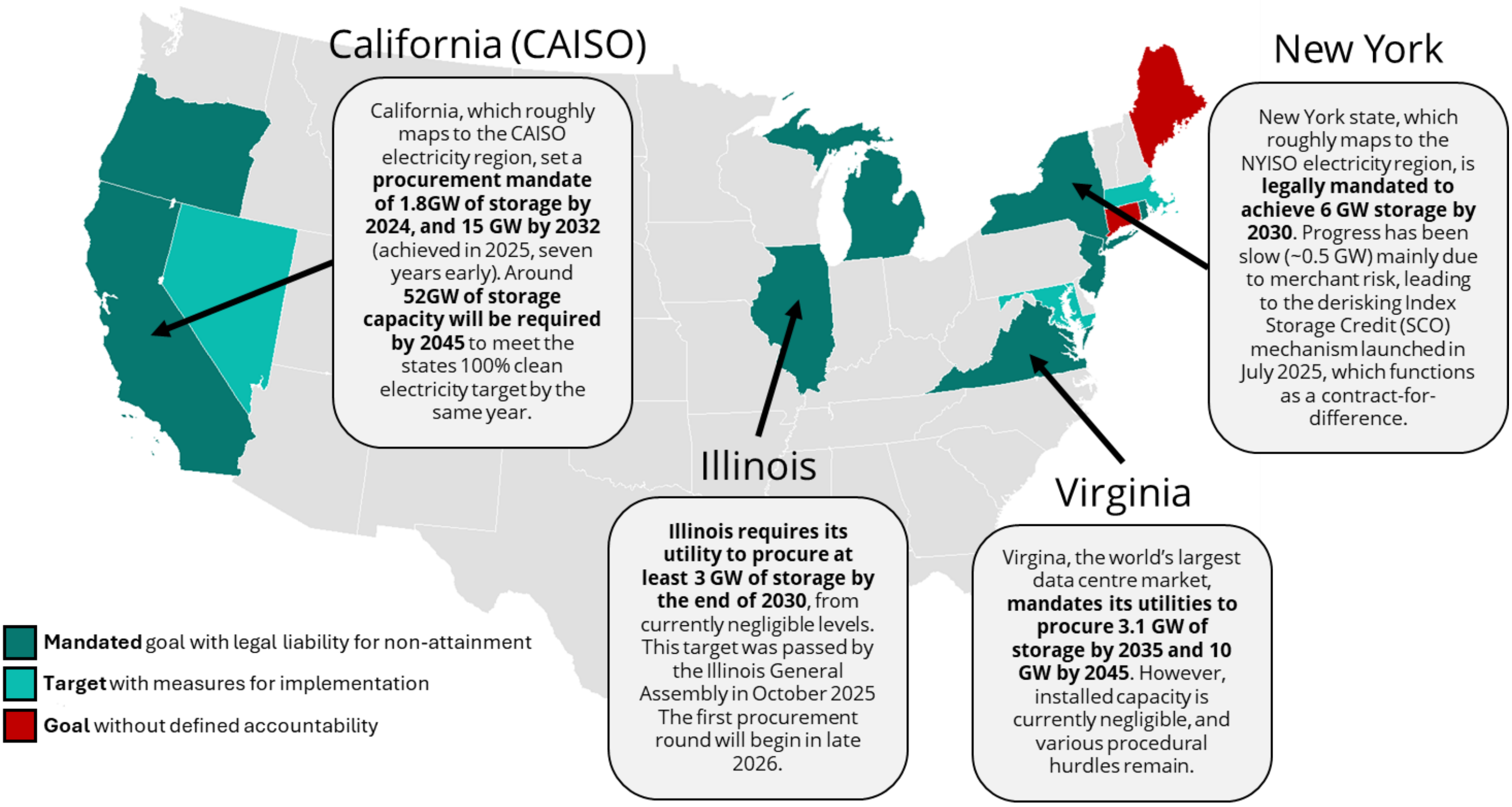


Figure 11 – States with energy storage mandates with key examples. Data sources: Modo Energy (2025), AFS (2025), CESA (2025). Graphic created by Greenwheel.

Europe

Various European counties offer different forms of subsidy for BESS, but the **focus is increasingly shifting toward market-based support mechanisms and wider enabling measures**. [iii] In contrast to the USA, the UK and EU levy low single-digit tariff rates on imported systems and components.[xxxvi]

Recent, planned and expected key regulatory measures across Europe can be grouped into three themes:

- **New frameworks for revenue stability**. The UK's new Long Duration Energy Storage (LDES) scheme will provide regulated revenue for 25 years, with over 20 GW of BESS capacity competing for support from summer 2026.[xxxvii] Italy's new MASCE resource adequacy mechanism aims to support 50 GWh of capacity by 2030 through 15 year contracts, with the first 10 GWh awarded in September 2025. Spain's resource adequacy mechanism is expected to launch in 2026 and aims for 22 GW of capacity by 2030. Upcoming reforms in other countries (e.g. France) are also set to improve the stability of revenue outlooks, particularly for resource adequacy services.

