

*EMMES 7.0: How will the new electricity market design shape the energy storage sector?*

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# *Agenda*

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- > **Introduction**
- > **Market Monitor**
- > **Regulatory update : Electricity market design**
- > **Q&A**

# Today's presenters

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# Introducing LCP Delta

Powering the energy transition across the whole value chain

**LCP Delta is a specialised energy transition practice providing**

Subscription research	Consulting	Technology and data	Training
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**...to organisations that are active in all parts of the value chain**

Generation & storage	Networks	Demand & customer propositions
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**...delivering expertise and advice in**

Power market forecasting	Energy storage & flexibility	Hydrogen	Power trading	PV
Distributed power	Policy impact analysis	System modelling	Business models	Energy management
EV charging infrastructure	Connected home	Low carbon heat	Customer engagement	Community energy



*~ 85 people*



*Active since 2004*



*200+ clients*



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# 2022-2023 headline figures

**2022**

**~ 4.5 GW  
installations**

**~ 2 GW  
FoM installations**

**2023**

**> 6GW  
installations**

**> 3.5 GW  
FoM installations**



# The challenge to meet demand with supply

## 4 factors driving demand for storage



European wide energy crisis



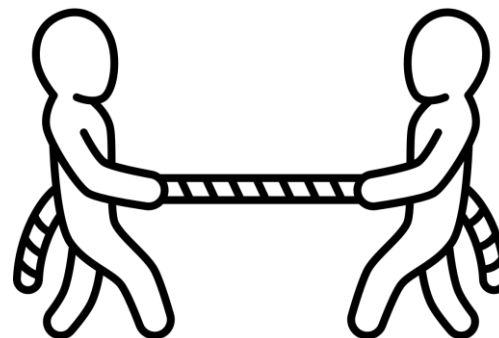
Government support



Growing FoM development pipelines across Europe



Positive future policy direction on a EU-level



## 4 challenges for the market



Supply chain constraints



Grid connection bottlenecks



Workforce – installation constraints



Rising costs



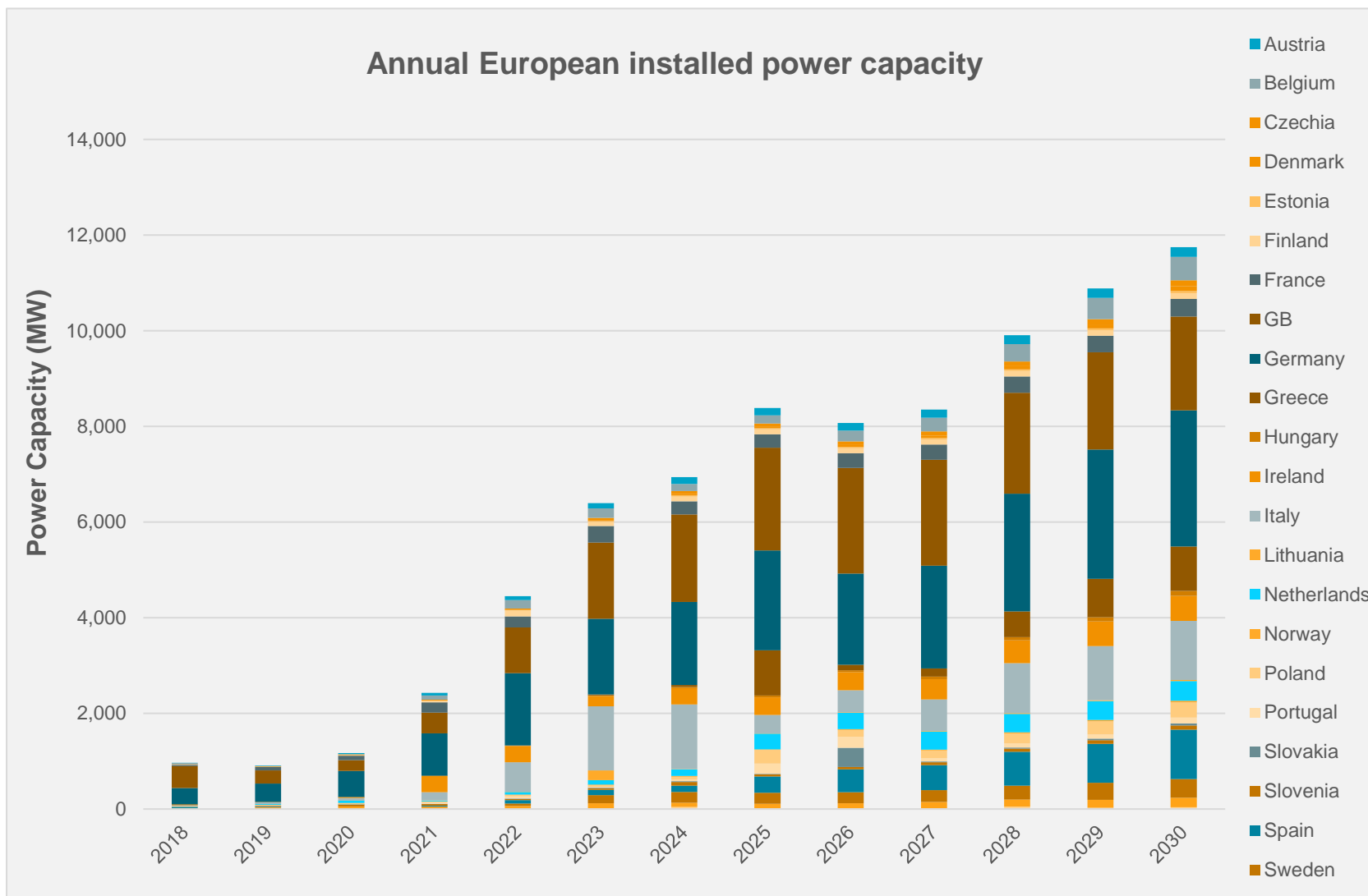
# How do these macro-trends affect the forecast?

