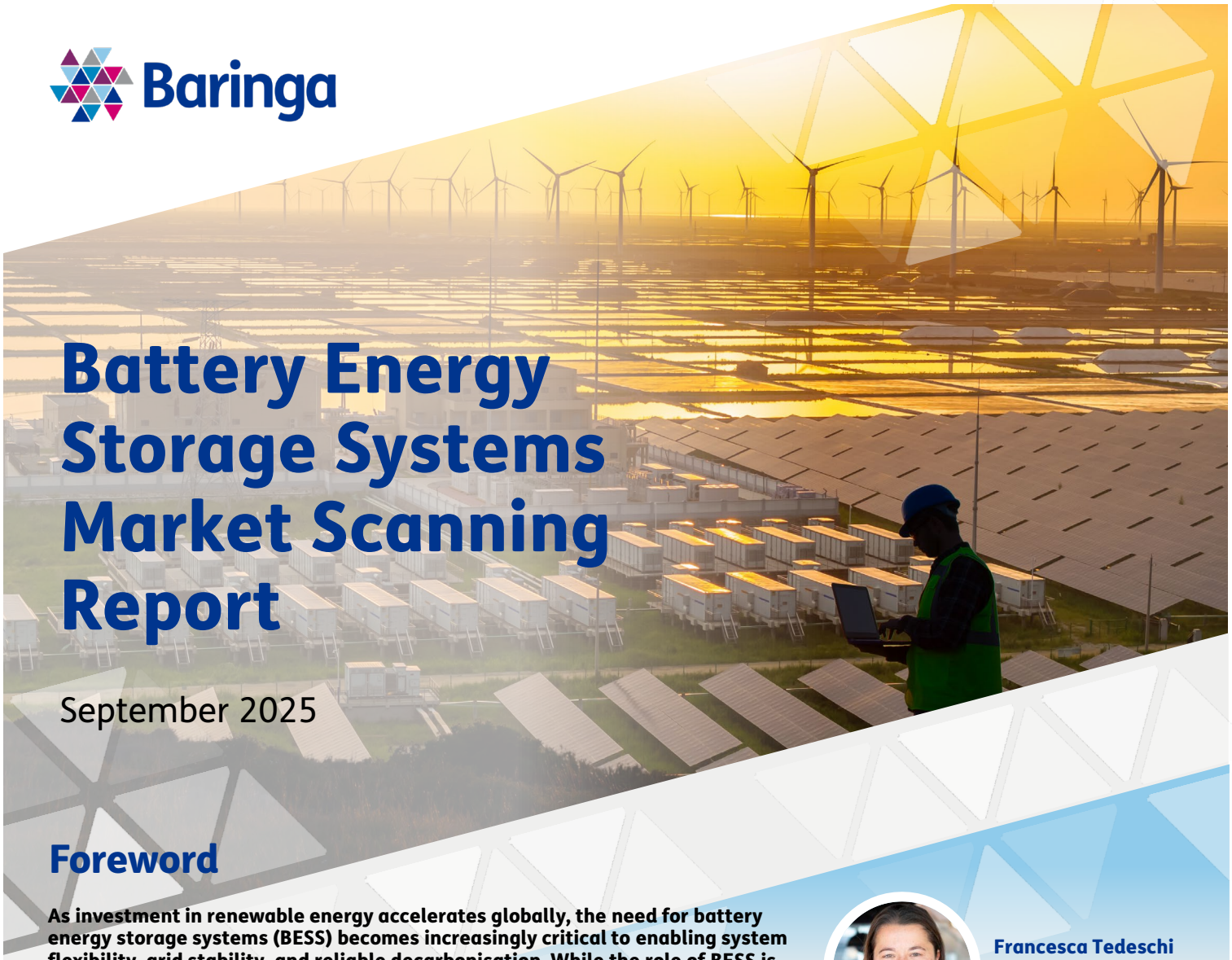

Battery Energy Storage Systems Market Scanning Report

September 2025

Foreword

As investment in renewable energy accelerates globally, the need for battery energy storage systems (BESS) becomes increasingly critical to enabling system flexibility, grid stability, and reliable decarbonisation. While the role of BESS is expanding rapidly, the investment opportunity is not uniform – deployment is expected to scale unevenly across geographies, reflecting varying market fundamentals, policy maturity, and commercial models.

To help investors navigate this evolving landscape**, Baringa has developed the Global BESS Attractiveness Index**, leveraging our suite of detailed country-level power and flexibility models across **31 markets and four continents**. This Index provides a robust, objective framework to compare the investment attractiveness of battery assets across a diverse set of parameters.

This Global Attractiveness index and accompanying report draws from our in-depth market analytics and long-term projections of storage capacity, residual load, and gross margin dynamics – analysing more than **60,000 data points** across the global energy system. In assessing investment attractiveness, we have considered six key dimensions::

1. Market Size
2. Profitability
3. Market Liquidity
4. Ease of Development
5. Policy Environment
6. Macro Risk

Together, these metrics offer investors and developers a granular understanding of the comparative strengths and vulnerabilities of each market from a BESS investment perspective.

- **Part 1: Rankings & Regional Insights**
  We present the full ranking of the 31 modelled markets, alongside expert regional commentary to provide market-specific context and insight.
- **Part 2: Thematic Insights**
  We distil broader market trends and strategic themes emerging from the data, offering a deeper understanding of how BESS investment potential is evolving globally.

Francesca Tedeschi
Partner, Expert in Energy Markets

Nichola Plower
Partner, Expert in Flex Monetisation

Samuel Ebohon
Director, Expert in Battery & Energy Storage

Sumit Joshi
Director, Expert in Battery & Energy Storage

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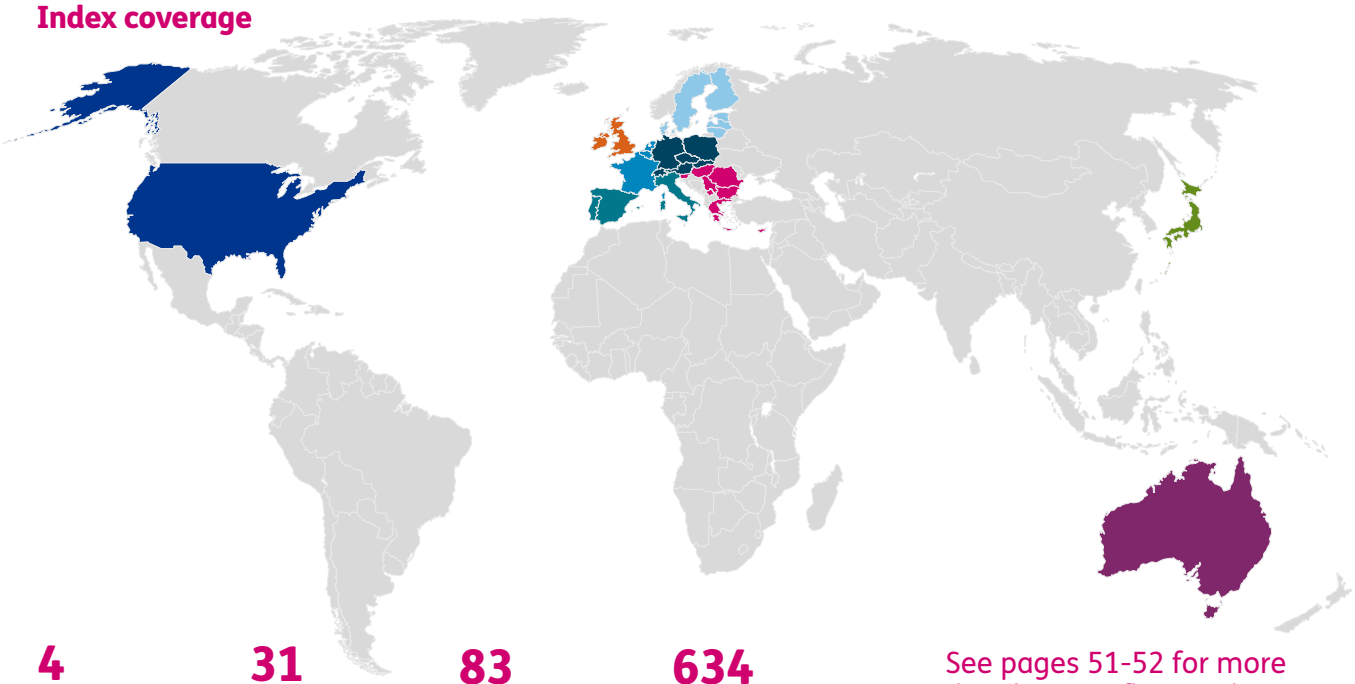
Contents

Section 1: The Ranking

Index coverage



4
continents

31
markets

83
GW of battery capacity in 2025

634
GW of battery capacity in 2050

See pages 51-52 for more detail on our flex market reports and advisory services.

Note: We have included markets based on our current flexibility modelling coverage. Markets not covered does not indicate lower or higher market attractiveness relative to ranked markets.

The United States

Tom Harper
Partner

Central & Western Europe

Francesca Tedeschi
Partner

Nordics & Baltics

Yinfan Zhang
Director

Great Britain & SEM

Vikash Ahuja
Director

Southern Europe

Gerardo Fernández
Partner

Southeastern Europe

Pavlos Trichakis
Partner

Australia

Peter Sherry
Partner

Asia-Pacific

Zhen Hui Eng
Director

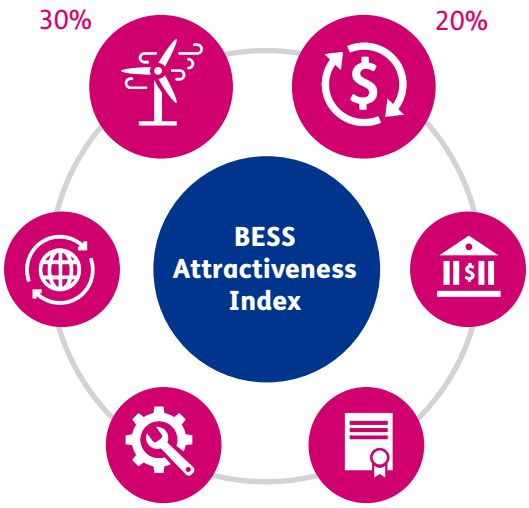
To subscribe to our regional Flexibility Market Reports, contact MarketReports@Baringa.com

Methodology

Baringa's Battery Energy Storage Systems (BESS) Attractiveness Index ranks the investment attractiveness of 31 markets (covering Europe, the United States, and parts of APAC) across six criteria, as outlined below. This ranking seeks to capture the enduring appeal of investment in a portfolio of BESS in each of the geographies considered. It does not, however, reflect the complexities of investment cycles, market entry and exit strategies, or BESS-specific regulatory risks. For a deeper understanding of local dynamics, please consult our regional deep dives and thematic insights, and get in touch to discuss with our experts.

1. Market size

We evaluate the size of the opportunity based on absolute installed capacity, as well as absolute and relative growth until 2050, based on Baringa's industry-leading market projections and expert knowledge.



2. Profitability

An assessment of profitability across markets by using proprietary modelling of battery IRRs over a 10-year time horizon for both 2- and 4-hour batteries.

3. Market liquidity (transactions)

An assessment of the volume and value of transactions of both batteries and wider renewable energy solutions in the relevant market over the last three years.

4. Policy environment

An assessment of how stable and supportive the current policy environment is, using Baringa's Credibility and Durability assessment.

5. Ease of development

An assessment of barriers to development (e.g. revenue routes to market, optimizer availability, grid connection queues) is carried out leveraging Baringa's in-house market experts.

6. Macro risks

Analysis of macroeconomic and political risk through World Bank indicators on regulatory quality, government effectiveness, political stability, corruption and rule of law as well as credit ratings, inflation and growth projections.

Battery Energy Storage Systems Investment Attractiveness Index

#	Geography	Score
1	Germany	98
2	Caiso	96
3	Ercot	93
4	Australia NEM	79
5	Great Britain	79
6		
7		
8		
9		
10		
11		
12		
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31		

Redacted Markets & Scores

We assessed markets against six key criteria to measure investment attractiveness, with detailed insights provided in the regional analysis. The ranking covers markets included in our current flexibility modelling, and omission does not necessarily indicate lower attractiveness.

Beyond the ranking, our regional and thematic insights highlight broader market dynamics. We also examine Chile, India, South Africa, South Korea, and the Philippines – markets we see as "ones to watch."

Abbreviations:

CAISO	California Independent System Operator (US)
ISO-NE	Independent System Operator New England (US)
SEM	Single Electricity market (Ireland)
MISO	Midcontinent Independent System Operator (US)
NEM	National Electricity Market (Australia)
NYISO	New York Independent System Operator (US)
PJM	Pennsylvania-New Jersey-Maryland (US)
SPP	Southwest Power Pool (US)

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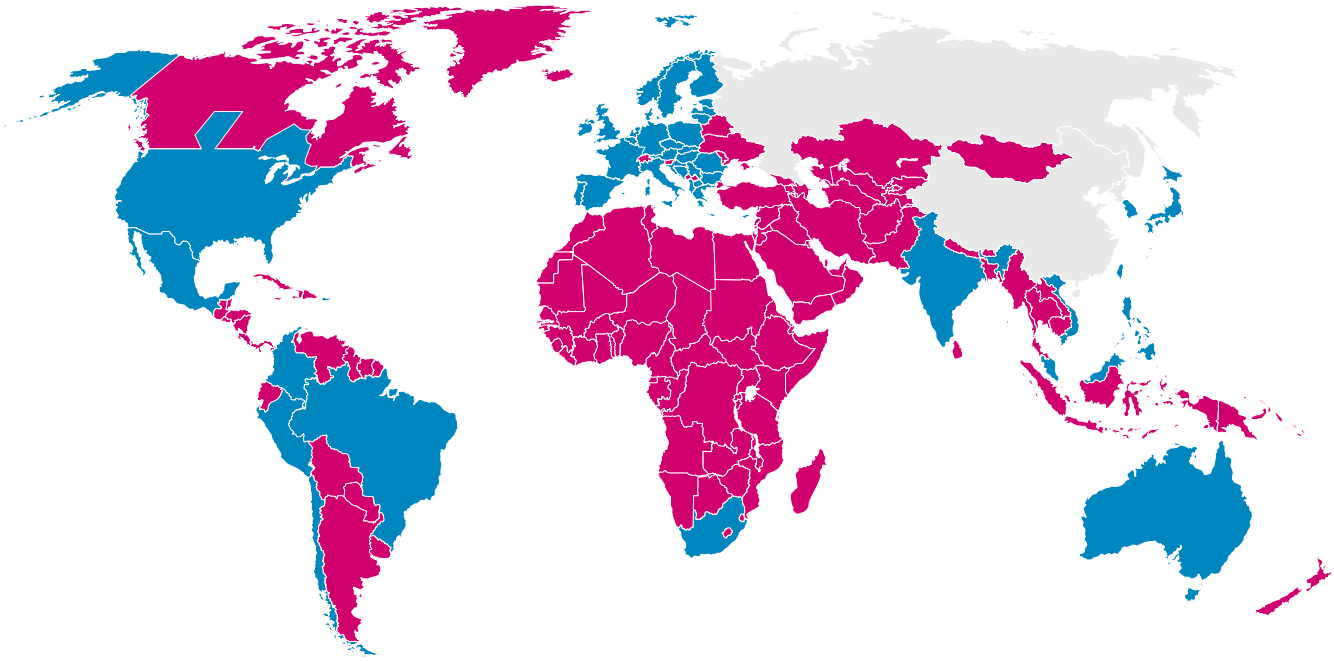
Section 2: Regional Insight

The data in this report comes from Baringa's globally recognised Wholesale Power and Flexibility Market reports, available in more than 60 markets globally.

Contact: MarketReports@Baringa.com



Reports available include:

- Wholesale Power
- Flexibility and BESS
- CfD Auctions
- Retail Power
- Negative Prices
- Marginal Carbon Reporting
- Power Purchase Agreements
- Hydrogen
- Biomethane
- Natural Gas
- Energy Attribute Certificates (GoOs, REGOs)

Bespoke advisory services

Market reports coverage and bespoke advisory services

Regional scoring

Using our index, we have aggregated regional scores to compare larger regions and have heard from our market experts to explore local market dynamics for each of these regions.

At a glance

Region	Page	Market Size	Profitability	Market Liquidity	Policy Environment	Ease of Development	Macro Risk
The US	11						
Central Europe	14						
Western Europe	15						
The Nordics & Baltics	18						
Great Britain & SEM	20						
Southern Europe	23						
Southeastern Europe	26						
Australia	29						
Japan	33						

The US

Market Size	Profitability	Market Liquidity	Policy Environment	Ease of Development	Macro Risk
●	●	●	●	●	●

A word from the regional expert

John Baron
US battery storage expert

- **Market Size & Growth:** The US is one of the largest and fastest-growing battery markets in the world with projected installed battery capacity reaching 150 GW by 2030.
- **Profitability & Revenue Stack:** The battery revenue stack comprises wholesale energy arbitrage, ancillary services, and capacity payments which are available in all markets except ERCOT.
- **Market Liquidity & Investor Activity:** ERCOT is the most mature offtake market for merchant batteries owing to its deeply competitive wholesale and retail markets.
- **Policy & Regulatory Environment: Policy is pivotal.**
- **Ease of Development:** Despite markets enacting reforms to their interconnection queue processes, greenfield projects can still face 5+ year timelines to energization and may face high connection costs if network reinforcement is required; this makes site selection around stronger nodes key.
- **Macro & Regional Risks:** Key risks include trade tensions (tariffs and component availability), potential shifts in federal incentives linked to political cycles, and revenue cannibalization as fleets scale into the same services.