- **Growing market integration & participation opportunities**. In September 2025 the EU's electricity market introduced shorter trading intervals, improving arbitrage opportunities. From 2027, harmonised rules allowing storage and aggregators to participate in wholesale markets will take effect, and from 2028/29, most new renewables and storage in the EU must be 'grid forming' (i.e. able to provide ancillary services).[xxxviii] This requirement takes effect in France in 2026.[xxxix] Grid tariff reforms will further incentivise arbitrage in France from August 2026.[xl]

- **Grid connection & permitting reform**. As in the US, in December 2025 the UK reformed its grid connection process from a 'first come, first served' to a faster 'First Ready and Needed, First Connected' approach.[xli] The EU's Renewable Energy Directive contains provisions for accelerated permitting though implementation varies significantly across member states. In November 2025, Germany simplified the permitting process for BESS outside urban zones,[xlii] while Spain recently established flexible access capacity specifically for storage, with a map detailing available transmission grid capacity to be published in February 2026.[xliii]

Company Profiles

"We present below 3 renewables companies' approach and exposure to batteries to illustrate their rising importance in electricity networks around the world. As much as batteries are a small share of their total business today, the growth of the battery business tends to be faster and returns on par or higher than their overall renewables business. We therefore expect batteries to become a more prominent feature driving performance going forward. Other companies with ambitious plans to grow their battery business are Nextera, Engie, Iberdrola and BKW."

Michel Sznajer

Portfolio Manager, Ecofin Global Renewable Strategies

	BESS % of total revenues	BESS % of CAPEX	BESS revenue growth vs total company revenue growth	BESS returns vs total company returns
Ormat	8%	37%	Faster	Higher in PJM, similar or lower elsewhere
Brookfield Renewable Partners	1%[1]	7%	Faster	Same
Renova	0%	>75%	Faster	Slightly higher

Table 1 – company overviews. Sources: Ormat, Renova, Brookfield Renewable Partners, company reports, Redwheel estimates.[1]latest available data. Excludes pumped hydro, which is also around 1%.

Ormat is a global leader in geothermal power generation and technology, with batteries fast becoming a primary pillar of growth for the company. The company's 350 MW of US battery capacity generates less than 10% of revenues today, but batteries account for over one third of capex. Installations under development will more than double its operating capacity, with a further 2.8 GW in the pipeline across US markets.[3] Geothermal and batteries (and solar and batteries) puts Ormat in an advantageous position of supplying clean baseload and quasi-baseload power, thereby capturing premium prices.

Brookfield Renewable Partners is a global leader in renewable power. Batteries represent a small share of revenue today but 7% of capex and over 20% of the development pipeline. This pipeline would grow its operational capacity from 2.3 GW to over 50 GW.[4] Using batteries to offer baseload power allows capture of higher power prices than providing intermittent power alone.

Renova is a Japanese developer and operator of renewable power generation assets (wind, solar, biomass) and batteries. Renova is an early developer of battery systems in Japan with an ambitious development outlook in Japan of 260 MW under construction and a further 200 MW under development.[5]

Portfolio holdings are subject to change at any time without notice. This information should not be construed as a recommendation to purchase or sell any security.

[3] Ormat, Q3 2025 Earnings call presentation, November 4, 2025
[4] Brookfield Renewable Partners, Corporate Profile, November 2025
[5] Renova Q1 2026 earnings call presentation, August 7, 2025

Endnotes

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[i] IEA (2024)
[ii] Ember (2025a)
[iii] BloombergNEF (2025a) *2H 2025 Energy Storage Market Outlook*
[iv] BloombergNEF (2025b) *2025 Lithium-Ion Battery Price Survey*
[v] IRENA (2025)
[vi] Energy Institute (2025)
[vii] EAH (2024)
[viii] Volta (2025)
[ix] Hughes (2025)
[x] Xinhua (2025)
[xi] Patel (2025)
[xii] Energytrend (2025)
[xiii] Xiao (2024)
[xiv] Ember (2025x)
[xv] CA.gov (2025)
[xvi] EIA (2025)
[xvii] Modo Energy (2025)
[xviii] Modo Energy (2025b)
[xix] Modo Energy (2025c)
[xx] FERC (2018)
[xxi] Ember (2025x)
[xxii] Gridstatus (2025)
[xxiii] Shah (2025)
[xxiv] EDF (2025)
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[xxxvi] Cornago et al (2025)
[xxxvii] Ofgem (2025)
[xxxviii] Rayner & Sanchez Molina (2025)
[xxxix] Pexapark (2025)
[xl] Murray (2025)
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[xliii] Lardizabal (2025)

Key Information

No investment strategy or risk management technique can guarantee returns or eliminate risks in any market environment. Past performance is not a guide to future results. The prices of investments and income from them may fall as well as rise and an investor's investment is subject to potential loss, in whole or in part. Forecasts and estimates are based upon subjective assumptions about circumstances and events that may not yet have taken place and may never do so. The statements and opinions expressed in this article are those of the author as of the date of publication, and do not necessarily represent the view of Redwheel. This article does not constitute investment advice and the information shown is for illustrative purposes only. Whilst updated figures are not available for all sources, we have performed further analysis and believe that this data has not significantly changed and is reflective for 2025.

Disclaimer

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