



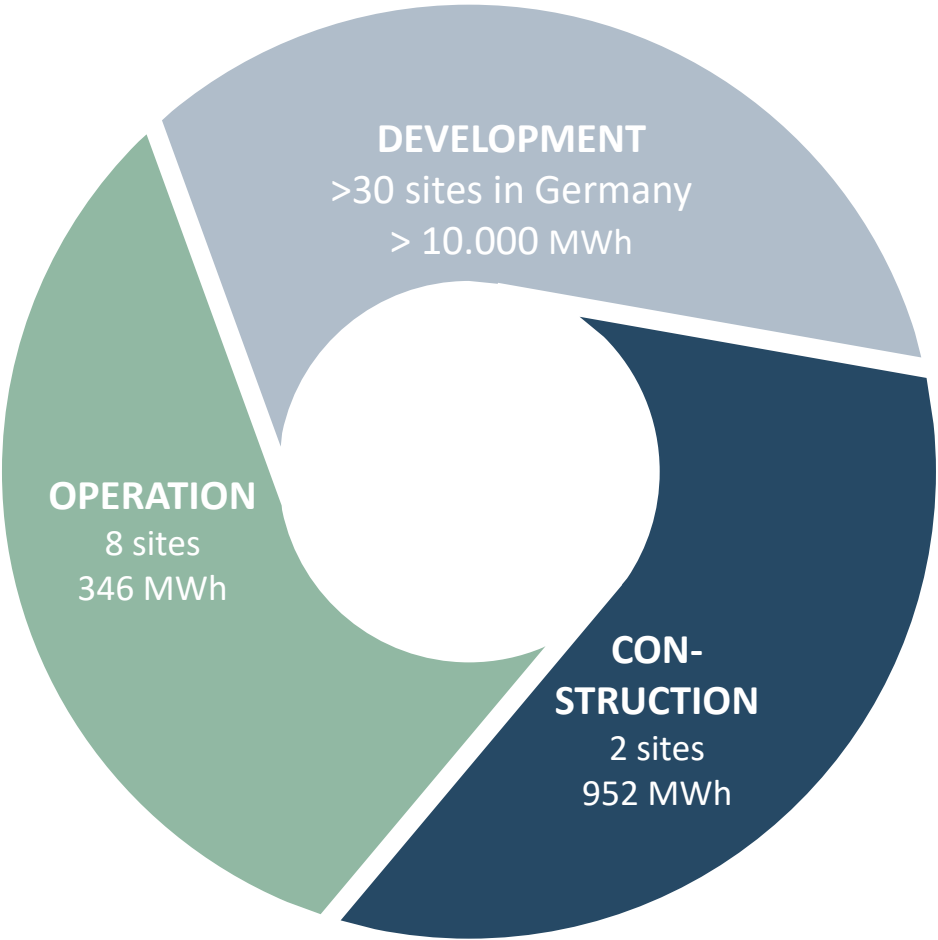
ecostor

Grid Connection Solutions for BESS – Case Study Bollingstedt

get inspired! – September 9th, 2025

ECO STOR runs a Gigafactory for BESS Projects in Germany