## Short-term forecast

- Projects due in 2022 have been delayed to 2023 and 2024
- Strong pipeline for 2023 but some projects likely to miss target
- Constraints make it challenging to meet high demand in 2024-2027=>slower growth & plateauing of the market
- Potential bigger impact on project storage (MWh) capacity

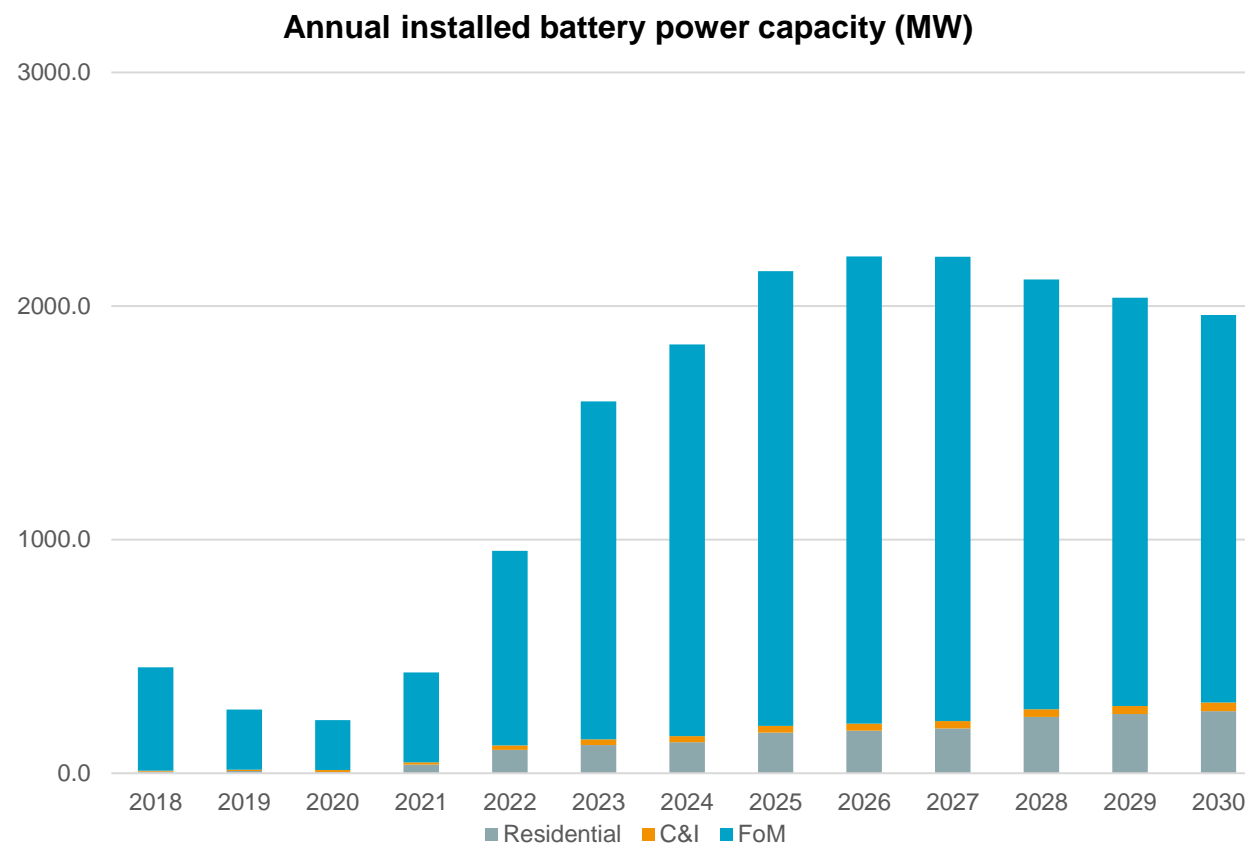
## Long-term

- Faster growth from 2027 onwards, as market conditions improve and more alternatives mature
