

Better Together: De-risking renewable projects through hybridization

18-19.09.2023 Enspired Trading Conference



Agenda

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02

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03

Hybridization to
de-risk
renewable assets

04

Conclusion



01

About ABO Wind

01 About ABO Wind

Project Development & Construction



Founded in 1996
> 1,000 employees



Core business is development & construction
of wind & solar farms and battery systems



So far ~5 gigawatts realised
2 gigawatts of which also built by ABO Wind



~ 5 billion euros investment volume
in projects



Project pipeline of 21 gigawatts
under development in 16 countries, mostly in Europe



100 MW Constructed



1,000+ MW Under
Development



Hybrid- and
Stand-Alone-Projects

We deliver Turnkey Projects



Site Acquisition

- Site identification
- Land lease agreements
- Grid access



Development

- Site appraisal
- Analysis of wind and irradiation
- Feasibility calculation
- Selection of plants and park layout
- Obtaining permit



Financing

- Financial Structuring
- Securing of remuneration
- Conclusion of loan agreements



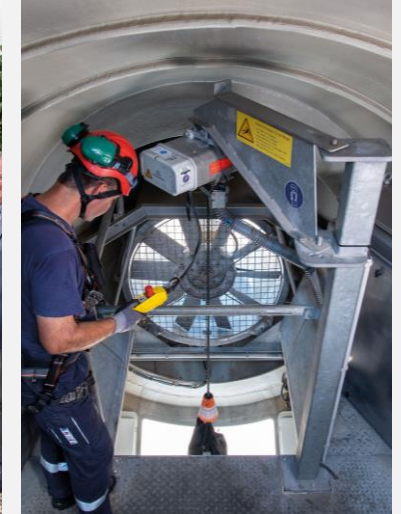
Construction

- Grid connection
- Infrastructure
- Construction
- Commissioning



Sales

- Route to market strategies
- PPA Contracts
- Citizen participation



Services

- Operational Management
- Maintenance
- Technical Assessments
- Products (e.g. ABO Lock)



