Session 3.4 Construction of the Big Projects

ENERGY STORAGE Global Conference
Brussels, 14-16 October 2025

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James Mills

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MVA ENERGY

Building Large BESS in Belgium

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1. Adaptogen Capital Introduction
2. Track Record in the UK: Varco Energy
3. Why Build BESS in Belgium?
4. Belgium is at a Critical Nodal Point in EU Power Markets
5. Belgium Attractive Market for Large BESS

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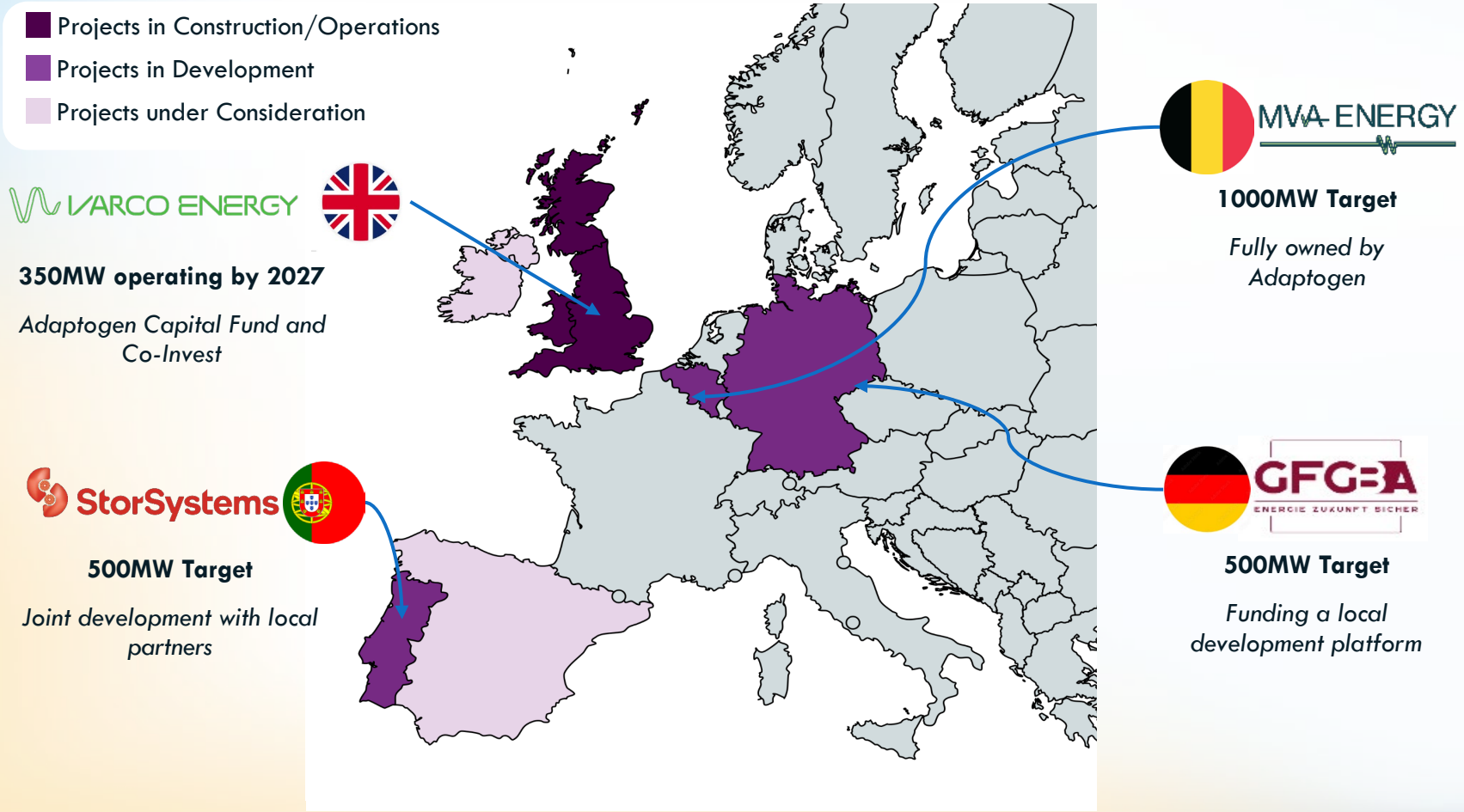
Bringing together the world of energy storage!

Building Large BESS in Belgium

Adaptogen Capital Introduction

Adaptogen is a specialist BESS investor, managing over £250m of capital, with significant commitments from its founding Directors and affiliates. Having raised and deployed a UK focused fund, Adaptogen is now developing storage investment platforms across Europe.