- Policy developments in the short-term will positively impact the market in the long-term.
- More speculative pipelines may still struggle to close



**Key trends:**

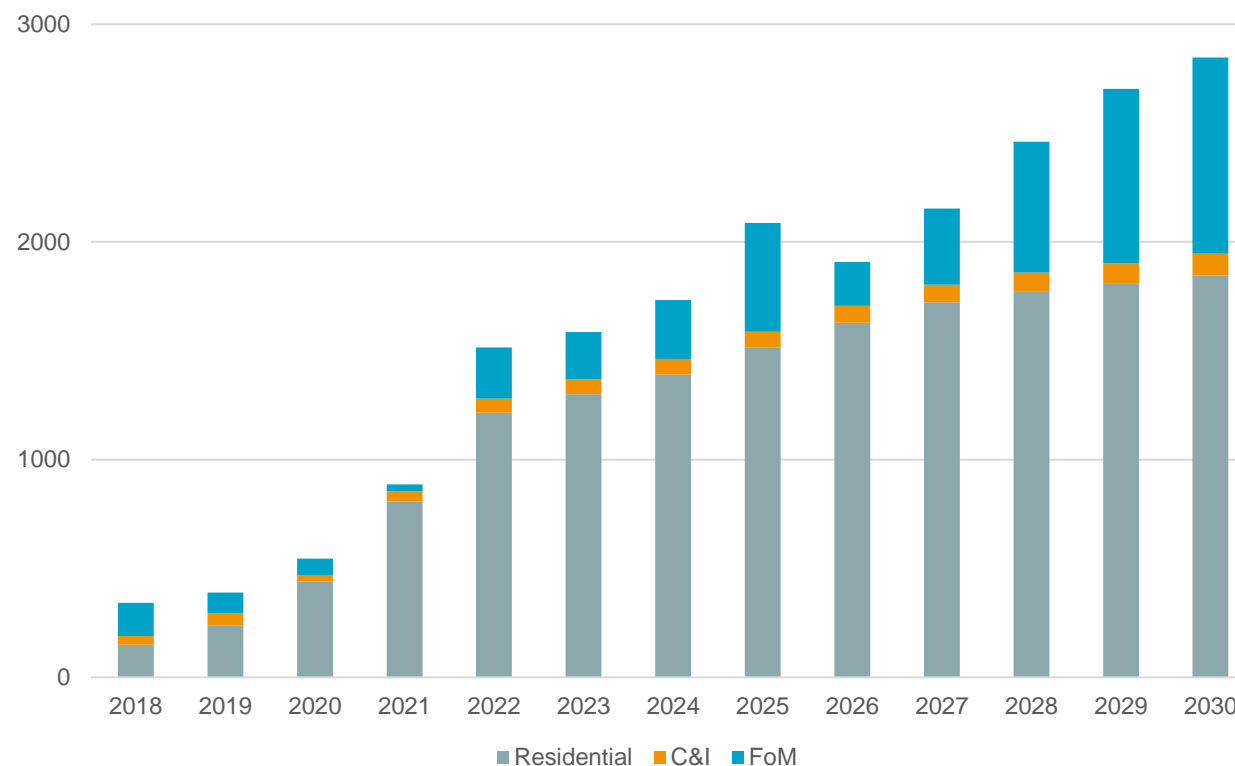
- The largest FoM market in Europe, primarily driven by the attractive revenue streams from ancillary services
- Market attractiveness created a growing flow of new market entrants and increased project pipeline ambitions
- The large pipelines are unlikely to be implemented exactly as planned.