02

Project Examples

02 Project Examples

Projects

Knowledge scaled up 

PV

- 1,5 MWp
- String Inverters

BESS

- 0,5MW / 0,7 MWh
- Arbitrage & SRL

Trafo

- Coupled at 800V
- Own control design



PV

- 4,3 MWp
- String Inverters

BESS

- 1,5MW / 2,2 MWh
- Arbitrage & SRL

Trafo

- Coupled at 800V
- Control replicated



02 Project Examples

Larger plants concept: Scale-up concept + multiple PV-Trafo + Coupling in MV



PV

- 8,7 MWp
- String Inverters



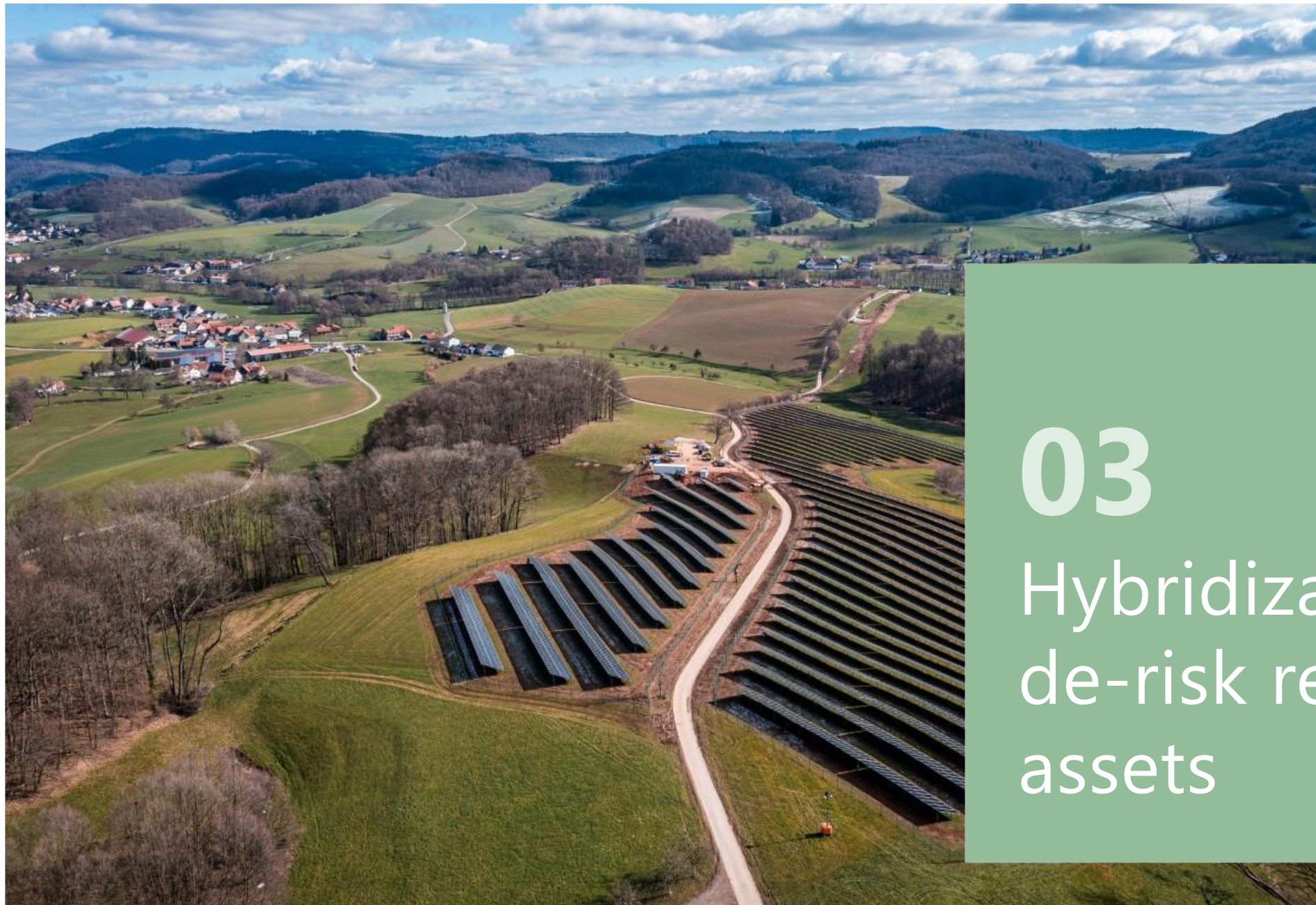
BESS

- 2,9MW / 9,6 MWh
- Arbitrage & aFRR

Trafo

- Coupled at 20kV
- Adapted control



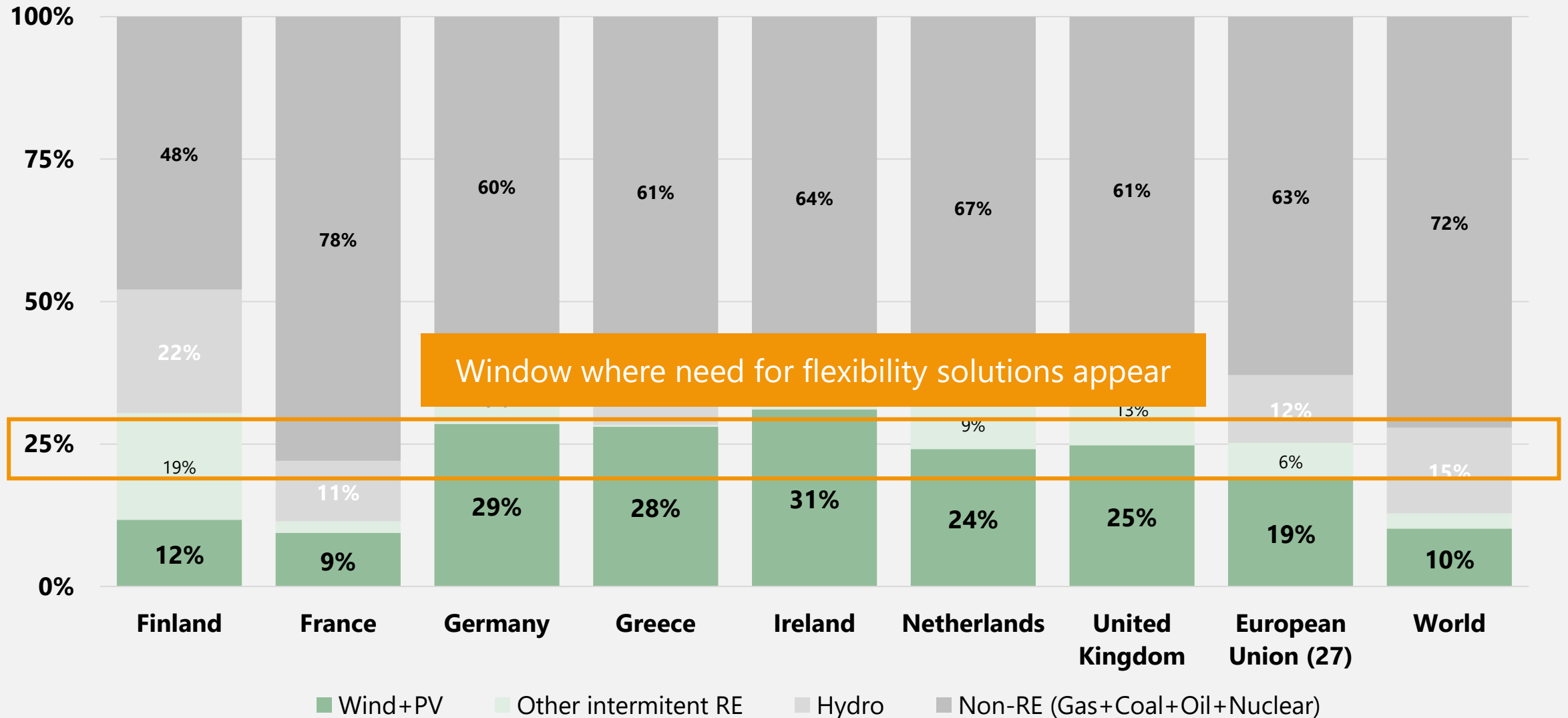


03

Hybridization to
de-risk renewable
assets

03 Hybridization to de-risk renewable assets

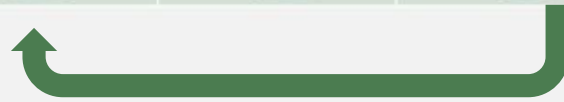
The grid needs flexibility to integrate fluctuating renewables