Focus: Large Scale Storage Systems



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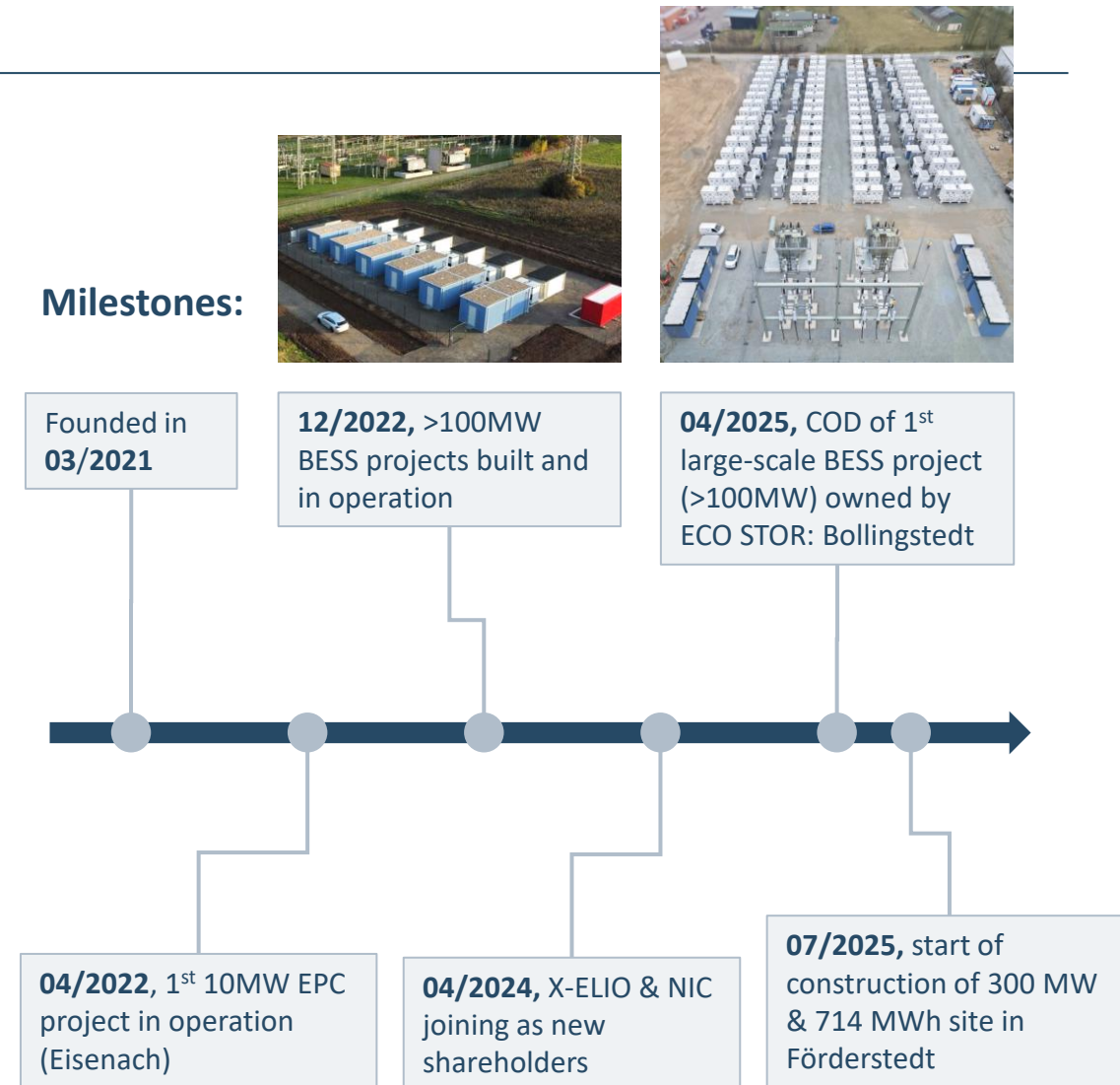
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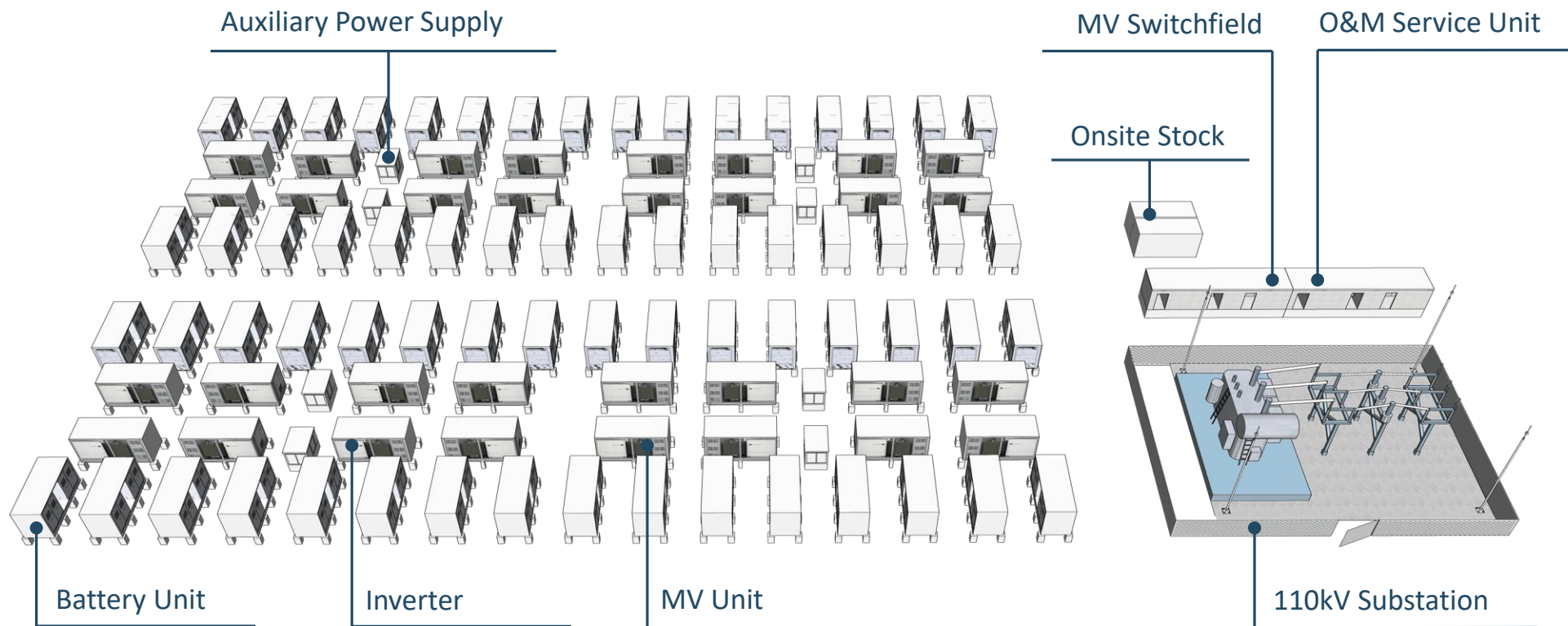
Key facts:

- Founded in 2021 by a team of **pioneers in battery technology and energy markets**
- Based in **Kirchheim bei München, Germany** in the greater Munich area
- **Vision:** We are having a significant impact on the transition towards a sustainable future.
- **Mission:** We are a key enabler of grid-friendly and sustainable infrastructure in the energy market of the future.
- Backed by large international funds and utilities providing a **strong financial background**
- **80+ employees** and growing

Milestones:



Standardization ES-100C, 103.5 MW & 238 MWh in one Standard Block @ 110kV



Project Bollingstedt – Lighthouse Demonstrator of >100MW BESS in Germany

Project KPI's:

- Power: 103.5 MW
- Capacity: 238 MWh
- Grid operator: Schleswig-Holstein Netz GmbH
- Grid connection: 110kV, grid level 3

Layout: 2x ES-50C

- 64 battery containers (LFP / 0.5C – 2h)
- 32 inverters
- 2 sub stations 110kV/20kV

Market strategy:

- Wholesale (DA/ID) by Enspired
- Ancillary services (FCR/aFRR) by Entelios
- Active grid congestion management by ECO STOR

Performance:

- Construction and commissioning 2 months ahead of schedule
- Operational availability as planned
- Economic performance as planned

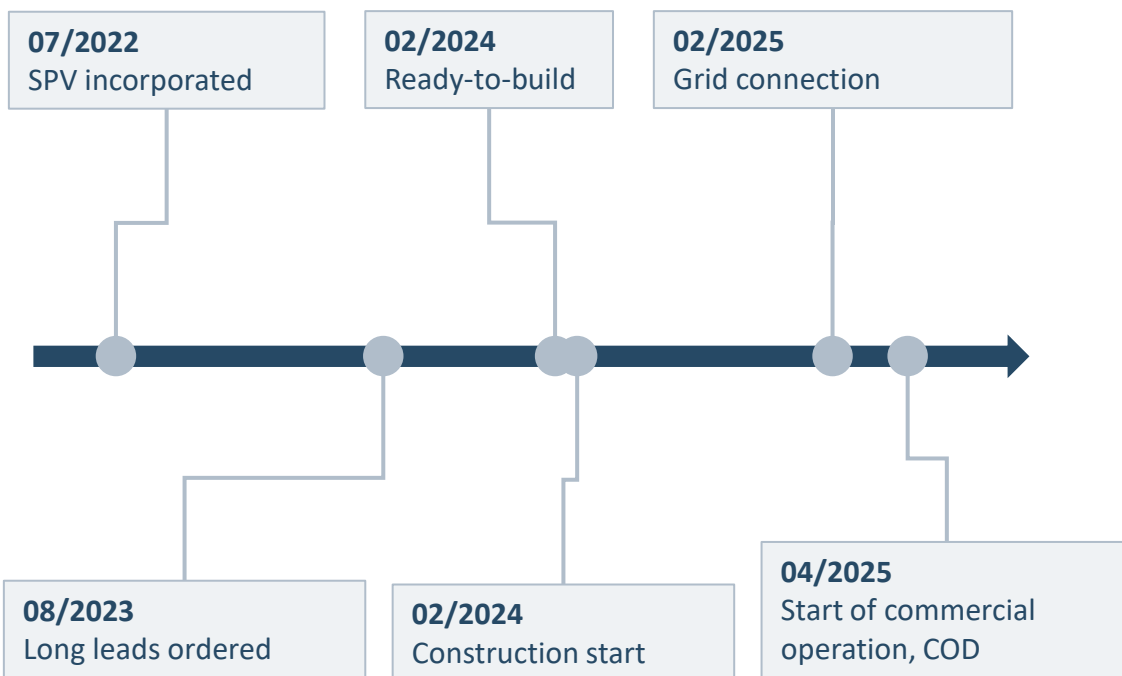


Project Bollingstedt – Lighthouse Demonstrator of >100MW BESS in Germany

Schedule:

- Project start: July 2022
- RTB: Feb. 2024
- COD: Apr. 2025

Timeline:



Project Bollingstedt – Lighthouse Demonstrator of >100MW BESS in Germany

How did we manage to reach COD ahead of schedule:

- We can rely on our experienced team working closely together (fully integrated value chain)
- Standardized product design
- Long lead items ordered long before RTB
- Inhouse substation planning and construction
- Civil works planned, tendered and awarded before RTB
- Main supplier contracts nearly completely finalized before RTB
- Full time site manager always present at construction site
- Have as many trades as possible work in parallel



Project Bollingstedt – Lighthouse Demonstrator of >100MW BESS in Germany

How did we manage to reach COD ahead of schedule:

- Test project with same hardware setup and energy management system to debug communication, software and hardware errors in advance and without travelling
- “Cold commissioning”: commissioning started before grid connection, on-site commissioning team always supported by remote commissioning team
- Flexible merchant RTM contract to enable flexible starting date instead of inflexible tolling contract
- Introducing project finance only after battery delivery and not as condition for construction start or even FID
- Batteries delivered on 4 ships to reduce risk of loss



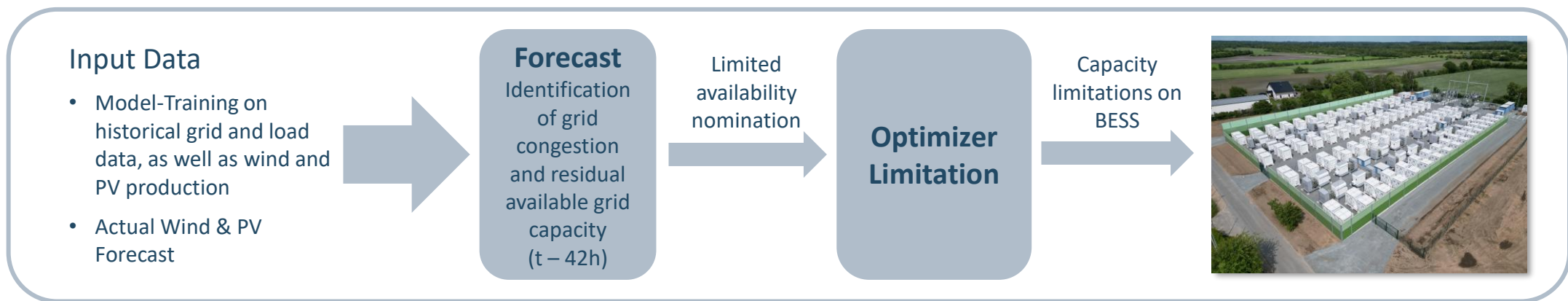
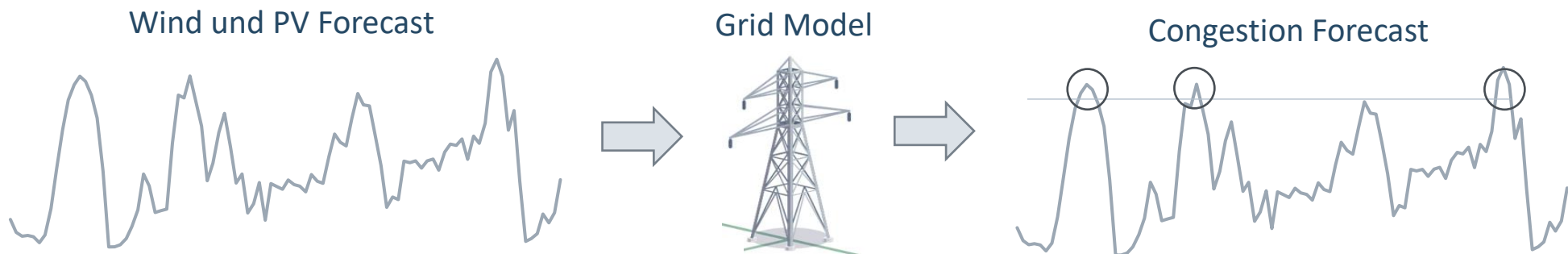
Project Bollingstedt – Lighthouse Demonstrator of >100MW BESS in Germany