### Key trends:

- The largest residential storage market in Europe, with more than 200,000 households getting a storage system in 2022
- Smaller annual growth, but still positive outlook for residential storage towards 2030
- A relatively small FoM market, that grew significantly in 2022 and looking positive in the short-term.

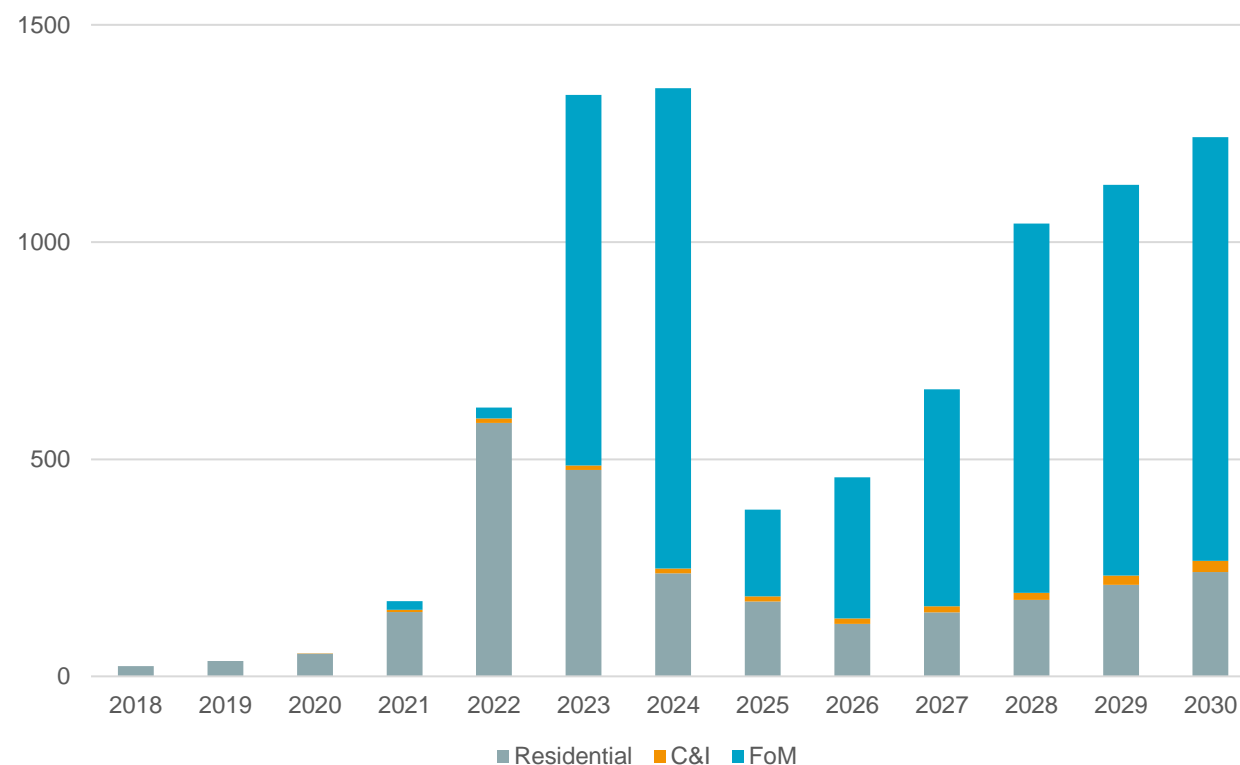
Annual installed battery power capacity (MW)