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The US: Deep dive

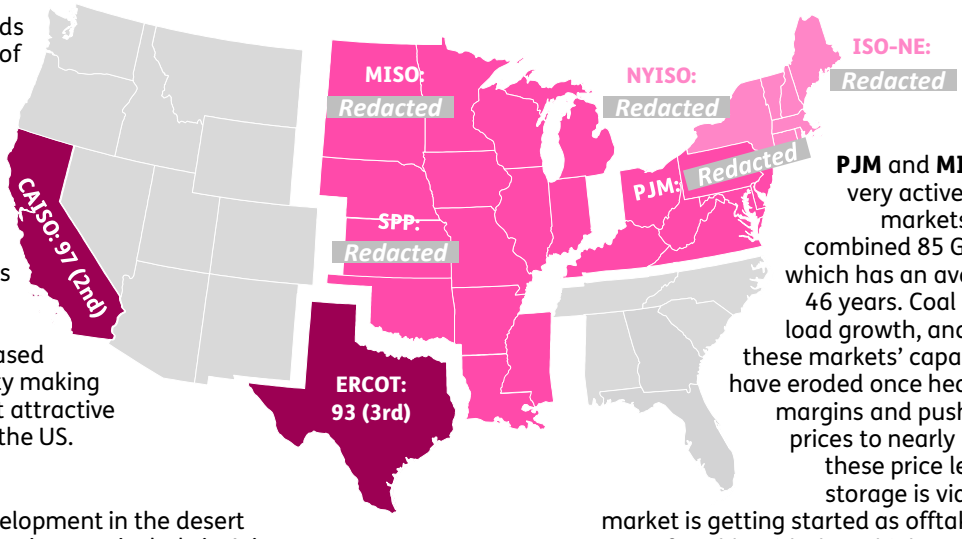
CAISO has some of the most aggressive decarbonization targets in the country, a glut of solar generation in the middle of the day, and an effective ban on new build gas. This has driven resource adequacy concerns in the evening hours and led to LSEs offering battery developers long term tolls north of $15/kW per year. With no real options for low carbon capacity in the term aside from storage, we expect deployment to continue at pace.

ISONE and **NYISO** are two regions very supportive of decarbonization. Because of relative lack of volatility and lower capacity prices, states in these markets have extended out of market support to spur battery storage.

In ISONE, Massachusetts developed a market for clean energy certificates generated by battery storage, providing an additional and lucrative revenue stream for batteries.

In NYISO, the state has very strong policy requiring decarbonization of the power sector by 2040. The state developed a roadmap for 6 GW of battery capacity by 2030 relying on procurement through state-run auctions.

SPP often has periods with an oversupply of wind resulting in negative prices followed by periods with limited wind and high prices. As a result, batteries capture healthy energy market gross margins, and an ageing and retiring coal fleet has increased the value of capacity making SPP one of the most attractive storage markets in the US.



PJM and **MISO** are both very active data center markets and have a combined 85 GW coal fleet which has an average age of 46 years. Coal retirements, load growth, and changes to these markets' capacity markets have eroded once healthy reserve margins and pushed capacity prices to nearly $100/kW. At these price levels battery storage is viable, and the market is getting started as offtakers become more comfortable with these high capacity prices.

Battery storage development in the desert southwest is accelerating, particularly in Arizona, Nevada, where utilities are integrating storage to support solar-heavy portfolios and meet peak demand. Arizona Public Service and NV Energy have procured hundreds of megawatts of storage capacity, often co-located with solar, through recent RFPs.

Meanwhile, PacifiCorp, operating across the Pacific Northwest and Rocky Mountain region has included over 3.6 GW of battery storage in recent integrated resource plans to meet decarbonization targets and load growth.

ERCOT is already a leading market with 8 GW of storage capacity and the grid operator is projecting a 50 GW increase in peak load by 2030. This load growth together with a rapid solar buildout will drive healthy price spreads in the market and underpin continued deployment of storage.

The Southeast is facing a growing need for firm capacity as data centers and new manufacturing projects come online. The region is home to vertically integrated monopoly utilities which drive the direction of the capacity mix, but the largest utility in the region, the Southern Company, has indicated a role for battery storage and has a plan for more than 1,500 MW of new build storage capacity in the next few years which includes procuring capacity from third-party developers through competitive solicitations.

BESS Index Scoring

Central Europe

Market Size	Profitability	Market Liquidity	Policy Environment	Ease of Development	Macro Risk
●	●	●	●	●	●

A word from the regional expert

Marc Daube
Central Europe battery storage expert

- **Market Size & Growth:** Central Europe's storage build is led by Germany, with Poland and Austria emerging from smaller bases.
- **Profitability & Revenue Stack:** Profitability has improved as wholesale volatility and renewable intermittency increased, deepening day-ahead and intraday spreads and creating more frequent arbitrage windows.
- **Market Liquidity & Investor Activity:** Liquidity is significant in Germany and the market is moving to larger asset sizes and multi-site portfolios, with infrastructure funds and utilities active to secure access to ready-to-build assets.
- **Policy & Regulatory Environment:** Germany currently exempts stand-alone BESS from grid fees for assets with COD before August XXXX, a tailwind for near-term economics; beyond that date, reform outcomes will determine the steady-state cost base.
- **Ease of Development:** Grid access is challenging in all markets in the region.
- **Macro & Regional Risks:** In Germany, primary risks include regulatory change (grid fees post-XXXX, flexible connection agreements, capacity-market design), revenue cannibalisation as capacity builds into the same products.

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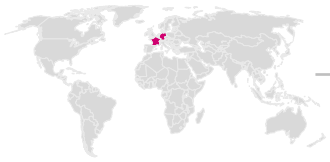
Western Europe



Market Size	Profitability	Market Liquidity	Policy Environment	Ease of Development	Macro Risk
●	●	●	●	●	●

A word from the regional expert

Rens Philipsen
Western Europe battery storage expert

- **Market Size & Growth:** Western Europe's grid-scale storage market remains relatively modest compared with Central Europe and GB.
- **Profitability & Revenue Stack:** BESS in Belgium and France benefit from capacity market revenue.
- **Market Liquidity & Investor Activity:** Activity is increasing but at a smaller scale than GB or Germany.
- **Policy & Regulatory Environment:** France has taken steps to integrate storage into its energy code and is developing tenders that should create clearer revenue certainty.
- **Ease of Development:** Grid congestion and connection delays constrain development across France, Belgium, and the Netherlands.
- **Macro & Regional Risks:** Risks include less market depth than in larger markets, limited policy support in the Netherlands, and grid bottlenecks across the region.

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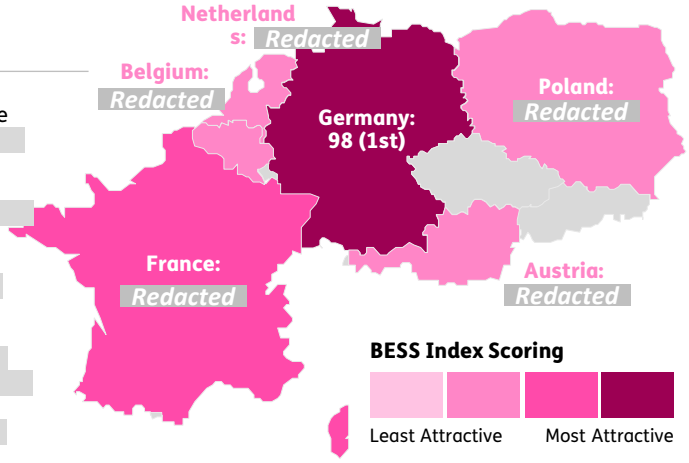
Central and Western Europe: Deep dive

- France opened its aFRR capacity market in 2024 with BESS able to earn revenue from offering capacity.



The **Belgian** Capacity Market has proven successful to bring c. 1 GW BESS through the development pipeline, with the 5th round coming up in 2025.

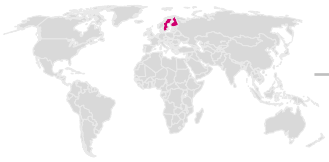
- **Germany** is currently undergoing an unprecedented BESS development boom sparked by high margins available in volatile wholesale market complemented by opportunities in ancillary services.

- The last three Capacity Market auctions in **Poland** have selected about 7 GW of standalone BESS capacity which is expected to be online by 2029.

- BESS investment has taken a flight in the **Netherlands**, which has seen higher gross margins offsetting high grid OpEx charges.

- **Austria** is an emerging BESS market. The cumulated BESS capacity of publicly announced projects more than doubles by reaching 78 MW in 2026 starting from currently a low level of 30 MW installed capacity in 2024
- A major energy market reform (ElWG) planned for summer 2025 foresees a reduction or full exemption of grid fee double charging for system-friendly BESS operation expected to ramp up the business case for large-scale BESS in Austria
- Austria's ambitious 100% renewable energy target for 2030 backed up by solar and wind expansion increases system volatility driving the demand for flexibility solutions such as BESS

The Nordics



Market Size	Profitability	Market Liquidity	Policy Environment	Ease of Development	Macro Risk
🟡	🟠	🟢	🟢	🟢	🟡

A word from the regional expert

Yinfan Zhang
Nordics battery storage expert

- **Market Size & Growth:** The Nordic storage market remains small in absolute terms, with Sweden and Finland now leading activity while Denmark builds on volatile DKX/DKX price zones.
- **Profitability & Revenue Stack:** Current economics are anchored in ancillary services
- **Market Liquidity & Investor Activity:** Liquidity is improving. Sweden hosts the most active pipeline and multiple operating assets; Finland is close behind, clustering around strong nodes.
- **Policy & Regulatory Environment:** Storage participation is permitted across balancing products, but there are no material subsidy schemes for short-duration assets and no mature capacity markets.
- **Ease of Development:** Permitting is generally straightforward; the binding constraint is connection at locations that capture the best price signals
- **Macro & Regional Risks:** Hydro's flexibility and relatively low volatility cap arbitrage value, while thin ancillary volumes expose operators to quantity risk.

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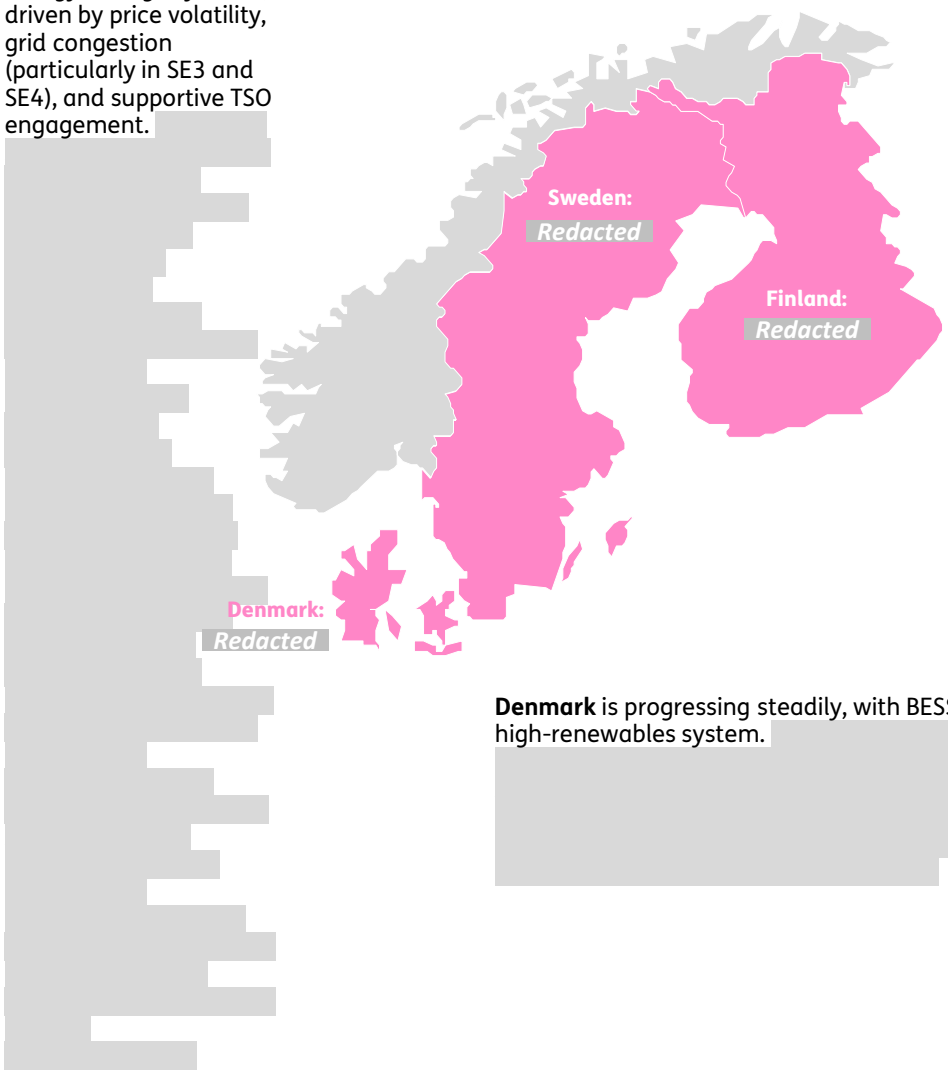
The Nordics: Deep dive

Sweden is the Nordic frontrunner in battery energy storage systems, driven by price volatility, grid congestion (particularly in SE3 and SE4), and supportive TSO engagement.



Finland's BESS market is scaling rapidly, underpinned by TSO Fingrid's proactive stance on ancillary market reform and high balancing prices.

Denmark is progressing steadily, with BESS playing a supporting role in its high-renewables system.

BESS Index Scoring

Least Attractive — Most Attractive

The Baltics

Market Size	Profitability	Market Liquidity	Policy Environment	Ease of Development	Macro Risk
🟡	🟠	🟢	🟢	🟢	🟡

A word from the regional expert

Yinfan Zhang
Baltics battery storage expert

- **Market Size & Growth:** Battery storage in the Baltics (Lithuania, Latvia, Estonia) is scaling from a very small base, driven by security-of-supply needs and desynchronisation from the Russian grid and synchronisation with the Continental European grid.
- **Profitability & Revenue** Stack: Early projects can benefit from high ancillary service prices as well as wholesale arbitrage opportunities in volatile energy markets, created by increasing penetration of renewables and lack of flexible resource.
- **Market Liquidity & Investor Activity:** Liquidity is thin but improving.
- **Policy & Regulatory Environment:** Policy support is explicit and security-driven.
- **Ease of Development:** Permitting and grid connection timelines are average by XX standards, though local opposition and the need for grid reinforcement can still affect and delay projects.
- **Macro & Regional Risks:** Geopolitical risk remains the headline factor, alongside small market size and reliance on state-driven procurement for bankability.

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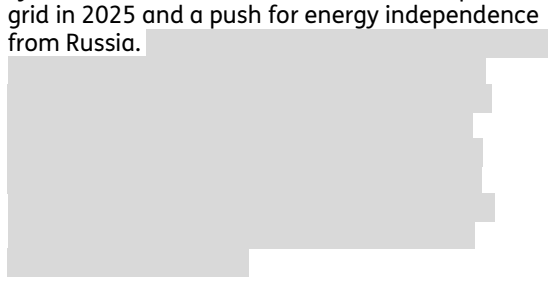
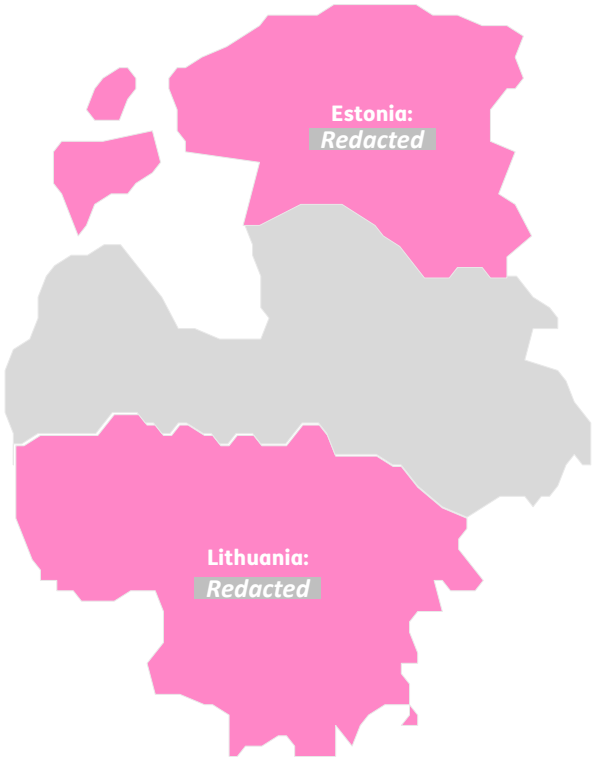
The Baltics: Deep dive

The **Baltics** are emerging as a strategically important subregion for BESS, driven by synchronisation with the continental European grid in 2025 and a push for energy independence from Russia.





BESS Index Scoring

Least Attractive — Most Attractive

Great Britain

Market Size	Profitability	Market Liquidity	Policy Environment	Ease of Development	Macro Risk
●	●	●	●	●	●

A word from the regional expert

Tim Taylor
Great Britain battery storage expert

- **Market Size & Growth:** As of mid-2025, Great Britain has X.X XX of operational BESS capacity.
- **Profitability & Revenue Stack:** Battery earnings in GB have eased from the energy crisis peaks, as volatility in power and commodity prices fell and frequency response and reserve markets evolved.
- **Market Liquidity & Investor Activity:** Over the past three years, Great Britain has been one of the most active global markets for storage M&A and debt financing, with significant equity activity from institutional investors and some of Europe's largest debt financings across development and operational portfolios.
- **Policy & Regulatory Environment:** GB energy policy is undergoing change, driven by overlapping reforms across market design and infrastructure planning.
- **Ease of Development:** GB project development has been constrained by network access delays, but reforms aim to tackle these issues.
- **Macro & Regional Risks:** Key risks include regional revenue cannibalisation as areas of transmission boundary constraints become oversubscribed with batteries and evolving network charges.