The market is moving to longer duration storage capacities

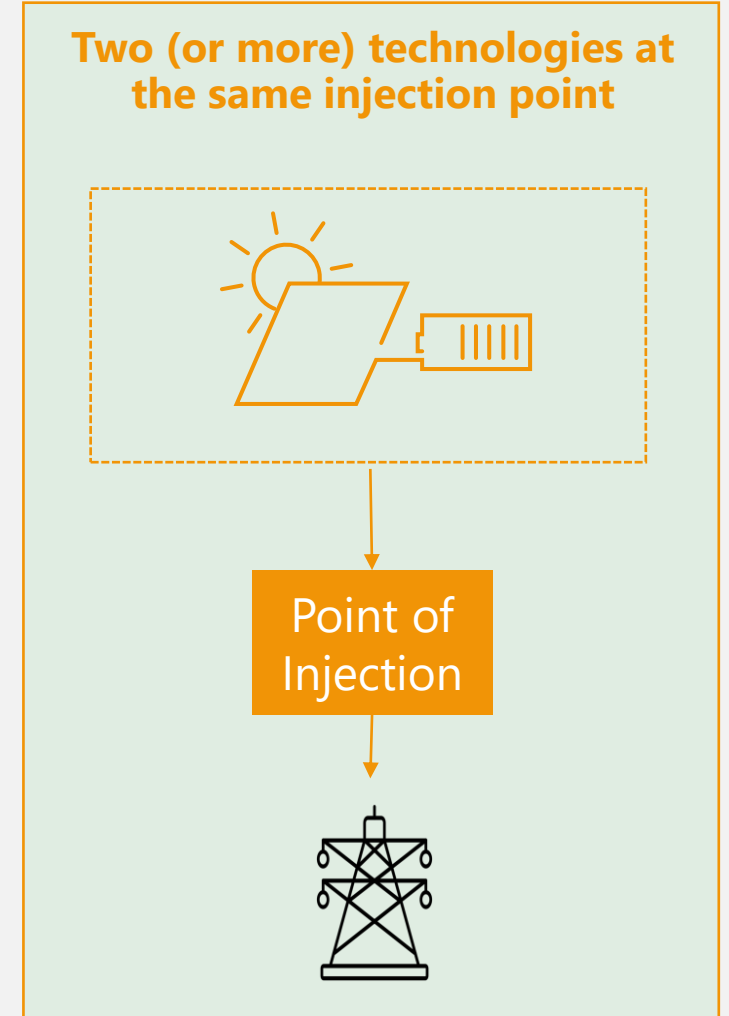
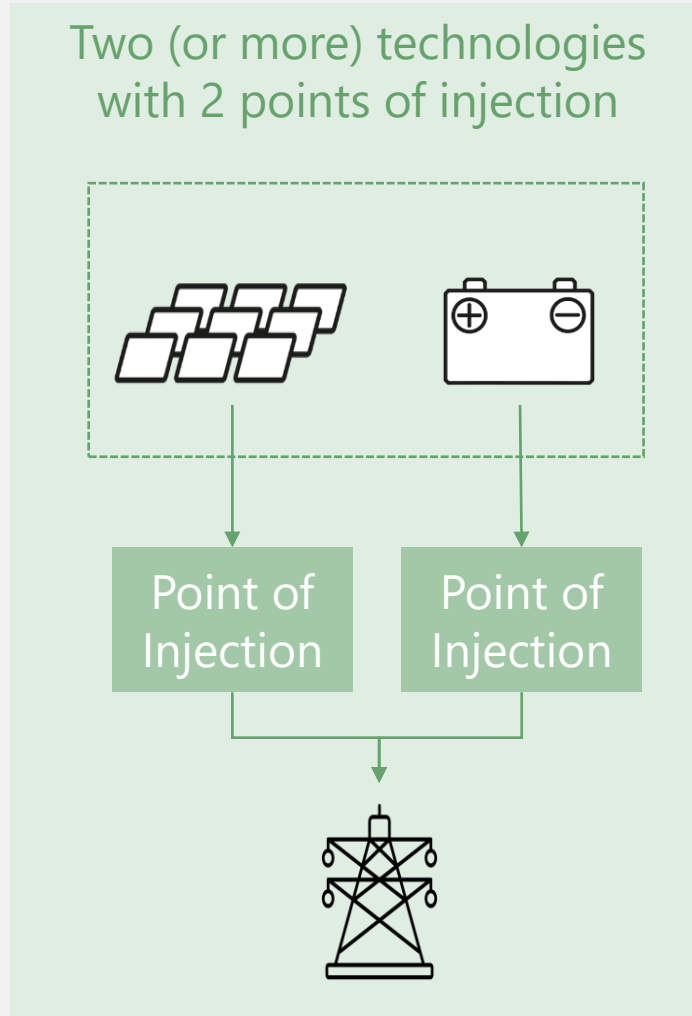