### Key trends:

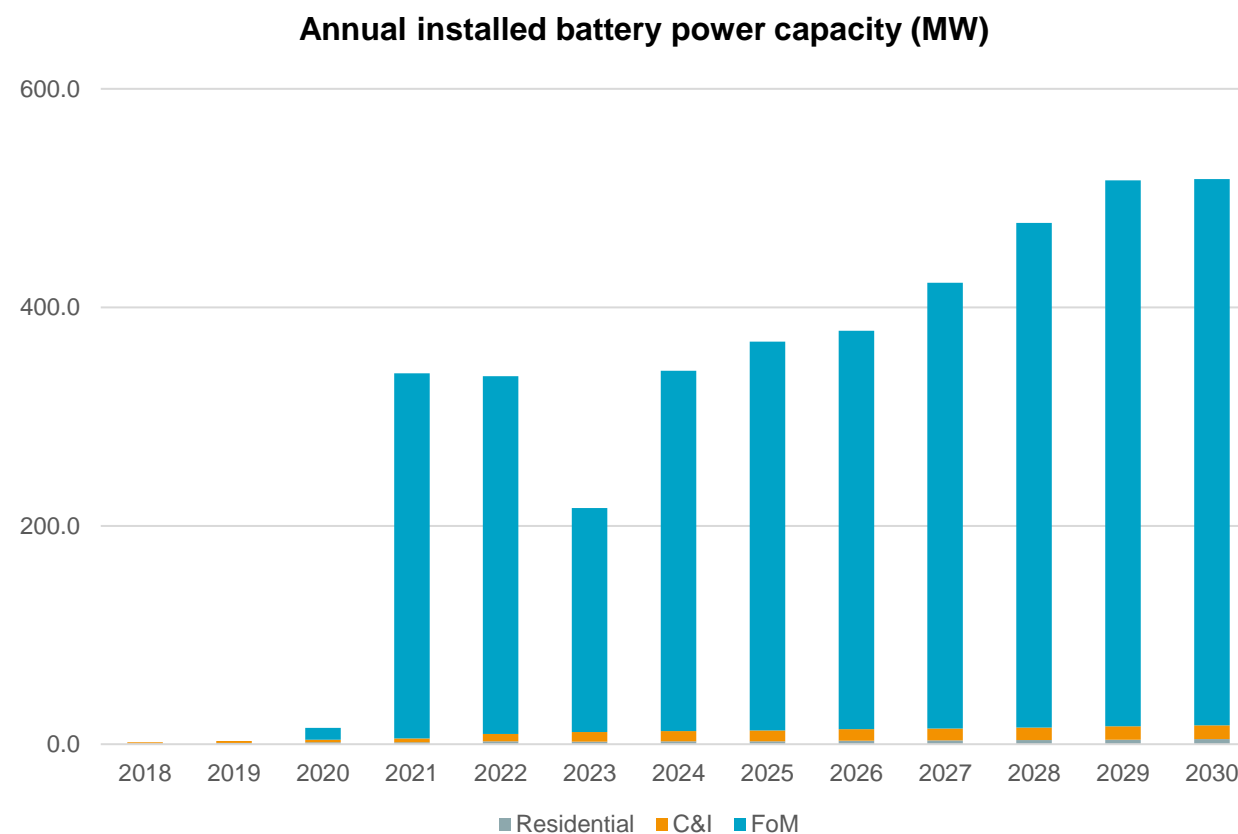
- The second largest market for residential storage in Europe at the moment due to the generous Superbonus.
- Superbonus will be gradually reduced annually until completely removed in 2026, reducing market deployment in the future.
- FoM installations will boom towards 2025, driven by secured contracts in the Fast Reserve Pilot and the Capacity Market

Annual installed battery power capacity (MW)