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SEM (Ireland)

Market Size	Profitability	Market Liquidity	Policy Environment	Ease of Development	Macro Risk
●	●	●	●	●	●

A word from the regional expert

Eoin Clifford
SEM battery storage expert

- **Market Size & Growth:** The SEM currently has ~X.X XX of storage capacity, split between ~X.X XX of batteries and X.X XX of pumped hydro.
- **Profitability & Revenue Stack:** The current revenue stack is dominated by short-duration batteries benefiting from generous
- **Market Liquidity & Investor Activity:** M&A activity in SEM storage has been limited, concentrated among a small pool of domestic and UK developers.
- **Policy & Regulatory Environment:** Policy direction is supportive but gradual.
- **Ease of Development:** Development remains challenging, particularly due to planning delays and grid connection bottlenecks.
- **Macro & Regional Risks:** From a macroeconomic standpoint, the SEM spans two low-risk jurisdictions: the Republic of Ireland and Northern Ireland.

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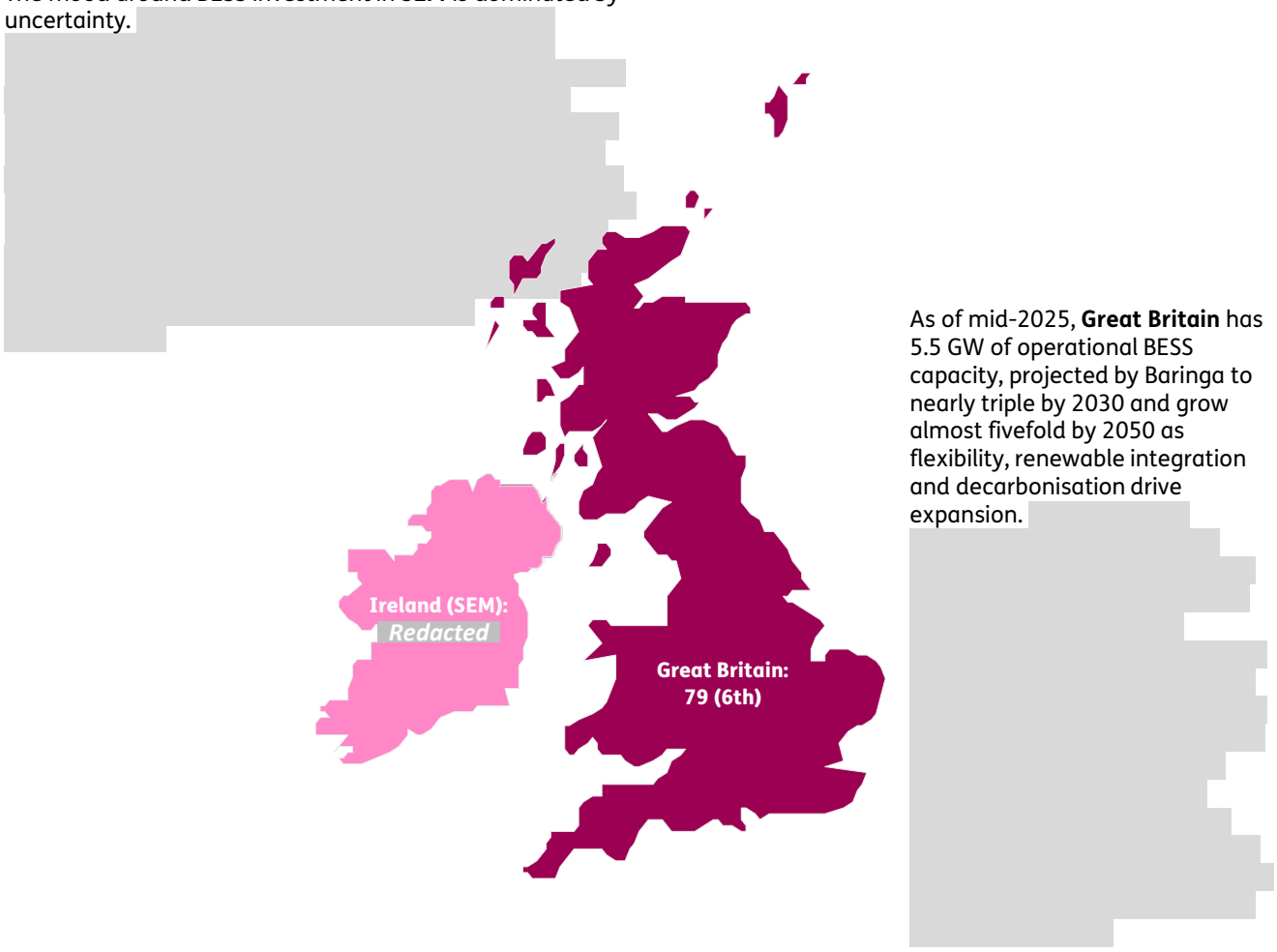
Great Britain and SEM: Deep dive

The mood around BESS investment in **SEM** is dominated by uncertainty.



As of mid-2025, **Great Britain** has 5.5 GW of operational BESS capacity, projected by Baringa to nearly triple by 2030 and grow almost fivefold by 2050 as flexibility, renewable integration and decarbonisation drive expansion.

BESS Index Scoring

Least Attractive — Most Attractive

Southeastern Europe

Market Size	Profitability	Market Liquidity	Policy Environment	Ease of Development	Macro Risk
●	●	●	●	●	●

A word from the regional expert

Malina Stroumina
Southeastern Europe battery storage expert

- **Market Size & Growth:** Southeast Europe's storage sector is still nascent, but several countries are beginning to establish pipelines through EU support and national subsidy schemes.
- **Profitability & Revenue Stack:** Current profitability is anchored in subsidy frameworks,
- **Market Liquidity & Investor Activity:** Liquidity is improving but still limited.
- **Policy & Regulatory Environment:** Policy support is highly uneven.
- **Ease of Development:** Grid infrastructure is the primary constraint.
- **Macro & Regional Risks:** The main risks are policy instability, administrative complexity,

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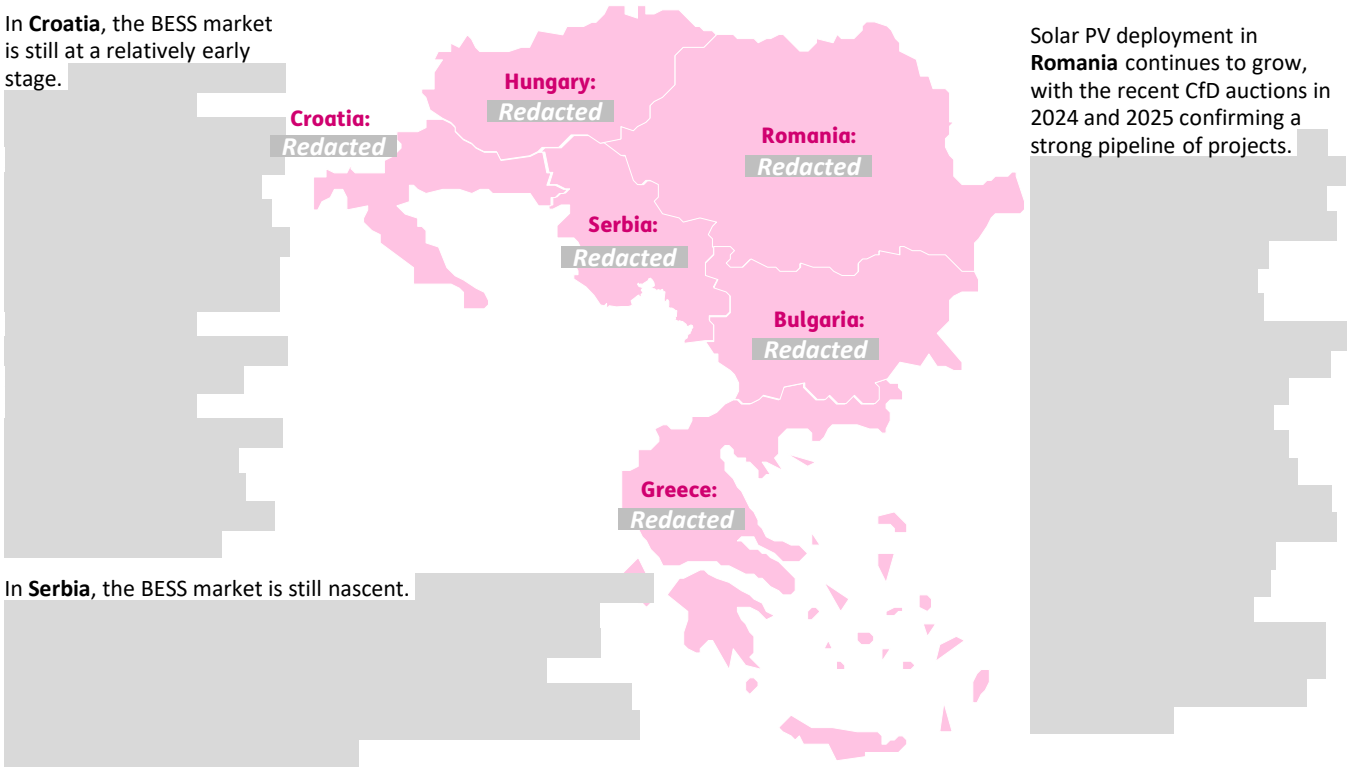
Southeastern Europe: Deep dive

Hungary has added ~5 GW solar PV capacity since 2020 and the trend will continue, given the country's lack of diversified local energy sources and strong import dependence.

In **Croatia**, the BESS market is still at a relatively early stage.



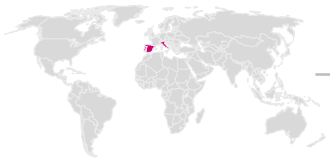
Solar PV deployment in **Romania** continues to grow, with the recent CfD auctions in 2024 and 2025 confirming a strong pipeline of projects.

In **Serbia**, the BESS market is still nascent.

In **Bulgaria**, the strong growth of solar PV (over 3 GW added since 2021) led to increasing power price cannibalization and a sharp reduction of lignite generation and made it more challenging for the TSO to balance the system. Further renewables deployment will exacerbate the challenge going forward. BESS are thus expected to play a key role in providing flexibility to the system. The first wave of BESS development is supported by CAPEX subsidies with over 12 GWh awarded. Projects are also developed on a commercial basis with players vying for a first mover advantage. The largest BESS in the EU (125 MW / 500 MWh) was inaugurated in Bulgaria this May and the TSO expects total capacity to reach 7-10 GWh over the next 18 months.

BESS Index Scoring

Southern Europe



Market Size	Profitability	Market Liquidity	Policy Environment	Ease of Development	Macro Risk
●	●	●	●	●	●

A word from the regional expert

Alexis Stavropoulos
Southern Europe battery storage expert

- **Market Size & Growth:** Southern Europe is emerging as a fast-growing storage region, led by Italy and Spain with Portugal following from a smaller base.
- **Profitability & Revenue Stack:** Current economics blend ancillary/balancing services with growing wholesale arbitrage particularly as daily spreads steepen given the increasing solar PV generation.
- **Market Liquidity & Investor Activity:** Liquidity is strongest in Italy, where institutional capital is backing platform builds and late-stage pipelines; several developers are advancing multi-site portfolios to leverage procurement visibility.
- **Policy & Regulatory Environment:** Italy provides the clearest line-of-sight through dedicated storage procurement and recognition within adequacy planning, complementing ancillary market participation.
- **Ease of Development:** Grid access is the primary friction across the region.
- **Macro & Regional Risks:** Risks include grid delays, , and policy timing.

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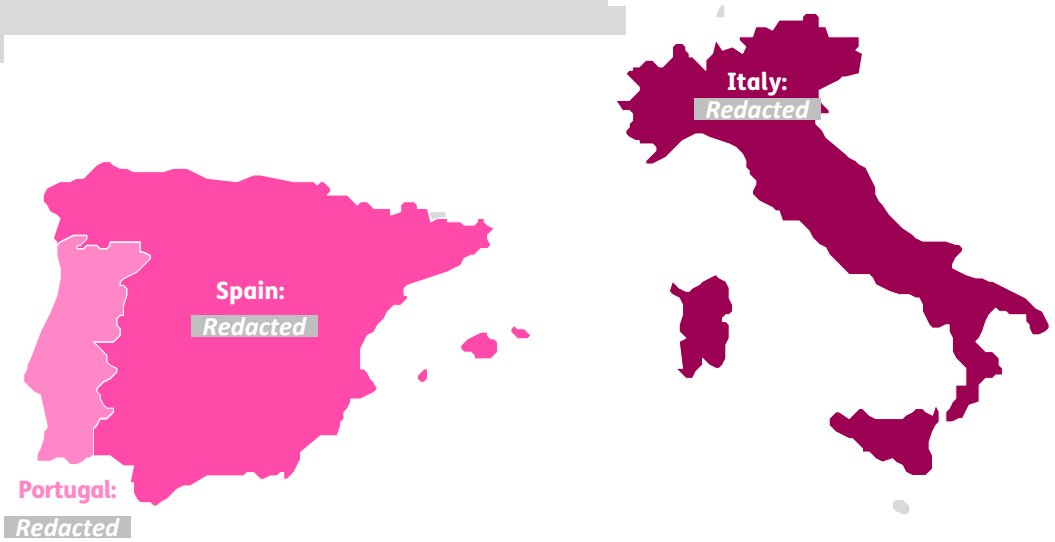
Southern Europe: Deep dive

BESS projects in **Iberia** had until recently needed government support, given high costs, fewer ancillary services markets than other countries and no bankable revenue streams.



Italy is a fast-growing BESS market and we expect strong development opportunities for BESS based on fundamental drivers, MACSE, capacity market auctions and other regulatory changes.

BESS Index Scoring

Australia NEM

Market Size	Profitability	Market Liquidity	Policy Environment	Ease of Development	Macro Risk
●	●	●	●	●	●

A word from the regional expert

Remy Nguyen
Australia NEM battery storage expert

- **Market Size & Growth:** Australia is one of the most advanced storage markets globally, with deployment concentrated in South Australia, Victoria and New South Wales.
- **Profitability & Revenue Stack:** Historically, returns were significantly carried by XXXX, but value has broadened to include wholesale arbitrage under five-minute settlement, plus additional optionality via tolling/hedge overlays with retailers and large energy users.
- **Market Liquidity & Investor Activity:** Liquidity is deep and diversified.
- **Policy & Regulatory Environment:** Policy support is strong at Commonwealth and state levels.
- **Ease of Development:** Transmission remains the principal bottleneck.
- **Macro & Regional Risks:** Key risks include the timing/scale of transmission delivery and delays in the coal retirement schedules (which shape evening price formation).

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Japan

Market Size	Profitability	Market Liquidity	Policy Environment	Ease of Development	Macro Risk
●	●	●	●	●	●

A word from the regional expert

Zhi Qin Low
Japan battery storage expert

- **Market Size & Growth:** Japan's renewables market has shifted following the phase-out of the Feed-in Tariff in with developers now relying more on corporate
- **Profitability & Revenue Stack:** BESS revenues are earned through energy arbitrage on , balancing services on , and the one-year capacity market.
- **Market Liquidity & Investor Activity:** Liquidity in Japan's power markets has expanded rapidly, with
- **Policy & Regulatory Environment:** Japan has created a comprehensive framework for storage.
- **Ease of Development:** Permitting is relatively straightforward, but interconnection queues and reinforcement costs remain major hurdles, making proximity to strong substations critical.
- **Macro & Regional Risks:** Key risks include balancing market saturation, uncertainty around

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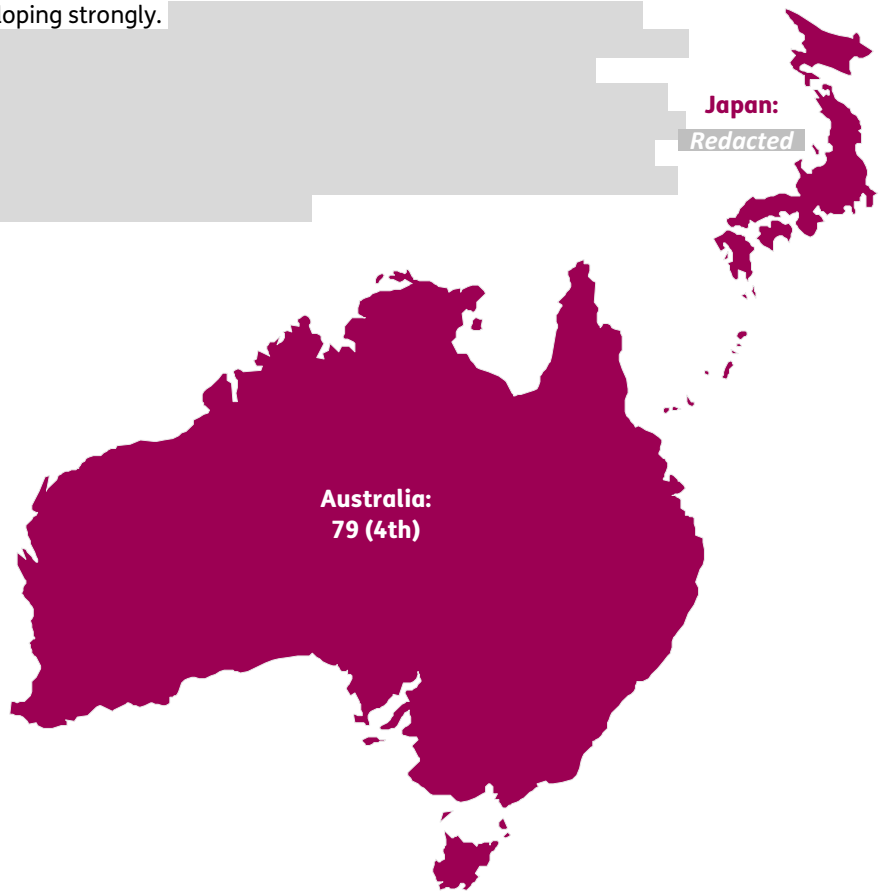
Australia NEM and Japan: Deep dive

Japan's BESS market is developing strongly.



Australia: BESS markets have been fast growing, especially on the East Coast market (NEM).

Some market headwinds:

BESS Index Scoring

Least Attractive — Most Attractive

Additional Markets to Watch

In addition to our top ranked markets, our experts recommend keeping an eye on the following five countries which all present attractive opportunities for investors.