How did we manage acceptance:

- Great local co-development partner EPW
- Early involvement of the city council
- Close communication with local authorities
- Official inauguration event and information event and celebration for the local community on-site
- Close communication and cooperation with DSO / TSO
- Close technical coordination with DSO
- Developing an individual forecasting tool based on local weather conditions as preventive redispatch measure to avoid curative redispatch

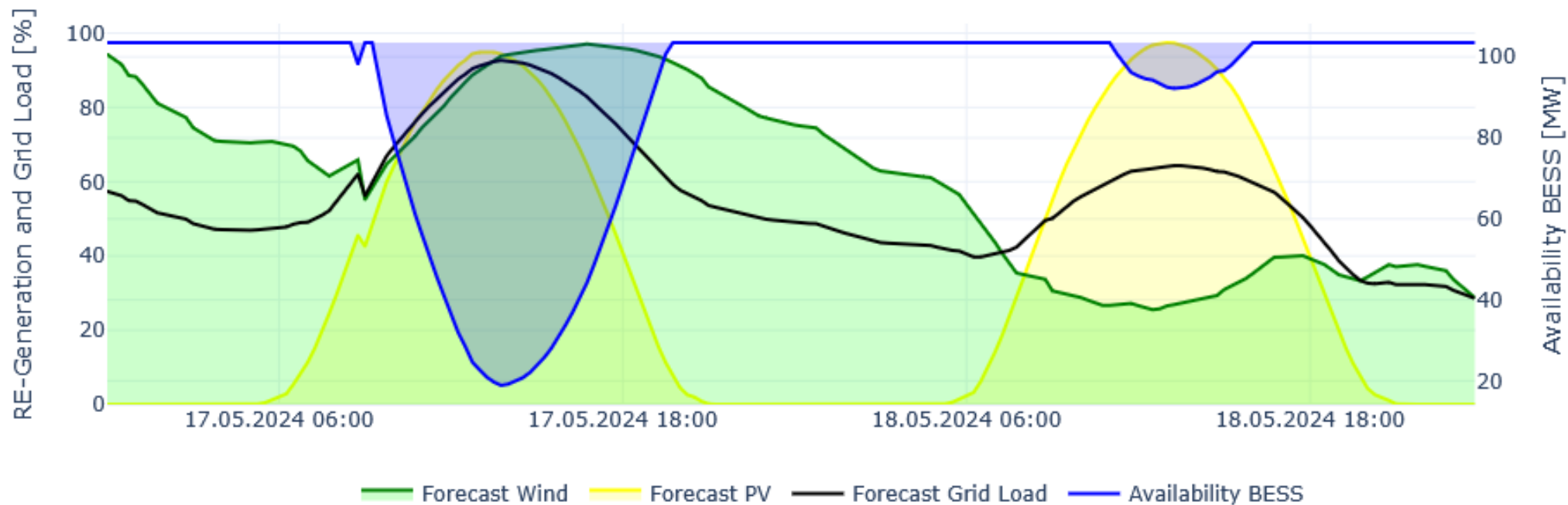


Active Grid Congestion Management - made by ECO STOR

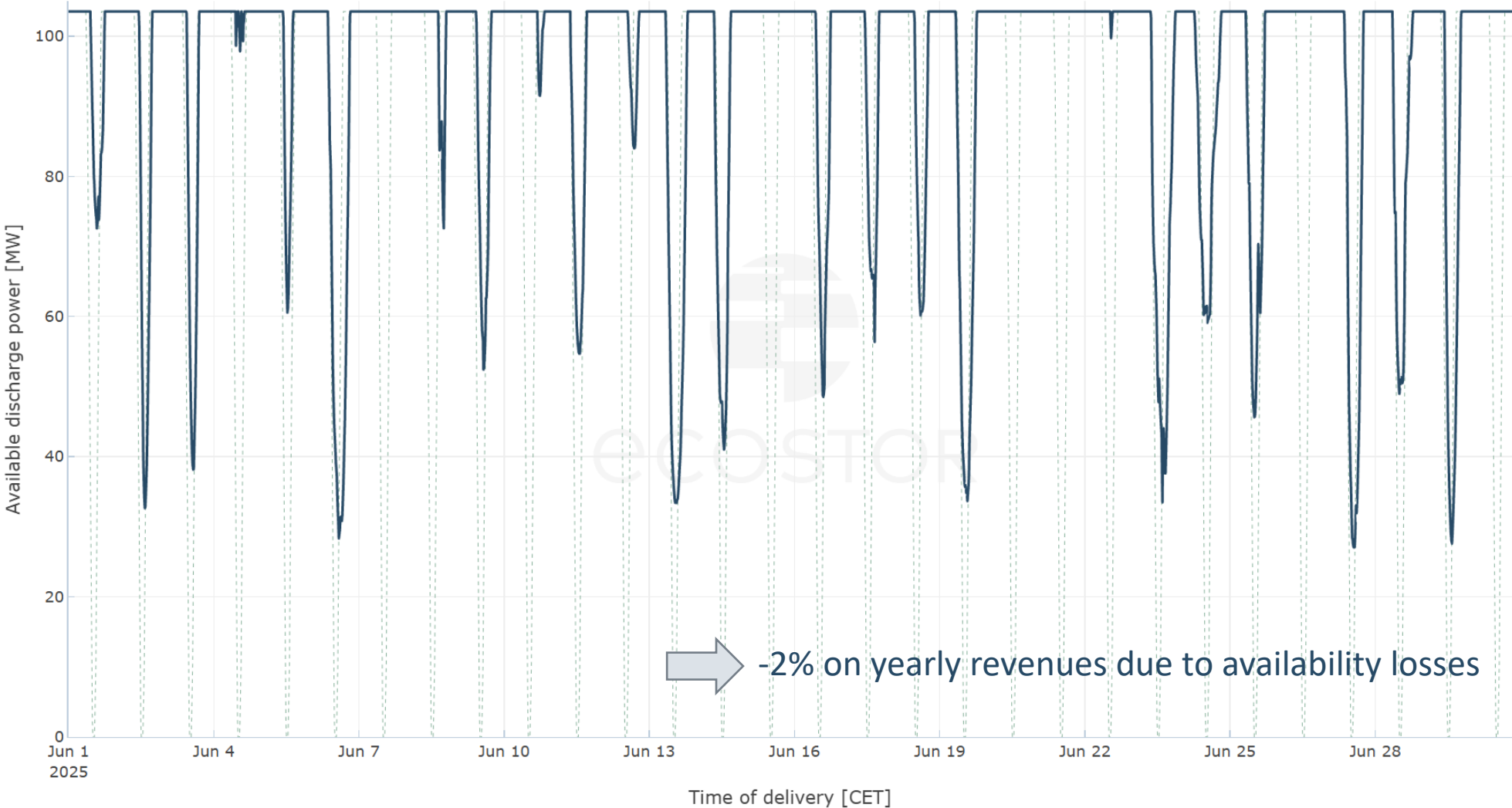


Digital Twin at BESS Bollingstedt: Dynamic Guard Rails in Theory

BESS “drives out of the way” of wind and PV generation



Digital Twin at BESS Bollingstedt: Dynamic Guard Rails in Reality



BUT We Face Grid Restrictions Until Catch Up of Grid Reinforcement

The seven challenges of BESS investments in Germany

1. BKZ:

=> what to say after BGH decision? Adapt and accept tougher market competitiveness

Relevant in Bollingstedt

2. Feed-in capacity limitations:

=> mitigate by digitalization of grid congestion management. If DSO does not want to digitalize, do it yourself (Bollingstedt)

3. Ancillary power limitation:

=> mitigate by increasing commercial efficiency of BESS design and don't bet on a 5%-of-the-total-cake market

4. Ramping slow down:

=> Significant revenue impact caused by a lack of digitalization of grid operation. BESS ramping speed is crucial for grid stability in light of recent blackout in Spain. Strong appeal to DSO's towards progress of digitalization!

5. Grid fees (2029+)

=> dynamic fees don't harm the business model while decreasing grid cost => strong efficiency gain to be captured

6. Missing redispatch compensation

=> anticipate redispatch events by own congestion forecast model (Bollingstedt) avoiding unexpected redispatch calls

7. Cannibalization of flexibility markets by gas power plant strategy

=> endure with business plan, whatever downside the regulator may impose on flexibility markets

Relevant in Bollingstedt



Thank you!

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