### Key trends:

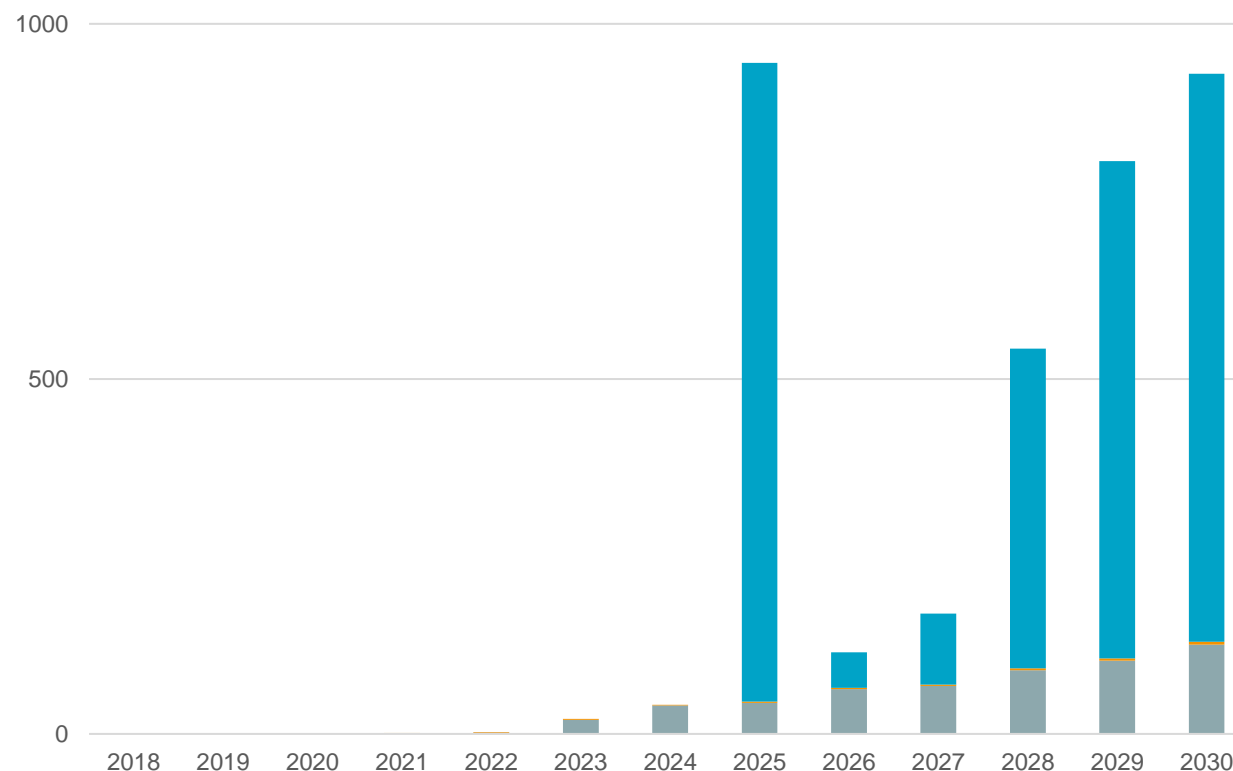
- A relatively large FoM market, driven by ancillary services revenues
- Regulatory uncertainty and grid connection bottlenecks will affect short term growth
- An insignificant market for residential storage.



### Key trends:

- A repeatedly pushed back 900MW tender for storage will take place in 2023, creating a spike in 2025 installations.
- Growing pipeline of storage projects, and increased battery storage government targets (5.6GW by 2030)
- New residential PV and storage policy will drive the behind the meter market

Annual installed battery power capacity (MW)



# Key takeaways

- 1 Demand for energy storage is a higher than ever
- 2 Positive outlook towards 2030, despite the short/medium term headwinds
- 3 Great Britain and Germany will continue to lead in FoM and BtM storage respectively
- 4 More countries will join the current leaders and install significant capacity by 2025
- 5 Implementation of national policies will be key in determining each country's potential towards 2030

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# The Electricity Market Design Revision

## Introduction

- On **14 March 2023** the European Commission unveiled its proposed reform of the Electricity Market Design. Although – overall – quite limited in scope, the proposal **has the potential to significantly impact the energy storage sector**.
- The proposal strikes a good balance between public involvement and market-based mechanisms, and it ultimately aims at maintaining the current price signals and overall framework focused on day-ahead and intraday markets – while introducing some tweaks.
- The main objectives of the proposal are the following:
  1. **Boosting investments in renewables and flexibility**
  2. **Reducing energy price volatility**
  3. **Protecting consumers from price spikes.**
- *On the same day, the European Commission published a series of recommendations to EU Member States and National regulators to ensure greater energy storage deployment. It pushes for implementation of the Clean Energy Package provisions on storage, and introduces EMD proposals.*

# *The Electricity Market Design Revision*

## Analysis – Peak shaving product (Article 7a)

### Key points from the proposal

- Transmission system operators (TSOs) may procure **market-based peak shaving products to call for electricity demand reduction during peak hours**, defined as an hour with high consumption combined with a low level of electricity generated from renewables or other inframarginal energy sources, and clarified by the TSO.
- The published proposal only states demand reduction can play a role.
- Behind-the-meter storage would be seen as reducing consumption, however the role of **co-located** and **FoM storage** play in shifting energy to reduce and decarbonise peaks, **would not be captured under this product.**
- Impact on the storage market will depend on **whether all energy storage can access the product.**