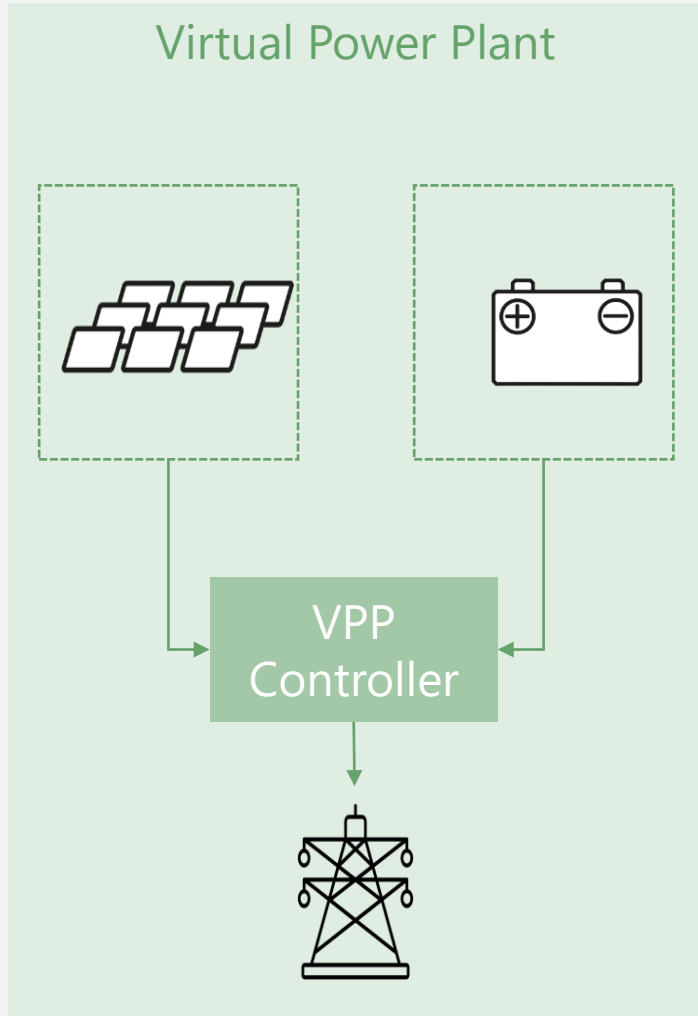
	<u>Wholesale</u>	Balancing	Frequency	<u>Grid support</u>	CM	Others
						