Chile: A word from our regional expert

Francisco Martinez
Chile battery storage expert

- **Market Size & Growth:** Chile leads Latin America in battery storage momentum, though installed capacity remains under
- **Profitability & Revenue Stack:** Storage revenues come from wholesale arbitrage, capacity payments, and co-location with renewables to reduce curtailment and firm
- **Market Liquidity & Investor Activity:** Chile's renewables sector has attracted significant foreign capital over the past decade, supported by
- **Policy & Regulatory Environment:** Chile's policy framework is among the most advanced in Latin America, with a
- **Ease of Development:** Chile is relatively straightforward for experienced developers.
- **Macro & Regional Risks:** Relative to its neighbours, Chile presents low macroeconomic and political risk, underpinned by strong institutions and a stable policy track record.

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India: A word from our regional expert

Khushwinder Singh
India battery storage expert

- **Market Size & Growth:** India's battery storage sector is scaling from a very low base but has extraordinary potential.
- **Profitability & Revenue Stack:** Monetisation is still nascent and largely contract-based, led by central and state-level tenders from
- **Market Liquidity & Investor Activity:** India's renewables sector is one of the most active globally, adding an average of
- **Policy & Regulatory Environment:** India's policy framework is increasingly storage-friendly.
- **Ease of Development:** Opportunities are significant but uneven.
- **Macro & Regional Risks:** India is a compelling long-term market but comes with execution and payment risks, particularly at the subnational level.

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Philippines: A word from our regional expert

Lucia Loh
Philippines battery storage expert

- **Market Size & Growth:** As of mid , the Philippines has of installed battery storage capacity, with a rapidly expanding pipeline
- **Profitability & Revenue Stack:** BESS has several routes-to-market in the Philippines, including
- **Market Liquidity & Investor Activity:** The Philippines has seen a surge of foreign investment interest, especially since the amendment to allow
- **Policy & Regulatory Environment:** The policy environment is broadly supportive, with clear directives on storage's role.
- **Ease of Development:** Barriers include:
- **Macro & Regional Risks:** For BESS pursuing merchant revenue routes through spot energy and reserve markets, there is market risk due to (i) significant GEA capacities (e.g. for pumped hydro) which are expected to attenuate arbitrage opportunities, and (ii) regulatory reasons (NGCP's ability to influence spot reserve quantities procured).

Regulatory Quality
Government Effectiveness
Political Stability:
Corruption and Rule of Law:
Credit Ratings:
Inflation:
Growth:
Openness to Foreign Investment:

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South Africa: A word from our regional expert

David Olierook
South Africa battery storage expert

- **Market Size & Growth:** South Africa's battery storage market is nascent but is set for substantial growth.
- **Profitability & Revenue Stack:** Battery storage monetisation in South Africa is currently fragmented, with most commercial returns hinging on peaking support and energy shifting for grid stability (particularly for Eskom), co-location with solar PV for enhanced self-consumption and peak shaving, participation in government-led tenders such as the Battery Energy Storage IPP Procurement Programme (BESIPPPP).
- **Market Liquidity & Investor Activity:** South Africa's M&A and project finance landscape in the low-carbon power sector is relatively mature compared to other African markets, though still limited when compared to global benchmarks.
- **Policy & Regulatory Environment:** South Africa's policy environment is broadly supportive, albeit occasionally hampered by implementation delays and institutional bottlenecks.
- **Ease of Development:** the ease of developing battery storage projects in South Africa varies significantly by project type and location.
- **Macro & Regional Risks:** South Africa presents a mixed macro and institutional risk profile.

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South Korea: A word from our regional expert

Zhi Qin Low
South Korea battery storage expert

- **Market Size & Growth:** South Korea's installed BESS capacity currently stands at approximately
- **Profitability & Revenue Stack:** BESS projects were once highly profitable under a generous
- **Market Liquidity & Investor Activity:** Secondary trading of operating BESS assets is limited because there are very few utility scale projects and most remain under control or tied to long term contracts.
- **Policy & Regulatory Environment:** South Korea's ESS policy history is a clear arc of boom-bust-renewal:
- **Ease of Development: Barriers include:**
- **Macro & Regional Risks: Regulatory Quality:** Strong (World Bank rank ~
- **Openness to Foreign Investment:**

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Section 3: Thematic Insights

Looking across our markets, we analyse four key thematic trends:

Thematic 1: Asymmetric capacity growth: predicting the peak

Battery capacity growth is expected to grow significantly in the years ahead; driven disproportionately by large energy markets. Major European markets like GB and Germany see peak capacity growth reached by 2030, with US ISOs, APAC and smaller European markets accelerating growth significantly later. The battery market tilts to longer duration assets over time but does so at different speeds.

Thematic 2: Profitability and capacity growth: a sweet spot

Maximising profitability as a global investment fund requires strategic clarity on three key dimensions: 'the what' (duration), 'the where' (geographic market), and 'the when' (commercial operation date). These factors shape the investment thesis and determine the ability to capture value across different market cycles. However, it's equally critical to assess profitability sensitivity – how returns respond to shifts in the market landscape. For example, if battery buildout doubles relative to current assumptions, how does that impact profitability? Is the investment thesis resilient to such changes, or does it require recalibration? Additionally, investors must recognise the evolving revenue mix. Over time, the contribution from ancillary services is expected to decline as these markets saturate. Conversely, returns from energy arbitrage – particularly in wholesale and balancing markets – are likely to grow, driven by increased volatility and deeper market integration. Understanding these dynamics is essential to identifying the "sweet spot" where capacity growth aligns with sustainable profitability.

Thematic 3: Policy attractiveness differs widely by market

Battery storage markets are evolving rapidly from policy-backed to market-driven frameworks. Early revenues have been underpinned by government contracts, capacity mechanisms, and ancillary service tenders, but these are saturating as more capacity comes online. Investors are increasingly exposed to merchant revenues from arbitrage and balancing, with returns linked directly to power price volatility and system stress. Credibility remains high in mature markets, but durability is less certain as product designs shift and policy cycles change. In emerging markets, credibility is lower but momentum is strong, with new programmes opening the door for investment. For BESS, the key trend is compression of risk-free policy returns and faster exposure to competitive, volatility-driven income streams compared to renewables, demanding more sophisticated structuring and risk management.

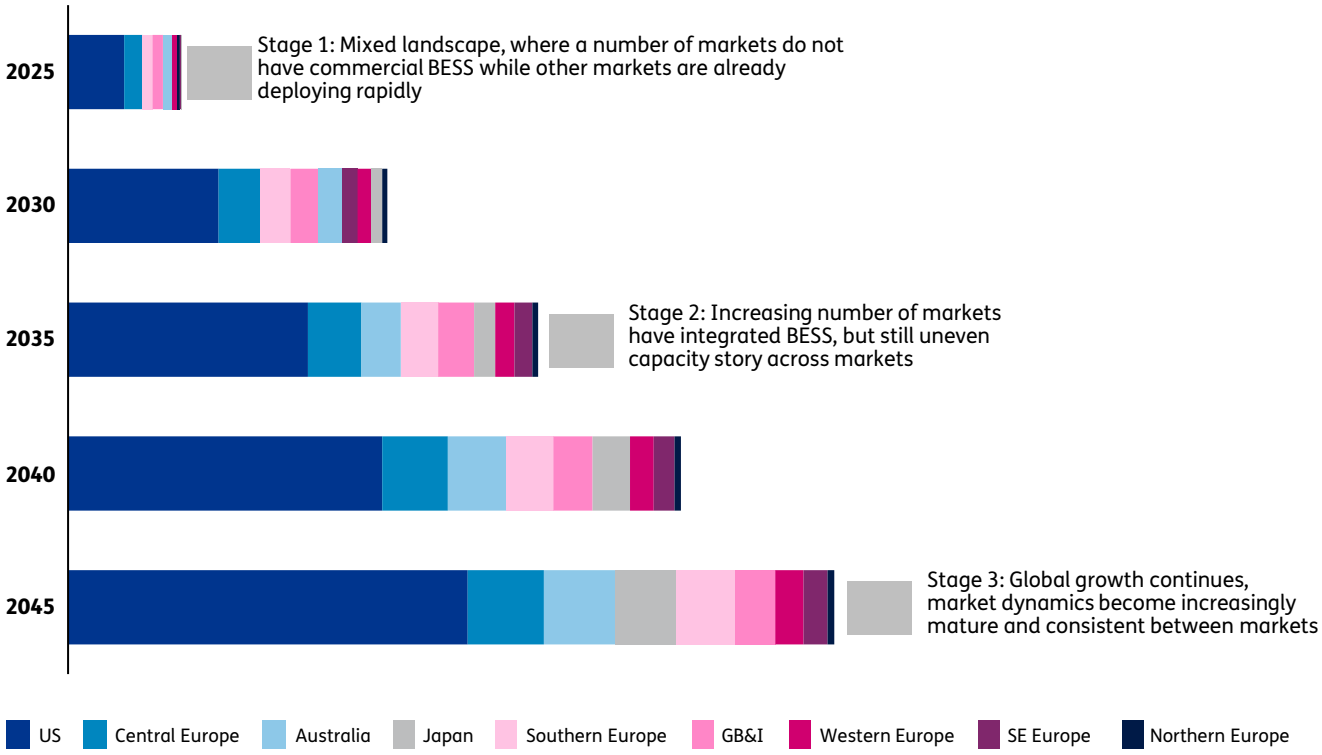
Thematic 4: Liquidity concentrated in mature markets

Transaction activity – both M&A and debt financing – remains heavily concentrated in a small number of mature markets, particularly the US, GB&I, Southern Europe, and Australia. These markets benefit from investor familiarity, established optimiser ecosystems, stable policy frameworks and strong stable revenues. Emerging regions show promising growth but contribute only marginally to global deal volume today. As more nascent markets establish clearer revenue models and regulatory clarity, capital is expected to diversify, though the near-term outlook remains skewed toward markets with deep liquidity and repeatable asset models.

Thematic 1: Asymmetric capacity growth: predicting the peak

Global Growth Story: battery capacity accelerating over the next few years

Battery Capacity by Market (GW)



Global battery capacity is set to accelerate dramatically over the next two decades, driven by rapid commercial deployment of Battery Energy Storage Systems (BESS) across key markets. In 2025, the market is still in a mixed landscape, with some regions lacking commercial-scale projects while others are scaling quickly. By 2030, we forecast around GW of installed capacity – tripling from today – under our Reference Case, equivalent to around GW of additional capacity every five years.

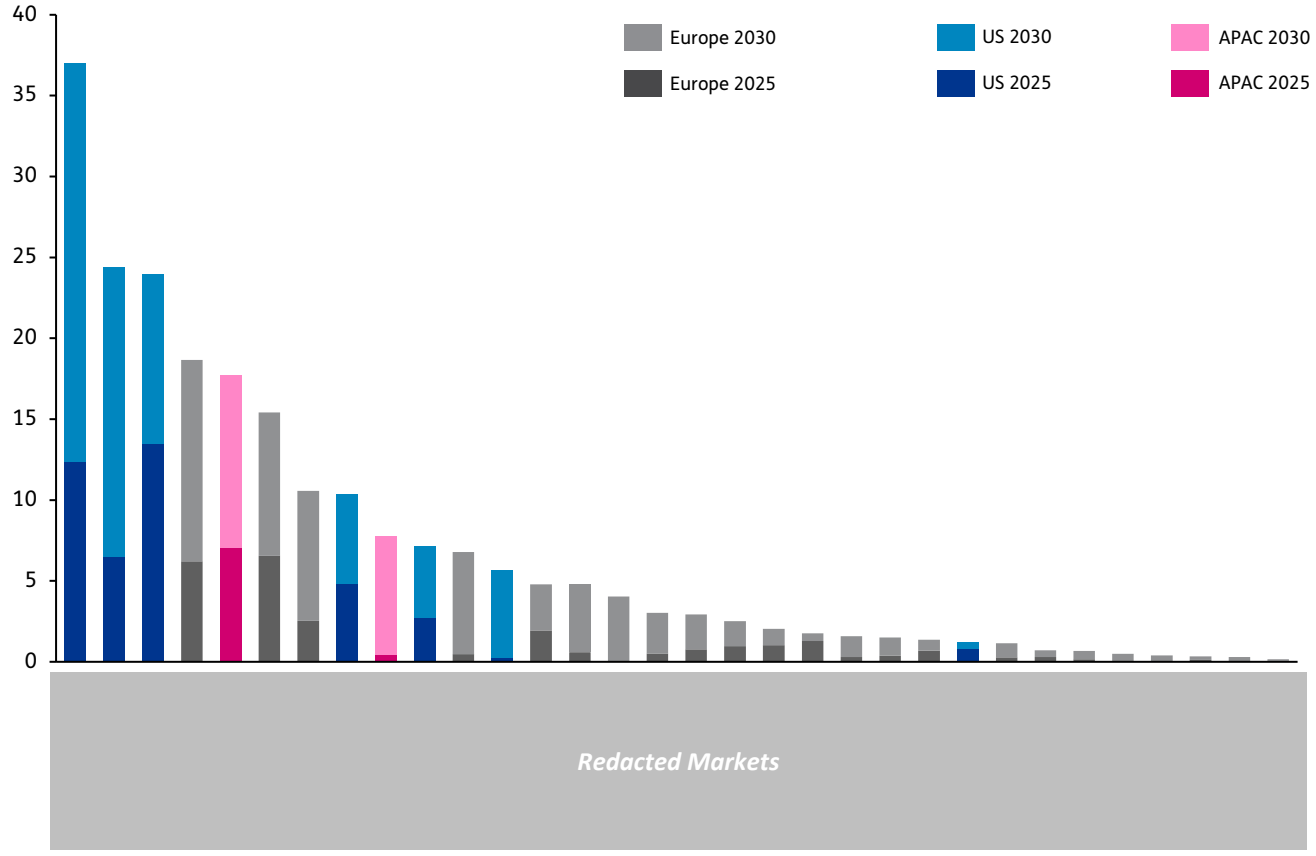
This growth reflects Stage 2, where more markets integrate BESS but deployment remains uneven, with the US and Europe leading while other regions catch up. By 2040, capacity reaches nearly GW, with market participation becoming more widespread and project pipelines increasingly diversified.

By 2045, we enter Stage 3 – a mature global market with consistent growth patterns between regions and a total of close to GW of capacity. While this trajectory represents the most likely pathway under current market conditions, achieving Net Zero will require deployment rates to accelerate even further, particularly in emerging markets that are still in the early adoption phase today.

Note: Capacity in the above graphic only accounts for markets included in the ranked index. To see capacity projections of specific markets and regions not included in the index, please contact us. Capacity does not include 'behind the meter' battery capacity.

Capacity growth concentrated in mature markets

Capacity in 2025 and additions to 2030, GW



Battery storage deployment over the next five years is **heavily concentrated in mature markets**, with the largest capacity additions coming from regions that already have significant installed capacity and established market structures. By 2030, US ISOs – particularly **ERCOT, PJM, and CAISO** – are projected to dominate global growth, reflecting both strong existing market frameworks and high levels of renewable energy deployment.

In Europe, **Germany, Great Britain, Italy, and Spain** lead build-out, supported by rapidly expanding renewable generation. **Australia** remains the standout in the APAC region, continuing to leverage its high solar penetration and growing need for firming capacity.

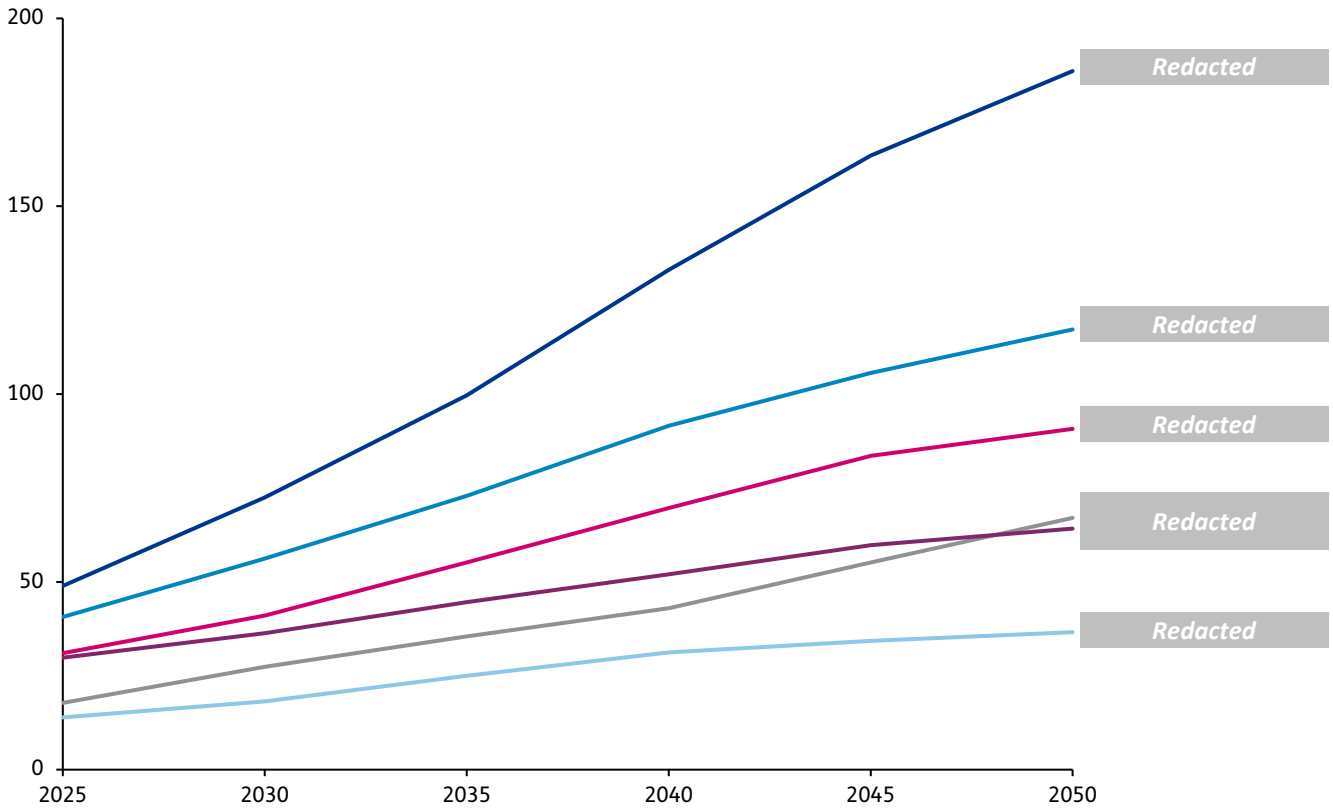
In contrast, growth in less mature markets remains modest in the short term, with smaller capacity additions reflecting barriers such as weaker market incentives, limited regulatory structures, and slower renewable roll-out. Over time, these markets may accelerate as costs decline and policy frameworks mature, but for now, **the global growth story remains anchored in developed energy markets**.