# *The Electricity Market Design Revision*

## Analysis – Right to energy sharing (Article 15a)

### Key points from the proposal

- The proposal **introduces the definition of active customer**, meaning “a final customer (or group of jointly acting customers) who consumes or stores electricity generated within its premises located within confined boundaries or self-generated or shared electricity within other premises [...], or who sells self-generated electricity or participates in flexibility or energy efficiency schemes, provided that those activities do not constitute its primary commercial or professional activity”.
- It is a **positive development** that will enhance customers participation in the electricity market, strengthening the BtM sector.

# *The Electricity Market Design Revision*

## Analysis – Tariff methodologies (Article 18)

### Key points from the proposal

- New tariff methodologies of TSOs and DSOs shall consider balancing between both capital expenditure (CAPEX) and operational expenditure (OPEX) to better support the use of flexibility services.
- Tariff methodologies for TSOs and DSOs shall now also introduce performance targets to incentivise the procurement of flexibility.
- Impact on the storage market will depend on how significantly National Regulatory Authorities would alter their tariff methodologies, which is currently uncertain.

# *The Electricity Market Design Revision*

## Analysis – PPAs (Article 19a)

### Key points from the proposal

- Member States **shall facilitate the deployment of PPAs with a view to reaching the objectives set out in the National Energy and Climate plans.**
- They are encouraged to do so by a.o.:
  1. Reducing the risks associated to off-taker payment default
  2. Through guarantee schemes at market prices
  3. Allowing facilities with a signed PPA to participate in support schemes (and even, if needed, give preference to bidders presenting a signed PPA from potential buyers that face entry barriers to the PPA market).
- **Energy storage deployment will be impacted by better PPAs**; yet, until a time-matching generation and consumption mechanism, to ensure PPA is fully renewable, is in place, the market potential cannot be seen.

# *The Electricity Market Design Revision*

## Analysis – Flexibility needs assessment (Article 19c)

### Key points from the proposal

- By January 2025, **and then every two years**, the regulatory authority of each Member State **must assess the flexibility needs in the electricity system with a 5-year horizon**.
- The potential of non-fossil flexibility (energy storage and demand response) to fulfil this need at both transmission and distribution level shall be included.
- The report shall distinguish between **seasonal, daily and hourly flexibility needs**.
- It is yet uncertain **what the methodology will be to calculate flexibility needs**.

# *The Electricity Market Design Revision*

## Analysis – Flexibility objectives (Article 19d)

### Key points from the proposal

- To build upon the flexibility assessments, **Member States shall set an indicative national objective for demand response and energy storage, to be reflected in their National Energy and Climate plans.**
- These targets are mandatory to set, but would not be legally binding.
- It is unclear whether Member States must **set a separate objective for energy storage and a separate for demand response.**
- **The measure of the target is not clear** (GW and/or GWh ?).

# *The Electricity Market Design Revision*

## Analysis – Flexibility support schemes (Article 19e-f)

### Key points from the proposal

- When a Capacity Mechanism is not in place, or a Capacity Mechanism alone is not sufficient to meet flexibility needs in accordance with Art. 19d, **Member States may set up specific support schemes for energy storage and demand response.**
- These would need to be:
  - **Limited to new investment**
  - Follow open and transparent competitive auctions
  - **Preserve exposure to price signals**
  - Set out a minimum level of participation
  - Apply penalties for capacity providers not respecting it
- This design **doesn't mandate any obligation** for Member States to reach the objectives identified.



# *The Electricity Market Design Revision*

## Analysis – Capacity Mechanisms (Article 19e)

### Key points from the proposal

- Member States shall consider the introduction of additional criteria or features to **promote the participation of non-fossil flexibility when designing Capacity Mechanisms**.
- Energy storage participation in Capacity Mechanisms is currently at **“very low levels”**.
- **Doesn't set any obligation** for member states to revise capacity mechanisms to support non fossil flexibility and decarbonisation.

# The Electricity Market Design Revision

## Key takeaways

### Clean Energy Package implementation



### Recommendations on energy storage



**Relevance:** Medium-High  
**Impact will be felt from:** 2023

### New electricity market design



**Relevance:** High  
**Impact will be felt from:** Minimally from 2024, mostly from 2025

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