						
						
						
						
						
						

2- 4 hour
batteries



<1 hour
batteries

What are hybrid systems?



Half of all solar will be co-located with storage by 2050 (Source: DNV's Transition Outlook)

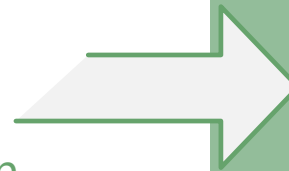
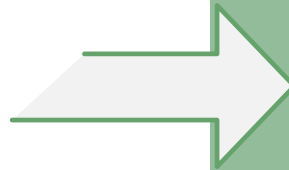
Today



Subsidized renewable projects



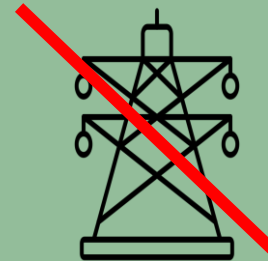
Renewable penetration below ~25%



Tomorrow

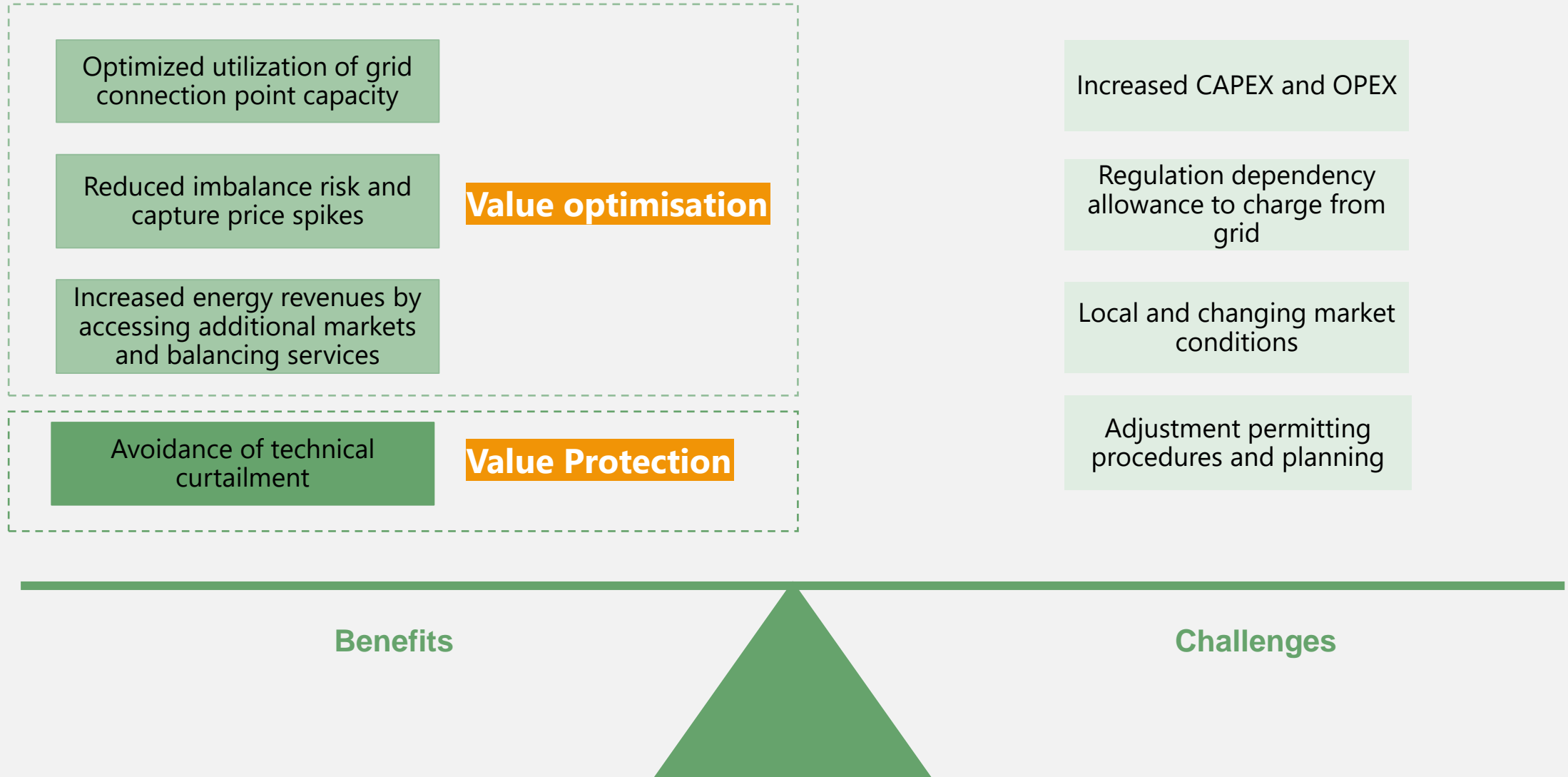


Revenue optimization in an all-merchant world



Increasing grid constraints and curtailment

The benefits of hybridization



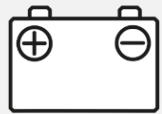
03 Hybridization to de-risk renewable assets