Note 1: Maturity references size of existing capacity.
Note 2: Capacity does not include 'behind the meter' battery capacity.

Source: Baringa

European Case Study: High Residual Load Drives Need for BESS

Total Residual Load for Markets within the Region (TWh)



Across Europe, the growing gap between electricity demand and renewable generation – the **residual load** – is set to widen substantially over the coming decades. This is being driven by two reinforcing trends: rising overall electricity consumption and a higher share of variable renewables on the grid.

stands out as the region with the fastest-growing residual load, projected to more than triple by 2050, driven by strong solar deployment and high seasonal variability. **and** also see steep increases, reflecting electrification of transport and industry, alongside accelerating renewable penetration.

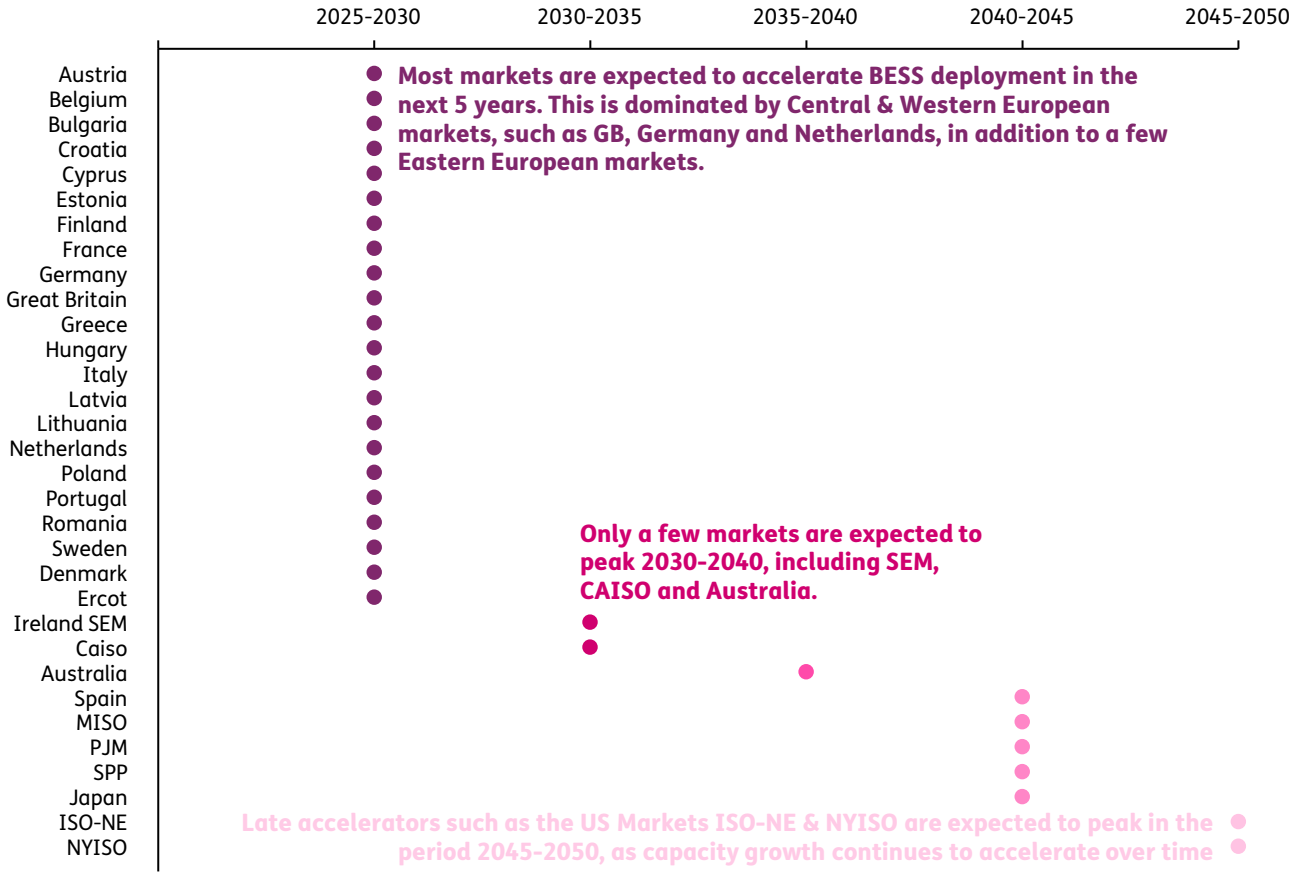
This widening residual load represents **a major opportunity and necessity** for flexible energy solutions, particularly **Battery Energy Storage Systems (BESS)**, which can help balance the grid by shifting renewable generation to periods of higher demand. While the need is most acute in Southern and Central Europe, all regions will require significant investments in flexibility to maintain system stability and enable deeper decarbonisation.

Residual load refers to the portion of electricity demand that remains after subtracting generation from renewable and nuclear sources. It represents the amount of energy that must be supplied by **flexible resources**, such as energy storage systems, dispatchable thermal power plants, and demand-side response.

Understanding residual load is crucial for assessing the **opportunity and need for flexible energy solutions** in a given region. It effectively highlights the gap that must be filled to maintain grid reliability and balance, especially as renewable penetration increases.

Predicting the Peak: Capacity Growth

Peak of capacity growth by time period and state/region



The timing of peak BESS capacity growth varies widely between markets, reflecting differences in market maturity, renewable integration, and policy ambition. **Most markets listed** – particularly in **Central and Western Europe** – are expected to accelerate deployment rapidly and reach peak growth before 2030. This early surge is driven by strong policy support, established market frameworks, and urgent needs to integrate growing volumes of renewables

A smaller group, including **Ireland SEM, CAISO, and Australia**, is forecast to peak between 2030 and 2040, reflecting either later-stage scaling or market-specific drivers such as grid constraints and investment cycles.

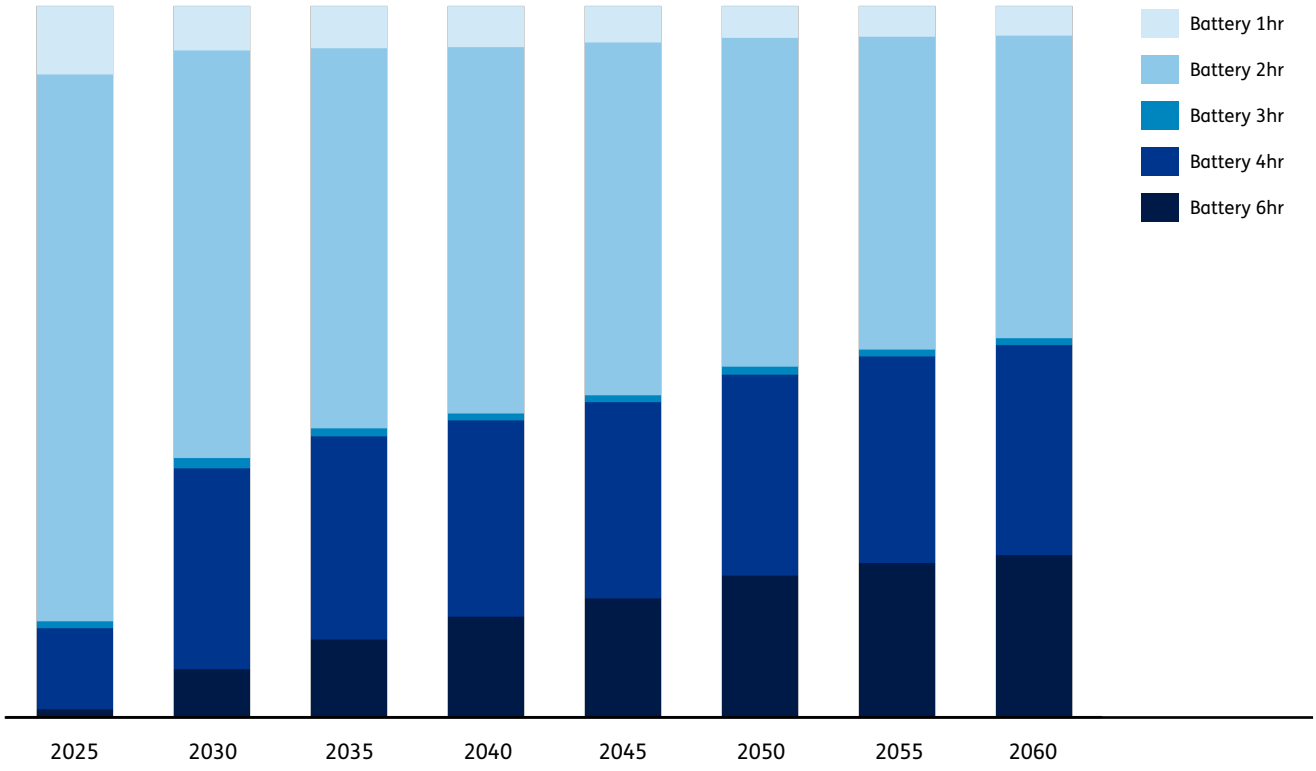
Late accelerators, such as **ISO-NE** and **NYISO**, are expected to peak only between 2045 and 2050, highlighting how structural, regulatory, and demand-side factors can delay large-scale deployment.

While market maturity is a key factor, **size also matters** – CAISO, despite being one of the largest markets globally, peaks later due to its sustained build-out potential and high capacity requirements. This illustrates that the global BESS story is not a uniform race to the top, but rather a staggered rollout shaped by local conditions and policy environments.

Note: Capacity growth defined in absolute terms.

Although 2-hour batteries currently dominate Europe, we expect a shift to longer duration storage

European (27) Battery Capacity by Duration Type (%)



Today, Europe's battery storage market is dominated by **short-duration assets**, with 2-hour batteries making up the bulk of installed capacity. As markets mature, we expect **a progressive shift towards longer-duration systems**, with assets over three hours accounting for more than 50% of total capacity by 2060.

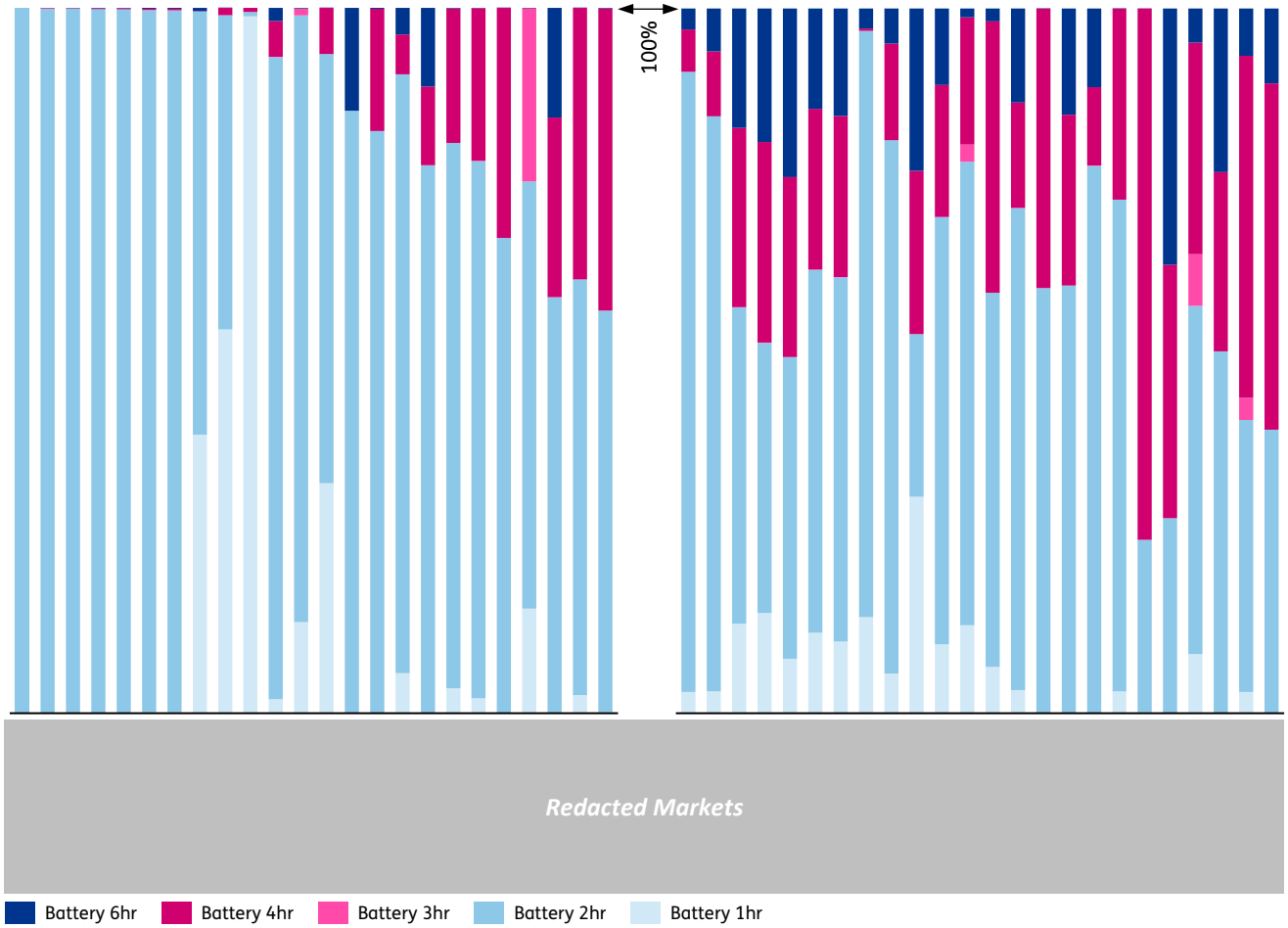
This transition will be driven by **falling costs and improving commercial viability** for +4h assets, supported by steeper learning curves, manufacturing efficiencies, and greater developer experience. As deployment scales, **capex reductions** will accelerate, making longer-duration storage increasingly competitive for applications such as firming renewable generation, providing multi-hour grid balancing, and reducing curtailment.

From the 2030s onwards, cost pressures may also spur **technology diversification**. Sodium-ion batteries, which benefit from abundant raw materials and lower costs compared with lithium, could emerge as a preferred electrochemical storage solution – further supporting the economic case for longer-duration assets in Europe's storage mix.

Battery duration by market in 2025 & 2035; European Case Study

2025 Battery Capacity by Duration Type and Market (%)

2035 Battery Capacity by Duration Type and Market (%)



By 2025, Europe's battery fleet remains heavily skewed towards **short-duration assets**, with 2-hour batteries dominating across nearly all markets. Only a few countries, primarily in Southern and Eastern Europe, show meaningful adoption of 3-hour or longer storage durations at this stage.

Looking ahead to 2035, the **shift towards longer-duration systems** becomes far more pronounced, though the pace varies significantly by market. Less **interconnected markets**, such as those in the Balkans, transition more quickly to 3-hour and 4-hour systems, where the commercial case is stronger earlier due to higher flexibility needs and limited ability to trade surplus power with neighbors.

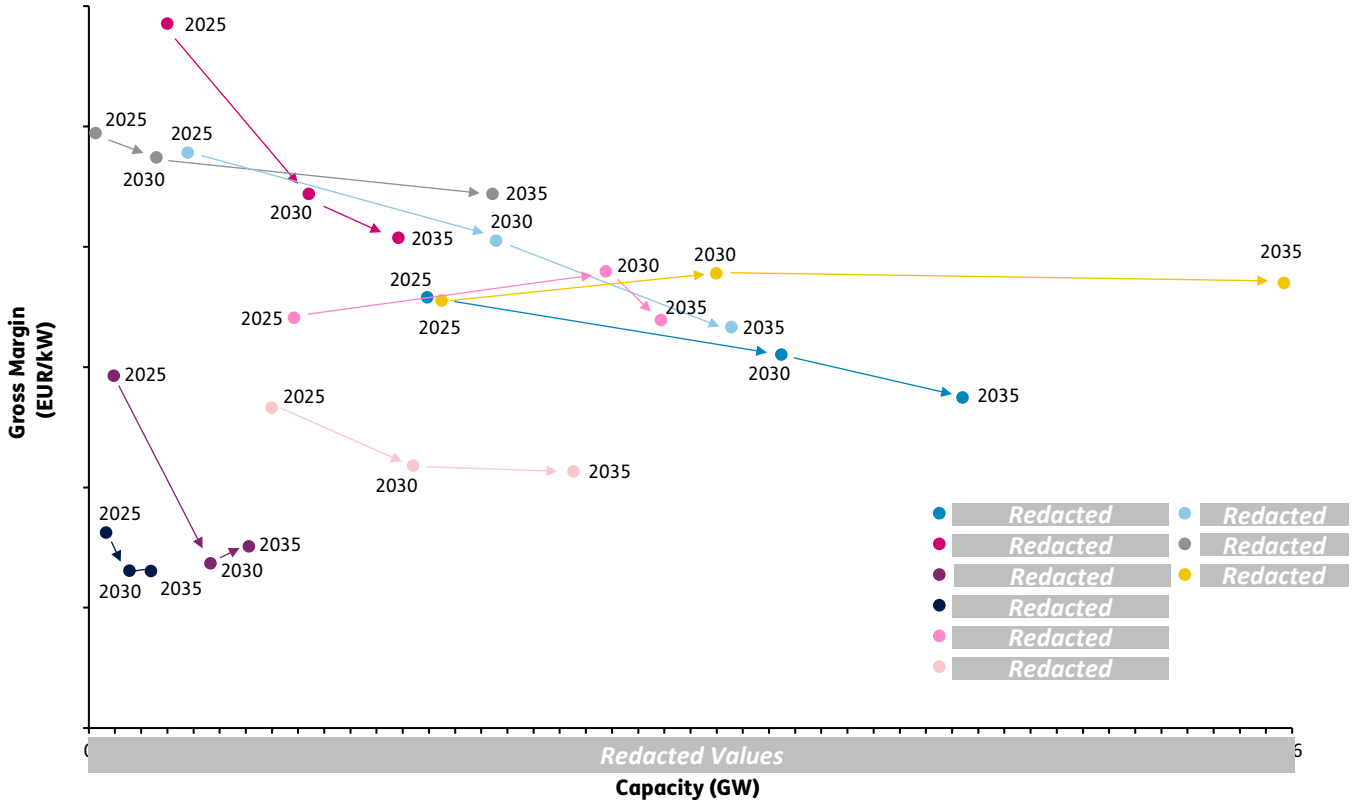
Meanwhile, in highly interconnected Northern and Western European markets, shorter durations still maintain a significant share, reflecting greater reliance on cross-border balancing and the slower economic tipping point for long-duration storage. This divergence underscores how **market structure and interconnection levels** will be key determinants of how quickly storage durations evolve across Europe.

Note: We have taken a select group of markets to exclude markets with less than 5 MW of capacity in 2025.

Thematic 2: Profitability and capacity growth: a sweet spot

Capacity Acceleration Squeezes Gross Margins

Total Capacity and Average 2h Gross Margin by Region and Year



As battery capacity expands rapidly across global markets, **gross margins for 2-hour assets are expected to decline**, reflecting the growing impact of market saturation and **revenue cannibalisation**. In 2025, regions with lower installed capacity – such as Central and Western Europe – see higher average margins.

By 2030 and 2035, margins fall across all regions as installed capacity increases and competition between assets intensifies. The steepest declines occur in markets with the fastest capacity growth, particularly [redacted], where high renewable penetration amplifies volatility but also accelerates the erosion of price differentials that storage can capture.

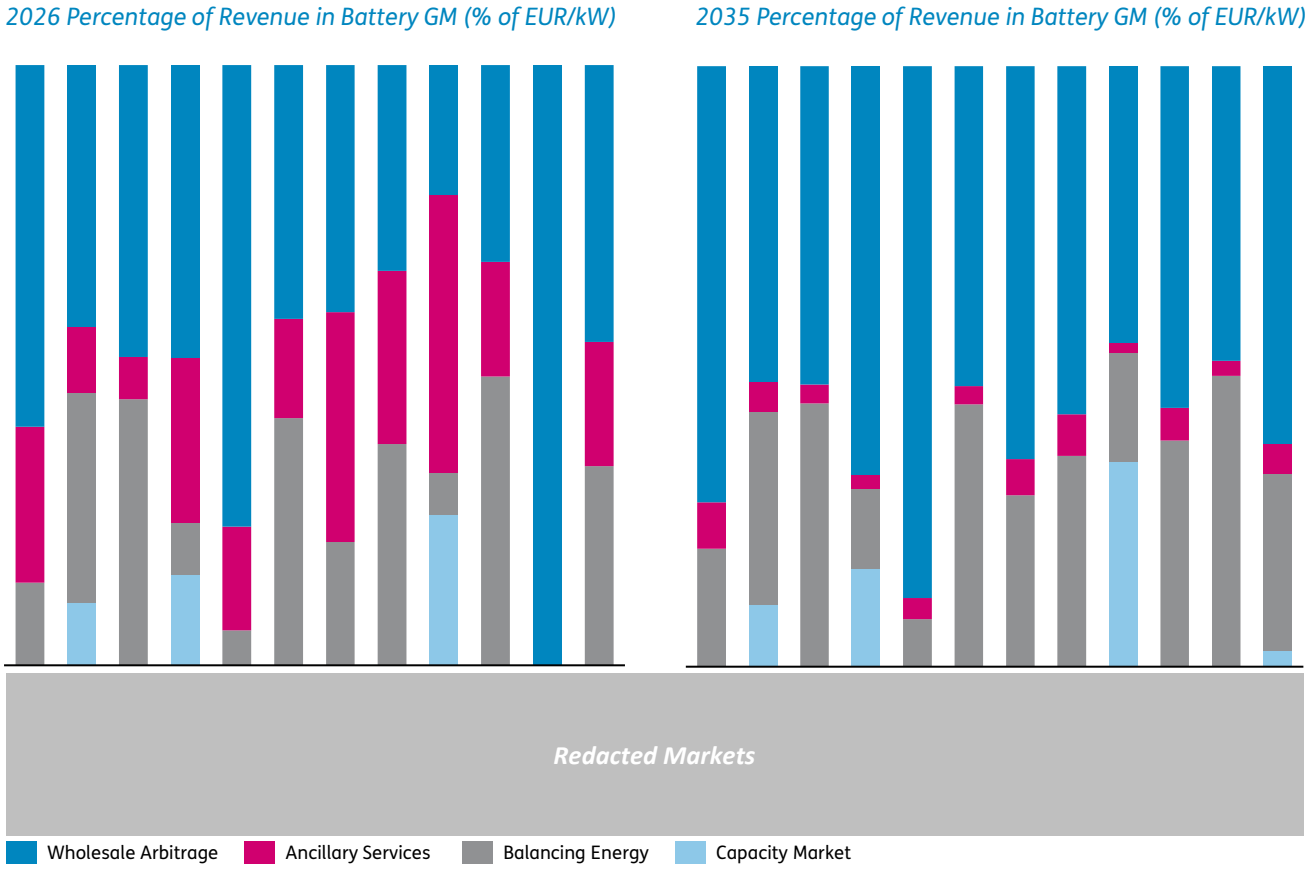
[redacted] shows a slower margin decline compared to other markets, even at high capacity levels, reflecting its larger market size and sustained demand for flexibility. However, even here, returns compress over time as the market absorbs more storage.

The challenge for investors and developers will be **finding the "sweet spot"** – timing market entry to capture high initial margins before competitive pressures drive revenues down, while also positioning assets for future value streams beyond pure arbitrage.

This risk is especially acute for legacy batteries as falling capex enables new batteries to be better positioned to manage this revenue pressure.

Note: Due to the US' large capacity, we have used CAISO to represent the US within this graph as it is the largest of the US ISO's included in terms of capacity 2025.

Gross Margins for spot year 2026 and 2035 for a 4-hour BESS across selected European markets



For 4-hour duration batteries, the revenue mix evolves significantly between **2026** and **2035**, reflecting shifting market dynamics and the maturation of storage assets.

In 2026, revenues are more evenly distributed across **wholesale arbitrage, ancillary services, balancing energy**, and – in some markets – **capacity payments**. Ancillary services, particularly frequency response, remain an important early revenue stream in countries such as **France, Belgium, and Greece**, where market needs are high and competition for these services is still relatively limited.

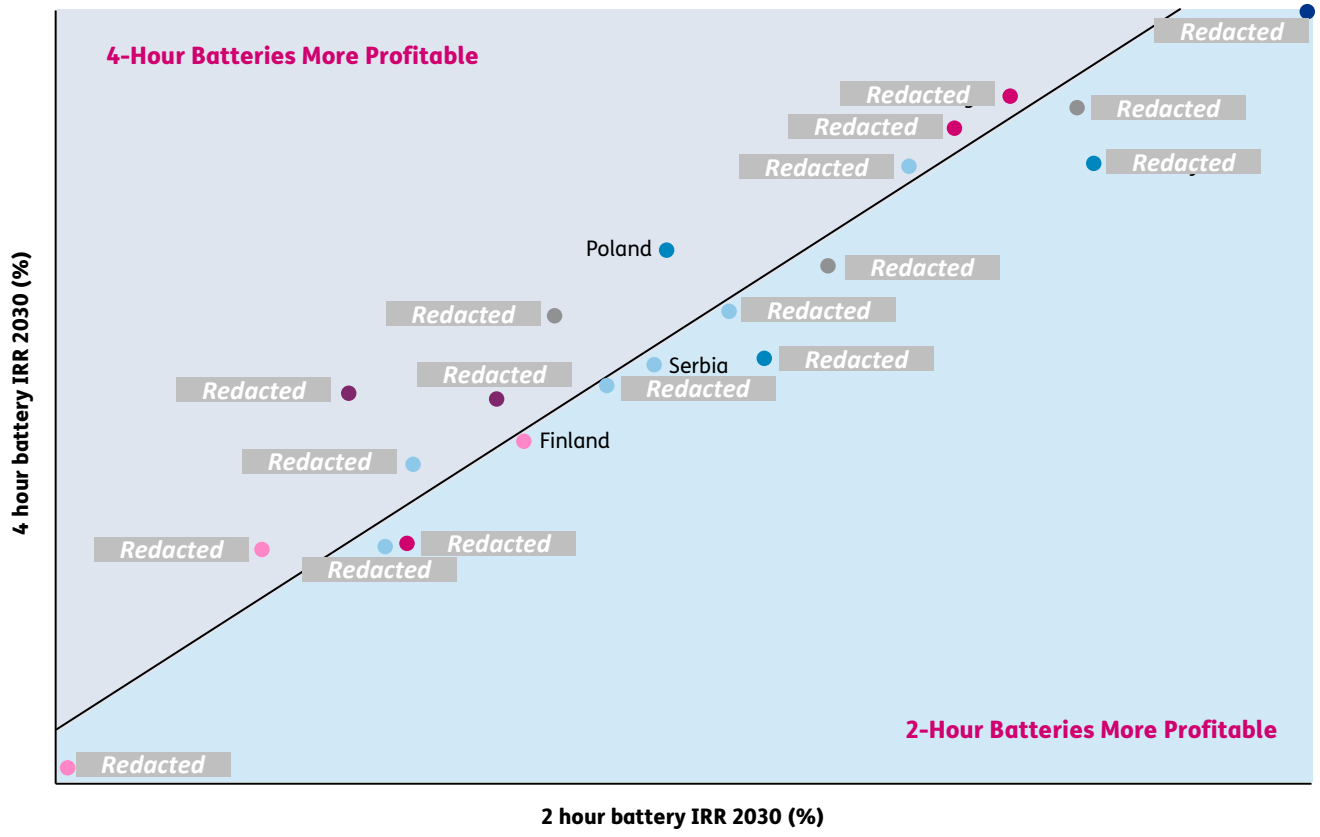
By 2035, **wholesale arbitrage** emerges as the dominant revenue driver across almost all markets. This shift is fuelled by the rising penetration of variable renewables, which increases price volatility and widens arbitrage opportunities. Meanwhile, the share of ancillary service revenues declines as these markets become saturated and finite system needs are met, limiting incremental value.

The transition underscores the importance of **market adaptability** for 4-hour assets – initially monetising high-margin ancillary opportunities before pivoting towards wholesale market optimisation as systems become more renewables-heavy and arbitrage spreads improve.

Note: Wholesale arbitrage includes both day ahead and intraday revenue, and anciliary services includes both FRC and aFRR. Please contact us for further breakdowns.

European IRR Case Study: Finding Additional Uplift

4- and 2-hour Battery Duration IRR in 2030 (%)



The **internal rate of return (IRR)** for battery storage assets is shaped by gross margins, degradation rates, and overall cost structure. Profitability varies significantly across European markets, with [redacted] and [redacted] (e.g. [redacted]) emerging as some of the most attractive opportunities for battery storage by 2030. These markets consistently show higher IRRs, particularly for 4-hour batteries, which tend to outperform 2-hour durations in regions with greater price volatility and renewable penetration.

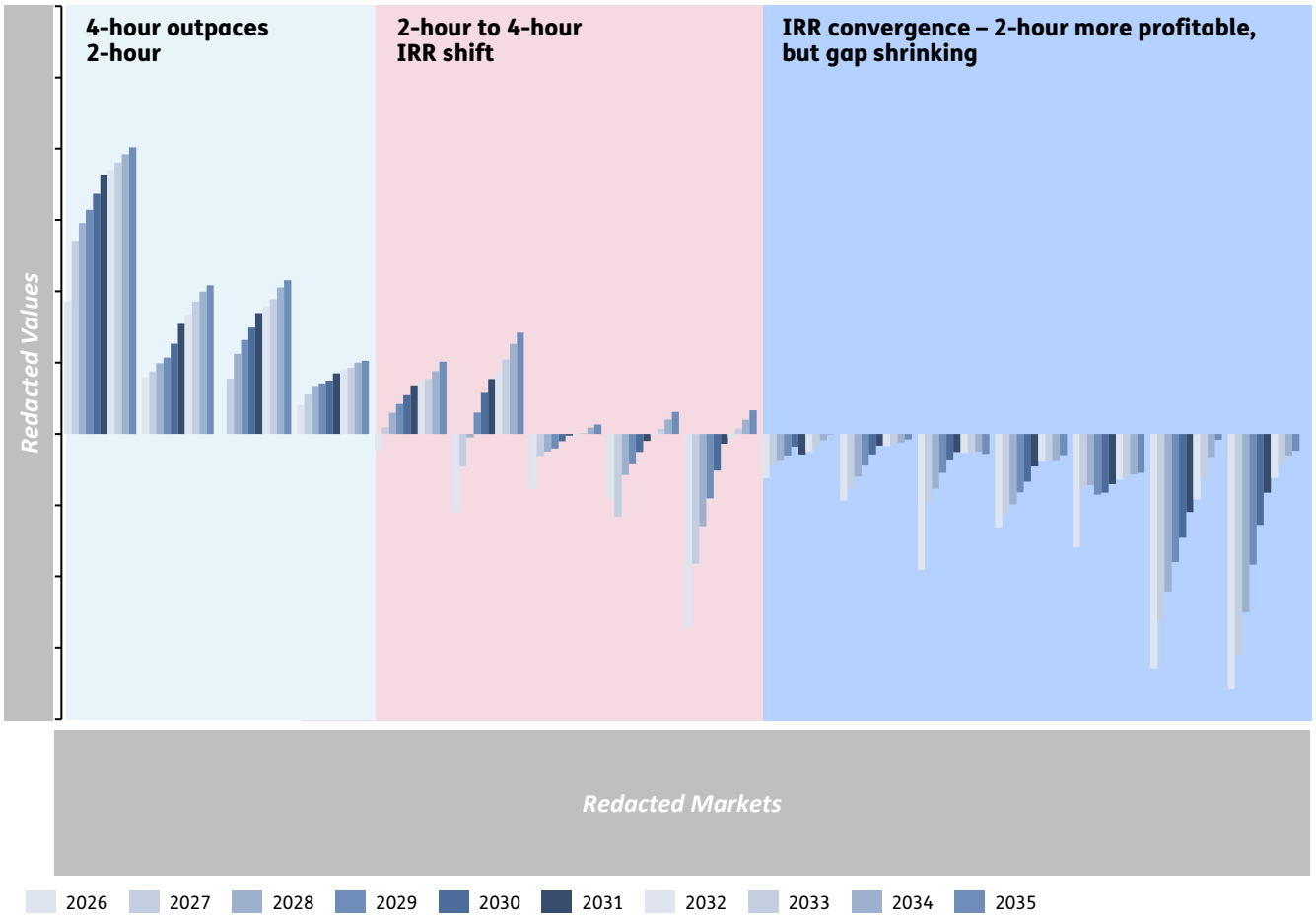
In contrast, [redacted] and [redacted] European markets (e.g. [redacted], [redacted], [redacted]) appear less profitable, reflecting lower gross margin opportunity and limited revenue stacking opportunities. [redacted] Europe presents a mixed picture, with markets like [redacted] and [redacted] showing solid IRR potential, while others remain closer to the margin.

Crucially, IRR outcomes are highly sensitive to buildout pace and timing. Early movers may capture stronger returns before markets saturate, while delayed deployment risks facing reduced spreads and increased competition. Policy support, market design, and the alignment of capacity buildout with renewable growth will all be critical in determining actual realized returns.

Note: IRR (Internal Rate of Return) is a financial metric used to assess the profitability of a BESS investment. In this analysis, IRRs are calculated on a pre-tax, real 2025 basis, assuming a 15-year project lifetime. A salvage value is included at the end of the project, set at 100% of grid connection CAPEX and 10% of battery pack, power conversion system, and balance of plant CAPEX.

As markets mature, longer duration batteries become more profitable

Delta between 2- and 4-hour battery IRRs 2026-2035



Our modelling shows that **4-hour batteries are increasing in profitability faster than 2-hour systems** across many European markets. This shift is being led by more mature markets such as [redacted], [redacted], [redacted], where widening residual loads and enhanced arbitrage opportunities make longer-duration assets more attractive. In addition, higher de-rating factors improve their ability to access capacity revenues, further boosting returns.

In [redacted], the case for 4-hour solutions is being strengthened by initiatives such as **"peak shaving" pilots**, which aim to lower system costs by balancing demand during high-consumption periods. By leveraging multi-hour flexibility, these assets improve grid stability and reduce peak costs – making them an increasingly essential part of the battery mix.

While the pace of this transition varies, the data suggest that as markets mature and flexibility needs grow, **longer-duration storage will increasingly outpace shorter assets in profitability** – providing a clear signal for investors to adapt their technology strategies accordingly.