The impact of Curtailment on project value

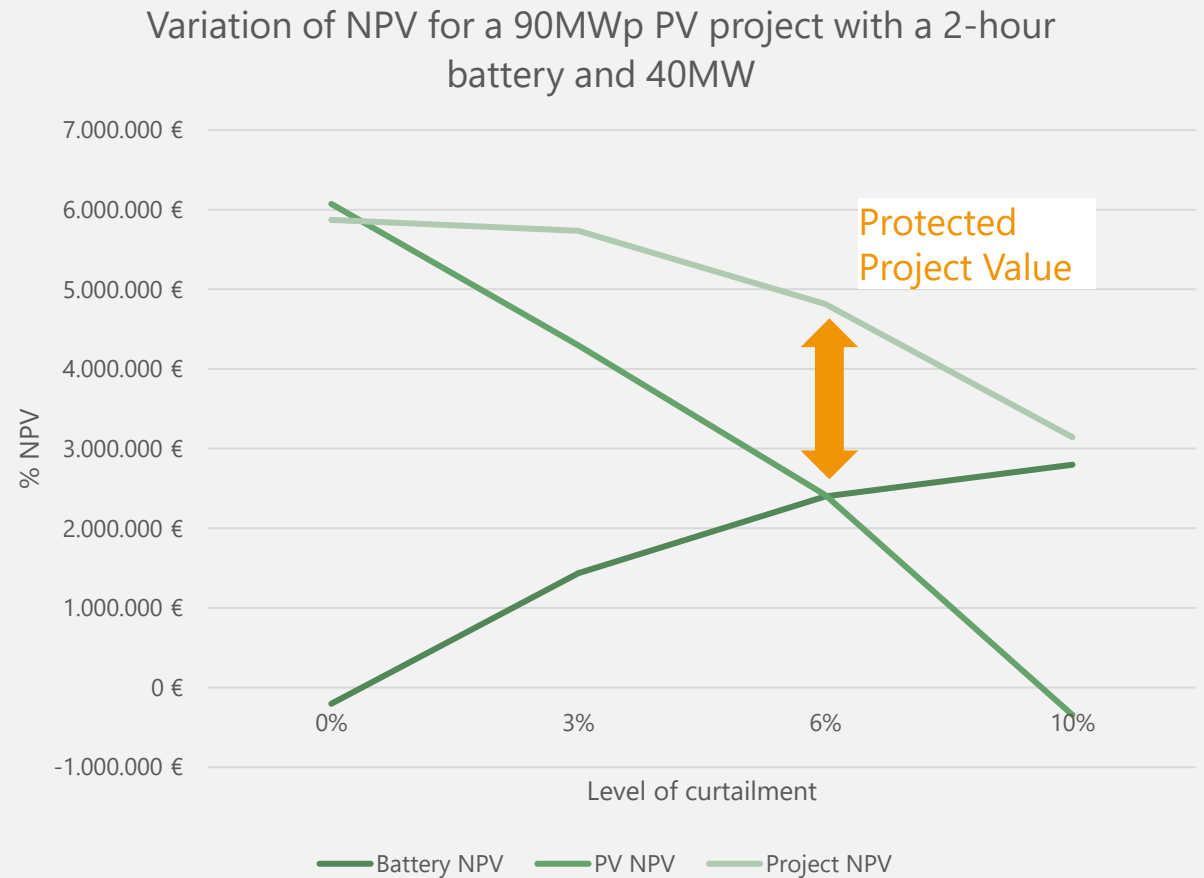
Project details



PV: 90 MWp



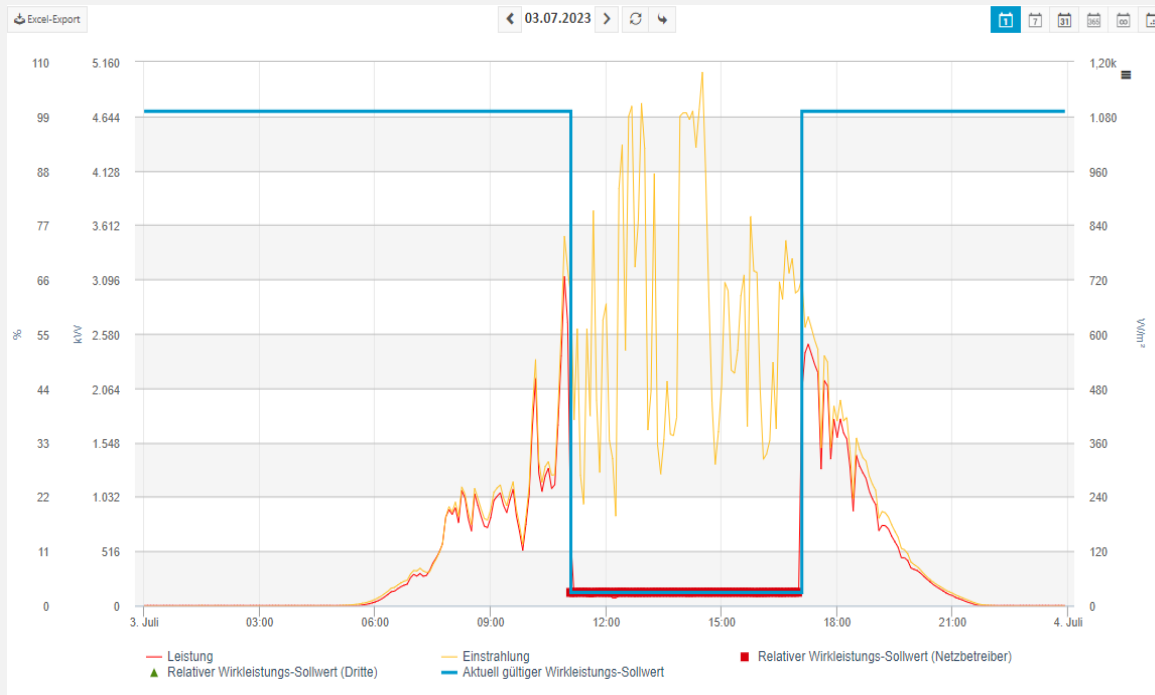
BESS: 40 MW and 2-hour duration (80 MWh)