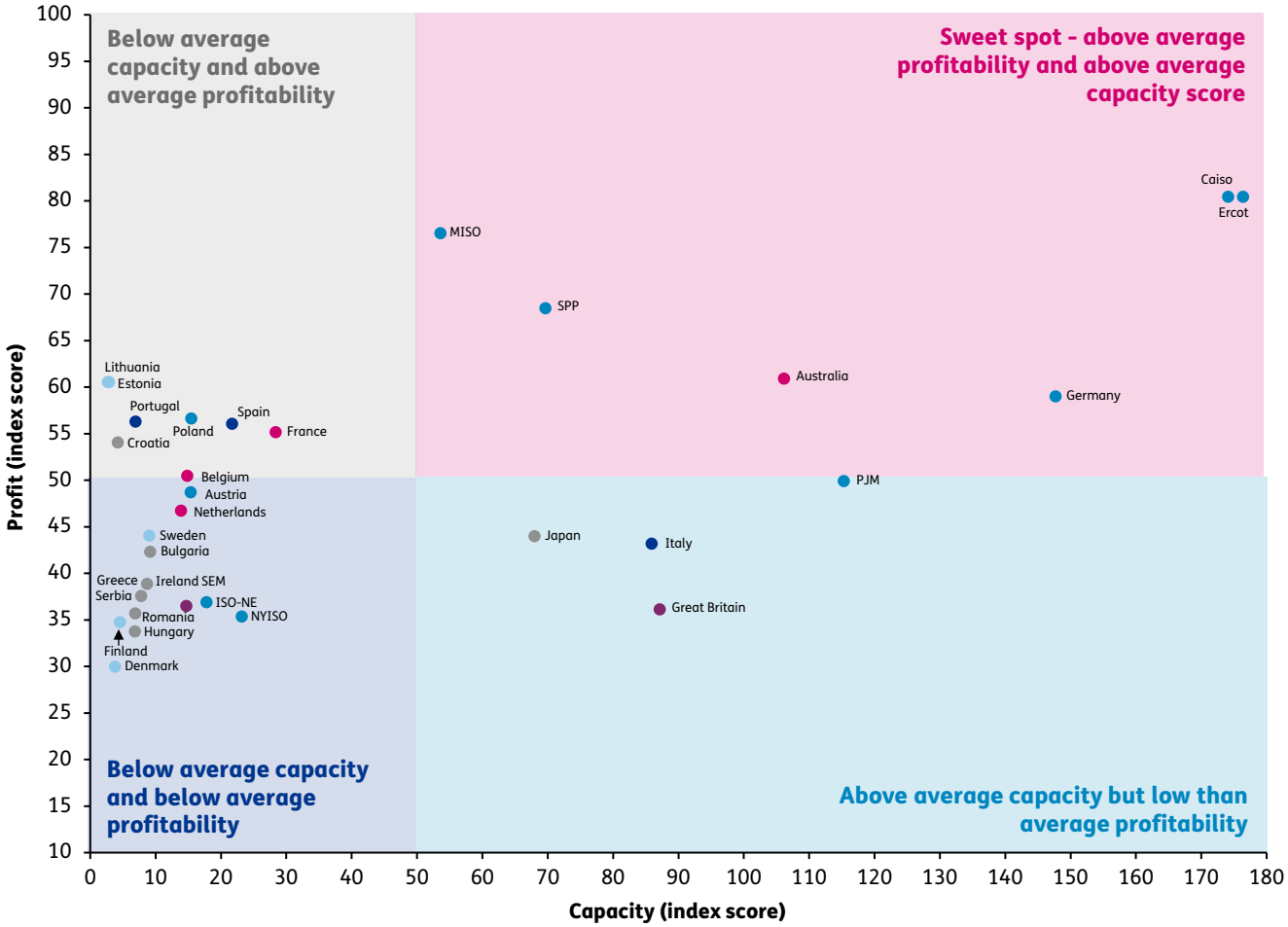
Consumption resulting in greater grid stability, for which 4-hour batteries are increasingly critical for as part of the battery mix.

Note: For zonal markets – Italy and Sweden – the average IRR of the whole market has been taken. Zone level IRRs are available on request.

Source: Infralogic

Identifying the “sweet spot” for long term investment requires markets with both high market size and high profitability scores.

Market Size and Profitability Score



This analysis highlights the markets that currently offer the most attractive combination of **high installed or committed capacity** and **above-average profitability**. These “sweet spot” markets – such as **Germany, Spain, France**, and leading US ISOs including **CAISO and ERCOT** – combine scale with strong revenue opportunities, making them stand-out destinations for investment.

Markets in the bottom-right quadrant (above-average capacity but below-average profitability), such as **Great Britain and PJM,** have significant installed capacity but face greater competitive pressure and tighter margins. Meanwhile, those in the **top-left quadrant** show strong profitability despite smaller capacity bases, potentially representing earlier-stage opportunities for growth before competition intensifies.

Understanding where each market sits on this capacity-profitability map helps investors prioritise near-term opportunities and develop strategies that balance **scale, return potential, and exposure to margin compression**.

Thematic 3: Policy attractiveness differs widely by market

Baringa's Credibility and Durability Assessment

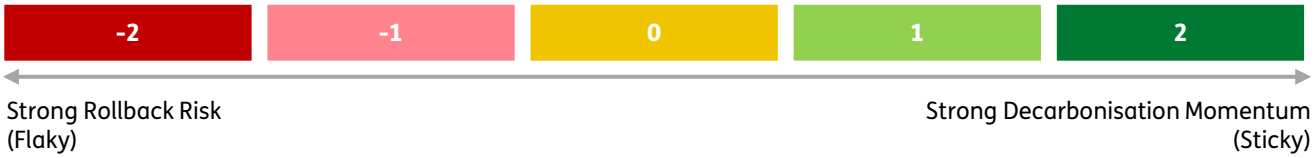
The credibility assessment examines to what extent a policy supports a defined emission commitment, with a higher score indicating a greater likelihood that those targets will be met. The durability assessment examines the degree to which a policy will have an impact as a result of the existing political and policy environment, with a higher score denoting strong momentum in favour of decarbonisation with commitment "baked in". A high credibility and durability score signal a target is very likely to be met. A low set of scores signals a target is very likely to be missed. Stronger environmental commitments in aggregate is expected to support BESS commercial rollout through the need for greater storage and flexibility in light of renewable intermittency.

Credibility: (Maturity)

"To what extent do current polices support the emission reduction target"

Durability: (Momentum)

"With what likelihood will the current policies (the credibility score) strengthen or weaken over time"



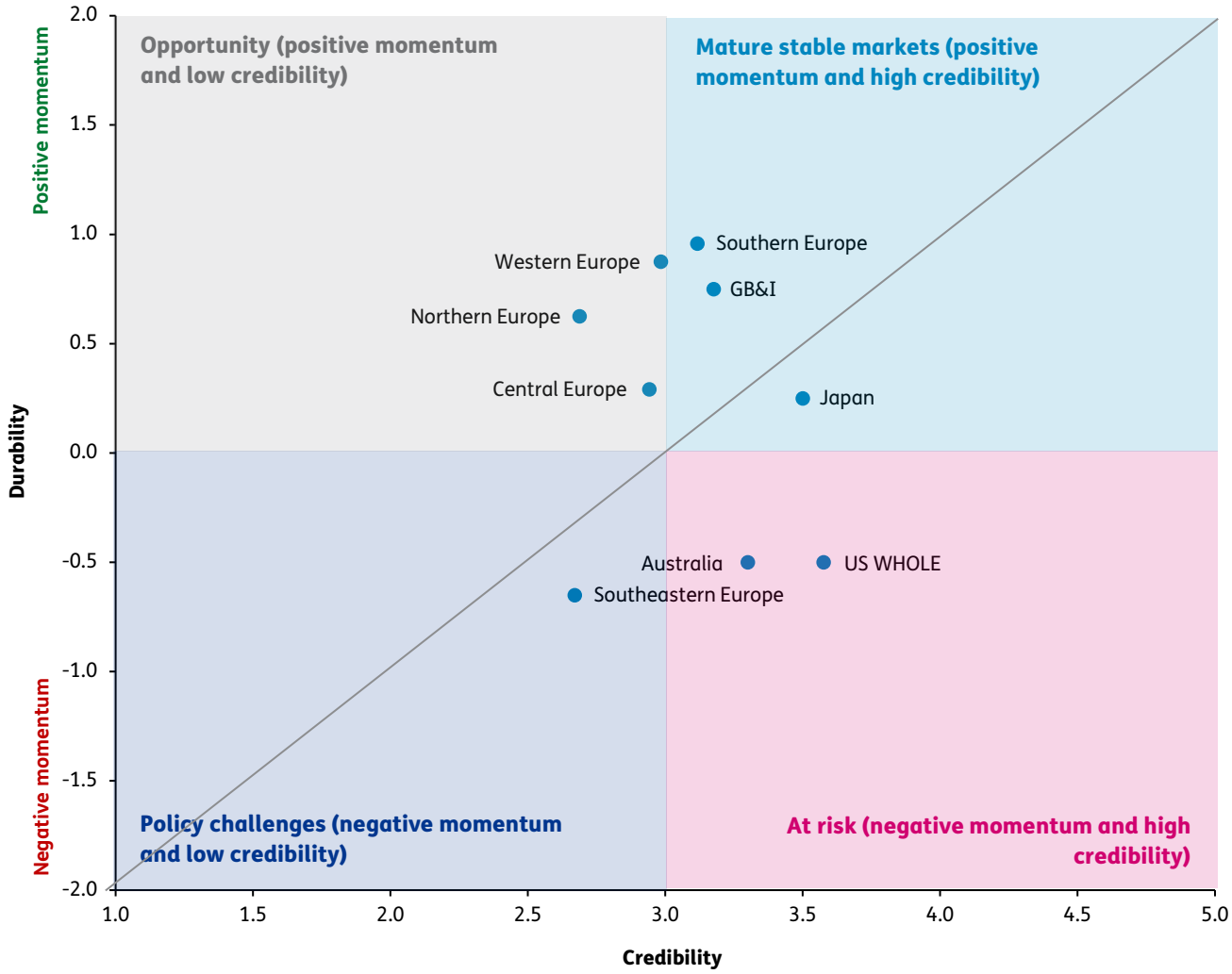
Credibility	Durability	Emissions Target Impact
▲ HIGH	▲ HIGH	+ LIKELY TO BE MET
▼ LOW	▼ LOW	− SIGNIFICANTLY MISS

We have assessed the credibility and durability of national climate and energy policy, drawing out key differences across regions

The Baringa Credibility and Durability assessment is a framework to assess national climate and energy policy across the world.

It considers the credibility of long-term targets, including the legislative status of the target, the existence of detailed plans, as well as annual reporting and accountability mechanisms. It also considers NDCs, interim targets and different types of climate change law. In addition to this, we consider BESS specific policy, such as subsidies and tax benefits available, the integration of BESS into decarbonisation plans, as well as general government investment into BESS development – for example through R&D funding. These considerations create a broad view of market sentiment and support structures that can either accelerate or create barriers to BESS deployment. Moreover, the framework also assesses the durability of climate policy by assessing support of the target across government and opposition parties as well as political volatility.

Mature stable markets feature positive momentum and high credibility of national policy and therefore have lower policy risk. On the contrary, country at risk have policy with high credibility but low durability: roll-back risks are heightened. Opportunities may lie in countries that are currently on a target with low credibility but have gained positive momentum and are likely to improve their target. Lastly, policy challenges exist in countries with policy featuring low credibility and a negative momentum.

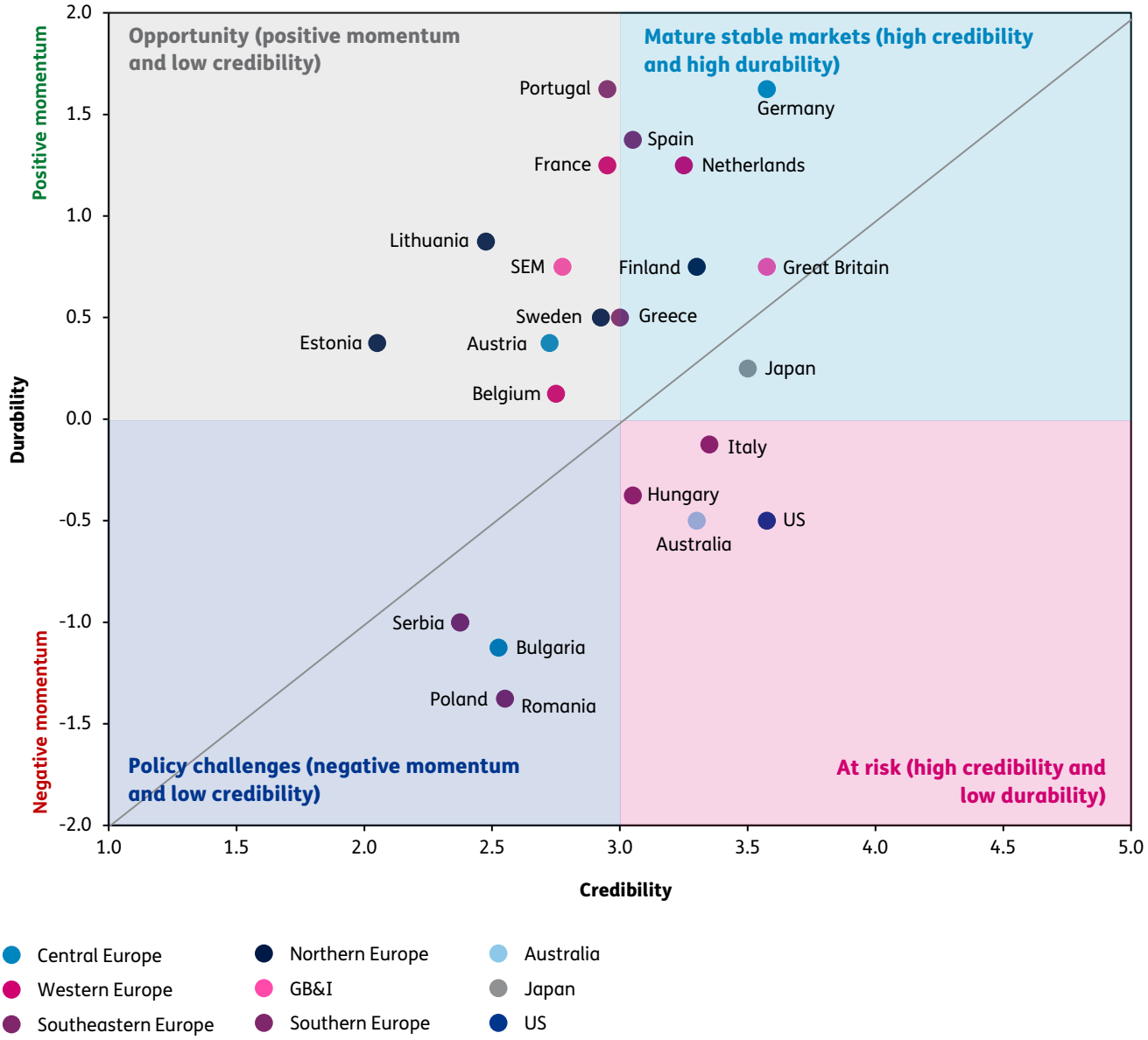


Large parts of Europe score high in durability and credibility but within region heterogeneity remains significant

Large parts of Europe, especially Western, Central and Northern Europe, feature high credibility and durability scores.

On the other hand, Southeastern Europe faces certain policy challenges. Certain parts of Northern Europe such as Lithuania are gaining positive momentum and are set to improve their policy commitment. Despite traditionally positive momentum, Australia and Japan also have minor risk of rollback with threats to the durability of exiting policy

Countries such as Serbia, Poland and Romania are at risk of policy rollbacks.



High credibility and durability countries demonstrate an attractive policy environment

Germany

Credibility	Durability
xxx	xxx

Redacted Values

- In April 2024, stationary battery storage systems with a total capacity of almost 13 GWh were installed in Germany, which marks a doubling of capacity since January 2023.
- The Federal Ministry for Economic Affairs and Climate Action has been supporting the establishment of efficient battery cell production in Germany since 2020 as part of two IPCEI (Important Projects of Common European Interest). For these two IPCEIs, around €1.5 billion will be provided by 2030.
- The Federal Ministry of Education and Research reorganised its strategic framework for research into battery technologies in January 2023, funding R&D from the material to the battery cell, from basic research to the scaling-up of industrial production processes. However, this goal is currently at risk because due to federal cuts in the federal Climate and Transformation Fund.

US

Credibility	Durability
xxx	xxx

Redacted Values

- The Department of Energy granted US$2.8bn in 2022 for President Biden's Bipartisan Infrastructure Deal, to increase their hand in the battery supply chain, particularly higher up.
- The Inflation Reduction Act, enacted in 2022, provided tax credits and incentives for clean energy projects, quadrupling projected energy storage deployment by 2040, approximately from 50 GW to over 200 GW.

However:

- The incumbent Trump administration imposes questions on the research, adoption, and deployment of BESS due to its preference for shale gas rather than renewable energy sources and systems.
- The threat of Trump's tariffs has significant implications for affordability of BESS, this has already been evident in a number of BESS projects being cancelled across the US since Trumps inauguration.

Japan

Credibility	Durability
xxx	xxx

Redacted Values

- The Japanese government has specific and ambitious targets for BESS by 2030:
  - 150 GWh of a domestic production base per year of liquid LiBs (Lithium-ion batteries) and materials .
  - 600 GWh production capacity in the global market.
  - Achieve a cumulative deployment of approximately 24 GWh for household and commercial/industrial storage batteries combined.
- NEDO (New Energy and Industrial Technology Development Organization) invests heavily into batteries:
  - Japanese Yen equivalent of €30.5mn-€36.6mn into R&D every year.
- In July 2024, the Ministry of Energy, Technology and Industry (METI) selected a group of battery aggregators to provide ancillary services to the electricity grid, providing them with a subsidy of Japanese Yen equivalent of approximately €55mn.