03 Hybridization to de-risk renewable assets

Curtailment risks are already materializing

German project example of curtailed energy

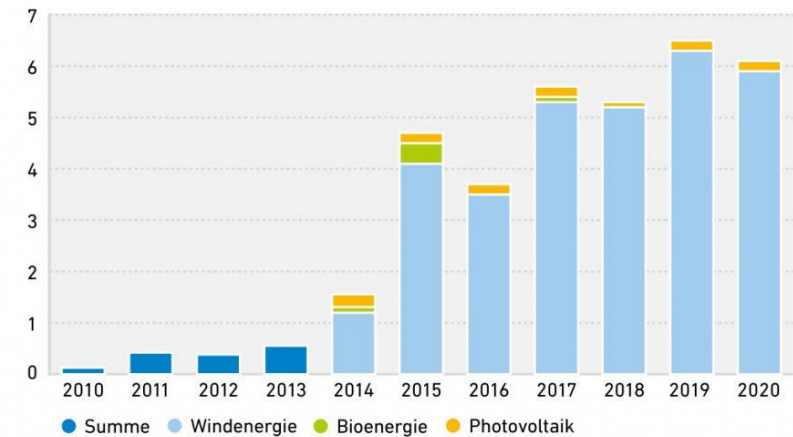


„Eisman Regelung“ Curtailment figures

Durch Einspeisemanagement verlorene Stromerzeugung aus Erneuerbaren Energien

Statt Anlagen abzuregeln, wäre es sinnvoller, den Strom zu speichern oder in anderen Anwendungen, zum Beispiel zum Heizen einzusetzen („Sektorenkopplung“).

Milliarden Kilowattstunden



Quelle: Bundesnetzagentur; Stand: 5/2021

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03 Hybridization to de-risk renewable assets

In the future, grid connection access will be facilitated with hybrids

Example from the Spanish Grid Capacity Tender

(Currently launched at one node: Orden TED/1182/2021, de 2 de noviembre*)

Grid connection



The connection permit includes a "Hybridization" category whereby BESS assets with at least 2-hour capacity and 5-3% power storage at the injection point increase chances of grid connection point attribution

Environmental permits



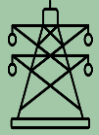
Storage asset can go to simplified environmental processing if certain environment criteria are met



04

Conclusion

CONCLUSION



The Grid needs flexibility assets with a window of opportunity for storage assets starting at 25% RE penetration



Grid constraints and curtailment risks will increase, making the case for hybrid projects with a single grid connection point



Hybrid systems do de-risk renewable project and protect asset value

A large-scale solar farm is shown at sunset. The solar panels are arranged in long, parallel rows that stretch across the landscape. The sun is low on the horizon, casting a warm, golden glow over the scene. In the background, a range of dark mountains is silhouetted against the sky. The overall atmosphere is serene and emphasizes sustainable energy.

ABO
WIND

**Thank you for
your attention.**

Contact



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We are hiring: <https://www.linkedin.com/company/abo-wind/jobs/>