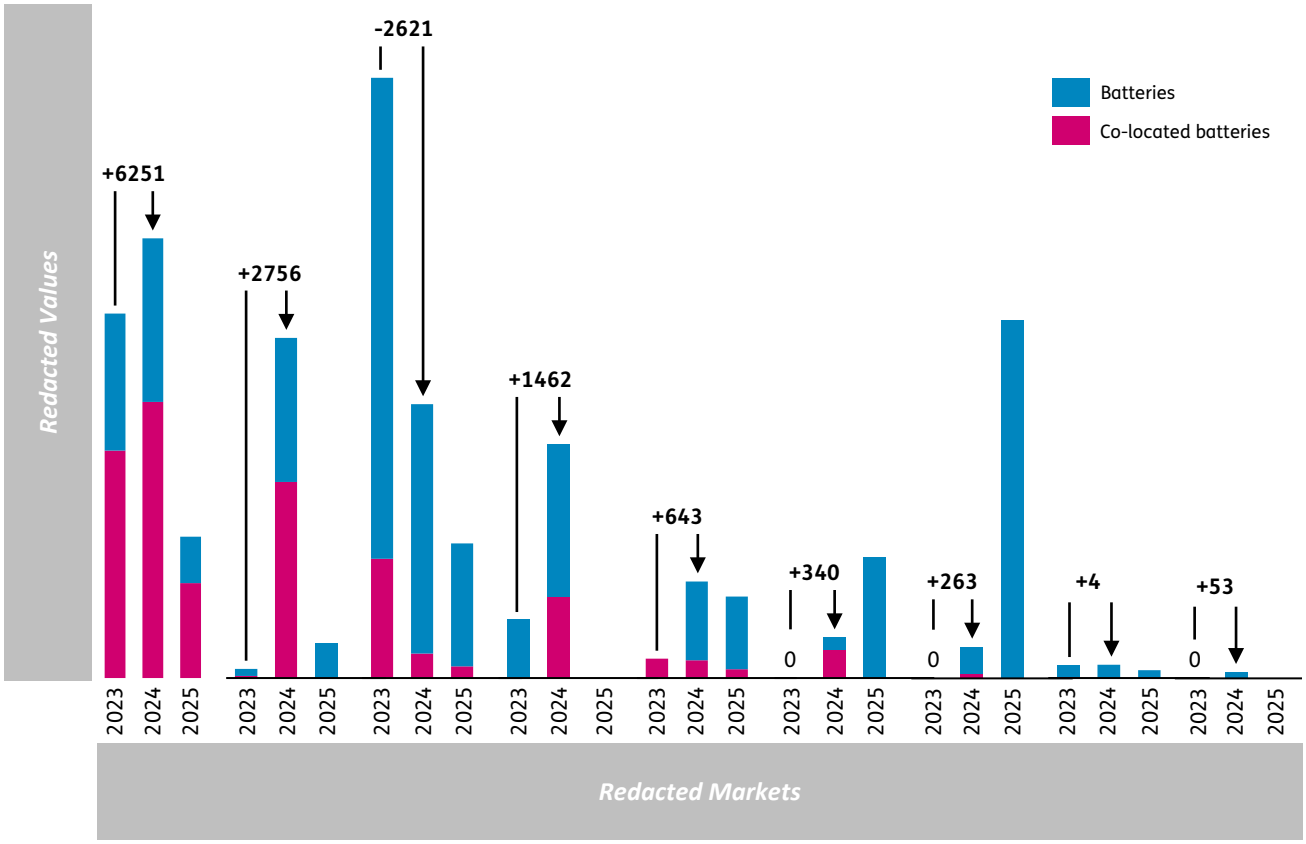
Thematic 4: Liquidity concentrated in mature markets

Stand-alone & Co-located BESS M&A value 2023 & 2024: concentrated in a few markets, but growing

M&A activity in BESS saw strong momentum in 2023 and 2024, with value concentrated in a few leading markets – but with signs of diversification emerging.

- **The US** remains the largest market by far, with closed transaction values rising sharply from 2023 to 2024 – up over **$ billion**, driven by both standalone BESS and colocated deals.
- **Southern Europe** also recorded substantial growth, increasing **$ billion year-on-year**, indicating growing investor appetite in Iberian and Italian markets.
- In contrast, **GB&I (Great Britain & SEM)** saw a marked **decline of $ billion**, as 2023's exceptional pipeline closed and the 2024 market normalised.
- **Australia and Western Europe** experienced moderate growth, with M&A values rising **$ billion** and **$ million** respectively.
- Notably, **Central, Southeastern and Northern Europe** – previously small or inactive – have started to show positive momentum, albeit from a low base as pipeline starts to emerge.
- **Japan** remains marginal, with minimal transaction activity reported.
- Across regions, **co-located BESS deals** (shown in pink) contributed a material share of value in core markets, especially in the US, GB&I, and Australia, reinforcing the trend toward hybrid project economics

Closed Transactions by year and technology (US$ bn)



Note: Co-located BESS refers to batteries co-located with solar. 2025 references YTD data up to July 2025. Source: Infralogic.

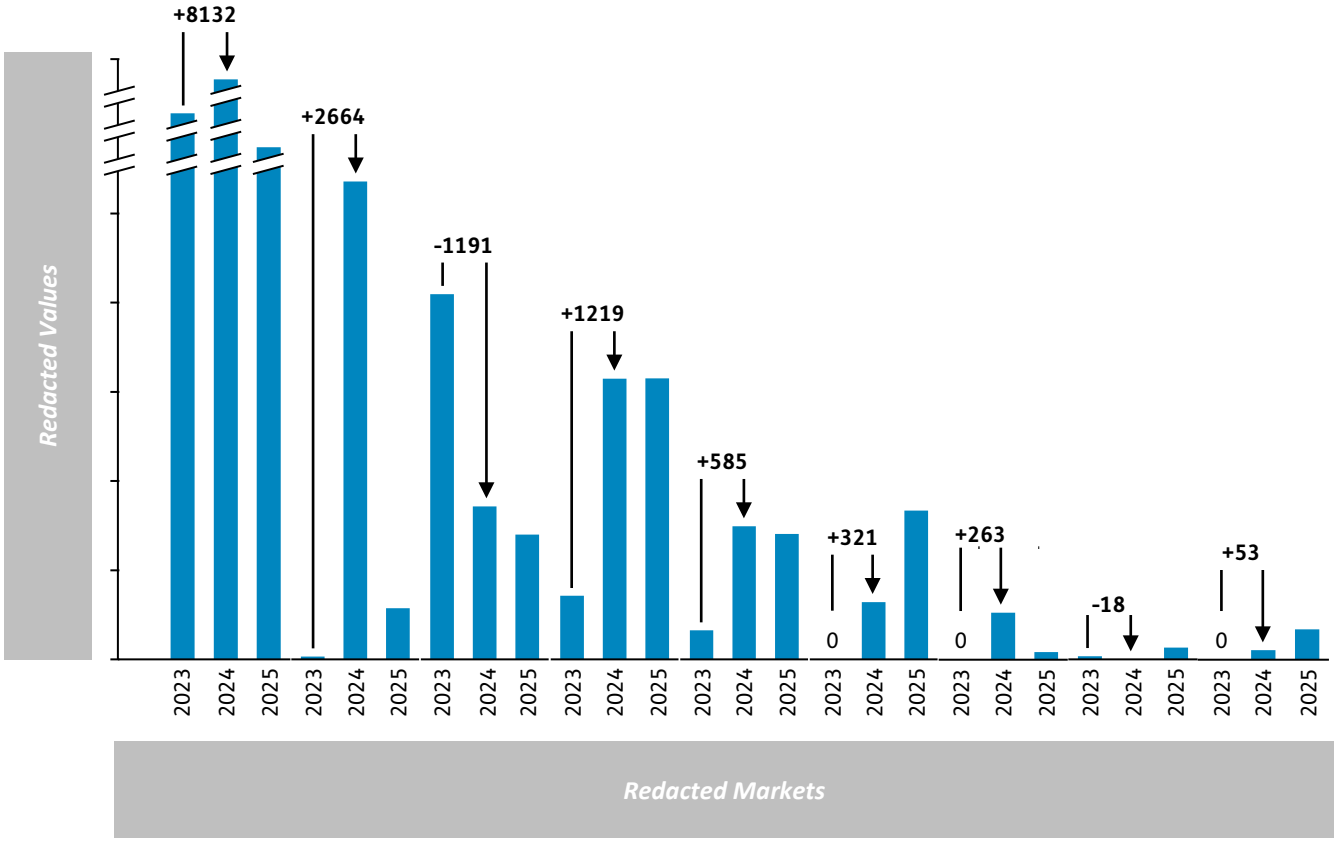
BESS & Co-located BESS debt value 2023 & 2024:

Debt financing for stand-alone and co-located BESS surged in 2024, with growth dominated by the US and select European markets.

- **The US** accounted for the majority of debt activity, with aggregate issuance rising over **$ billion year-on-year**, underscoring strong lender appetite and large-scale project pipelines.
- **Southern Europe** also posted a robust gain, up **$ billion**, as Spanish and Italian markets deepened financing channels.
- **Australia** saw the third-largest increase (+$ billion), reflecting strong project momentum and refinancing activity across hybrid portfolios.
- In contrast, **GB&I (Great Britain & SEM)** saw a sharp **decline of $ billion**, likely due to a drop-off from an unusually active 2023 and delayed refinancing.
- **Western and Central Europe** recorded moderate increases, while **Southeastern Europe** and **Japan** emerged as new entrants with positive activity, albeit from a low base.
- **Northern Europe** recorded a small decline (−$ million), reflecting limited project maturity or pipeline activity.

Across regions, the upward trend in **2024** reflects improving market confidence and increasing bankability of BESS, particularly in jurisdictions with clear revenue stacking or subsidy frameworks and availability of route-to-market providers.

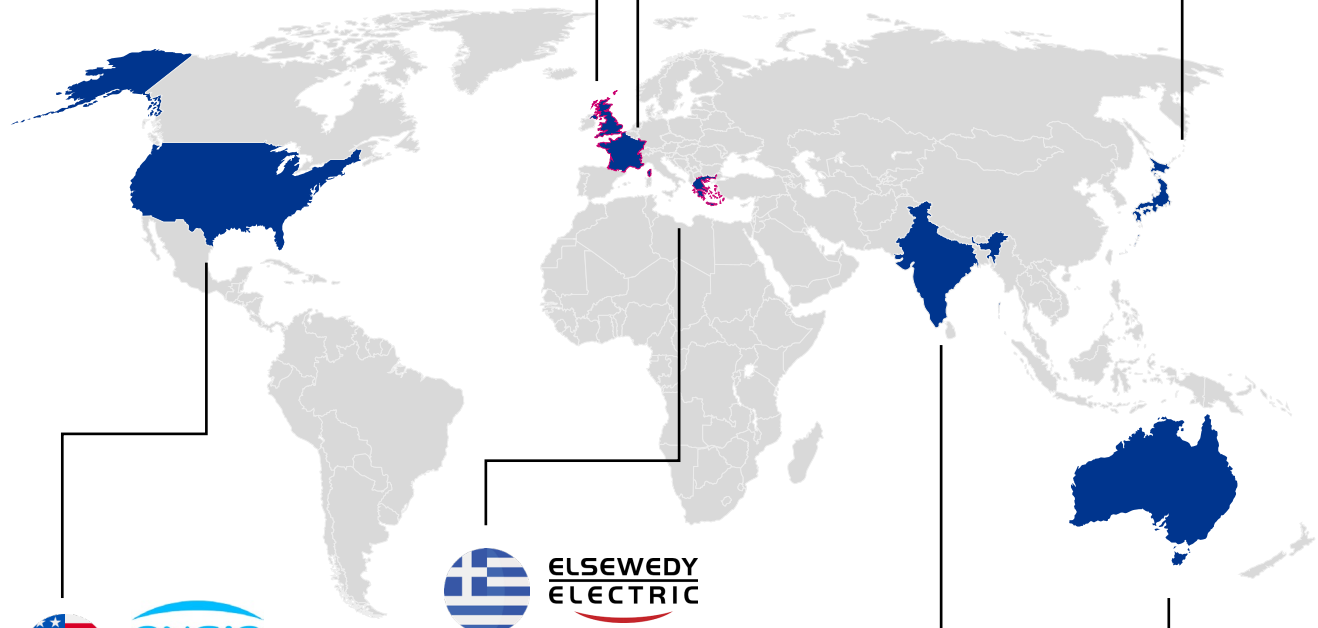
Aggregate debt by year (US$ bn)



Source: Infralogic.

Note: Debt includes Capital Market Debt and Loan Debt. 2025 references YTD data up to July 2025.

A selection of significant deals across global markets show increasing breadth of BESS M&A and debt transactions



EIG

Deal type: Equity & debt investment
Deal size: $1bn
Capacity: Target development of 1.45 GW battery storage

tagenergy

Deal type: M&A Stake Sale
Deal size: 49% Stake Sale
Capacity: 240 MW

HDRE

Deal type: M&A acquisition of majority interest in Helios
Deal size: NA
Capacity: 50 MW

ENGIE CBRE Investment Management

Deal type: M&A Stake Sale
Deal size: 49% Stake Sale
Capacity: 2.4 GW Portfolio

ELSEWEDY ELECTRIC

Deal type: Greenfield
Deal size: $27mn
Capacity: Target development of 50 MW battery storage

IndiGrid INDIA GRID TRUST

Deal type: Greenfield
Deal size: $55mn
Capacity: 180 MW

igneo Infrastructure Partners

Deal type: Greenfield
Deal size: $145mn
Capacity: 400 MW

Notes: All values expressed in '$' are in US$; highlighted in pink refer to Baringa's involvement of the deal

Section 4: Our Services

Subscribe to the Flexibility Market Report

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What does a subscription include?

Flexibility Market Reports and accompanying databooks

- Bankable, best-in-market projections to 2060, covering different duration assets, stacking strategies and Baringa's market scenarios:
  - Battery Energy Storage Systems (BESS) assets: 2-hour and other durations
  - Multiple revenue stacking strategies covering: wholesale markets, ancillary services, capacity remuneration mechanism and balancing energy
  - Baringa's market scenarios: reference case and low commodities
- Analysis of market reform, policy, and regulation, exploring developments from the previous six months
- An exploration of market trends and lender activity, including project debt
- Commentary on flex technological development, helping you find the most efficient methods and opportunities
- Internal Rates of Return (IRR) projections examining the impact of building now with a future look to how IRR will evolve. Helping you to decide what to invest in, and when.

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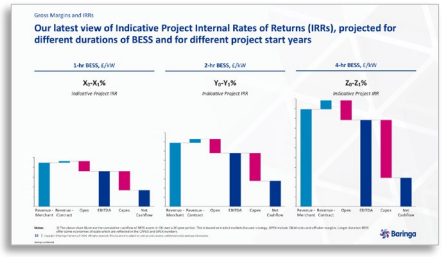
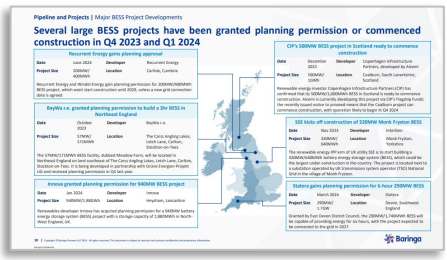
North America	▲ CAISO ▲ ERCOT	▲ ISO-NE ▲ MISO	▲ NYISO ▲ PJM	▲ SPP ▲ AESO
APAC	▲ Australia NEM	▲ Australia WEM	▲ Japan	





Baringa

Flexibility and energy storage

Supporting clients in understanding business cases, providing technical and commercial due diligence and building capabilities for BESS, LDES, DSR and flexible generation assets

Market insights and bankable projections

Market entry support: Deep insights and interactive workshops to provide a comprehensive view on the key risks and opportunities related to specific energy storage or flexible technology in target power markets

Market attractiveness: Comparison of market fundamentals and market conditions to assess relative attractiveness of power markets to deploy energy storage and other flexible assets

Gross margin projections: Provision of site-specific, long-term projections for standalone and co-located energy storage and flexible assets

Investment and financing decision support

Buy-side M&A advisory: Identifying potential targets, technical and commercial review of their projects, pipeline, people, and technology platforms

Sell-side M&A advisory: Technical and commercial review of vendor, including business plan, target markets and technologies, historical performance, business model and team, and support in sales collateral

Lenders' market advisory: Technical and commercial review of sponsor's projects raising debt, and provision of market insights under multiple market scenarios

Commercialising projects

Route-to-Market (RTM) advisory: Supporting clients define, structure and execute on optimal RTM strategies, including offtake and optimisation contracts (such as revenue shares, floors and tolls) at an asset or portfolio level, covering benchmarking, risk analysis, structuring and procurement

Auction advisory: Optimising bids in energy storage, flex and system operability auctions such as CfDs, Capacity Market auctions, LDES-specific auctions such as MACSE in IT, LCIS auctions in SEM and Stability and Voltage Pathfinders in GB

Shaping portfolio strategy

Platform strategy: Helping clients develop credible portfolio investment strategies to scale and diversify across geographies, technologies and RTM strategies

Project optimisation: Supporting clients understand key drivers of site competitiveness (such as location on the network, grid stability, network congestion, curtailment, co-location, front/behind the meter), sizing assets on site or within a portfolio and understanding technical and commercial levers to optimise site, project or portfolio value

Building capability at scale

Performance benchmarking: Supporting clients in benchmarking performance of their storage and flex generation assets with that of their peers and the overall market

Technology platform capability assessment: Conducting a capability assessment exercise of clients' technology platforms and identifying gaps in their teams, processes and systems

Procurement support: Supporting clients in securing framework arrangements with OEM suppliers, EPC and O&M contractors, offtakers and asset optimisation platforms

Selected clients:

ZENOBE, frv, NEOEN, Eneco, BlackRock, MASDAR, uniper, Gore Street Capital, equinor, centrica, DIF, AXA, AVIVA, Ørsted, Brookfield, GLENNMONT PARTNERS from nuveen, quinbrook infrastructure PARTNERS

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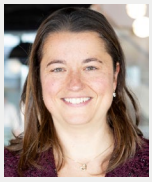

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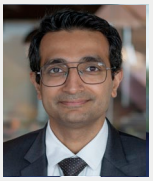

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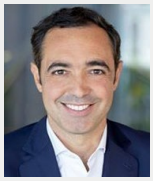

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