Adaptogen Capital European BESS Platforms



Adaptogen Capital Background

- Among the earliest investors in UK battery storage, our directors were a part of funding the UK's first grid-scale merchant battery (2019)
- Closed first fund in 2023 with 650MW of BESS under Varco Energy, now raising additional growth capital for European expansion
- Employ a local development strategy that builds relationships with grid operators while leveraging cross-border expertise, equipment, and financing

MVA Energy Belgium Development

2023-2024	Feasibility
2024-2026	Development
2026-2028	Project Investment
2026-2030	Project Execution

Track Record in the UK: Varco Energy

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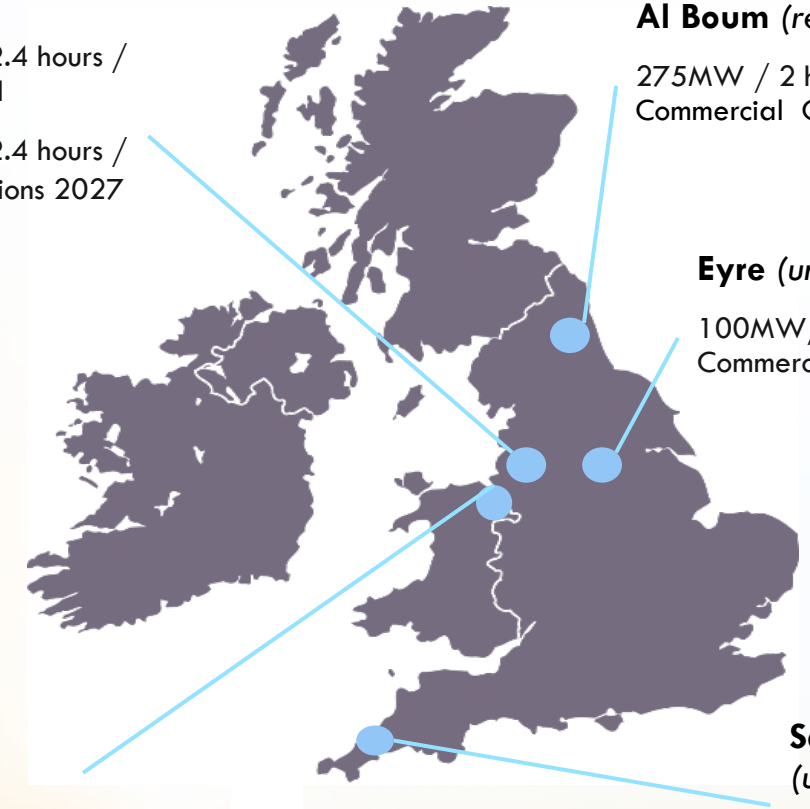
Adaptogen financed a 650MW platform company, Varco Energy, as a UK based developer, owner and operator of transmission-connected BESS. Two projects are operational, with three under construction and further projects in development.

Project Pipeline

Sizing John

Phase 1: 57MW / 2.4 hours / Trading Commenced

Phase 2: 86MW / 2.4 hours / Commercial Operations 2027



Al Boum *(ready to build)*

275MW / 2 hours / Commercial Operations 2031

Eyre *(under construction)*

100MW/2.5 hours / Commercial Operations 2027

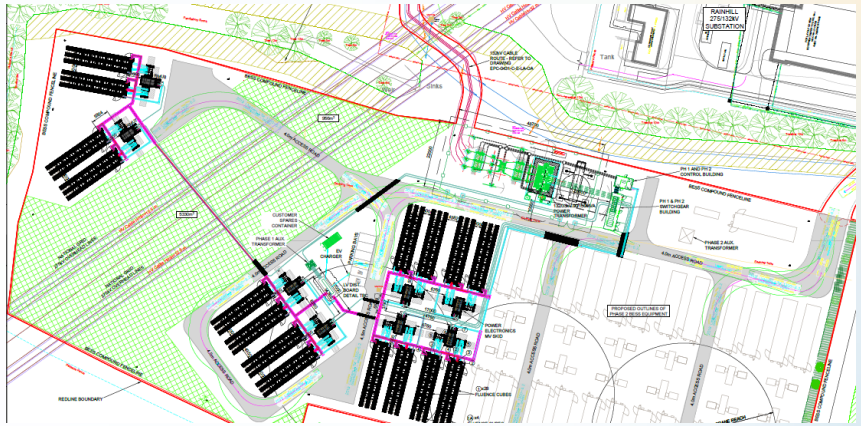
Native River

57MW / 2.4 hours / Trading Commenced

Sambar Power *(under construction)*

48MW/2.1 hours / Commercial Operations 2026

Sizing John Layout



Sizing John Site (Operational)

Why Build BESS in Belgium?

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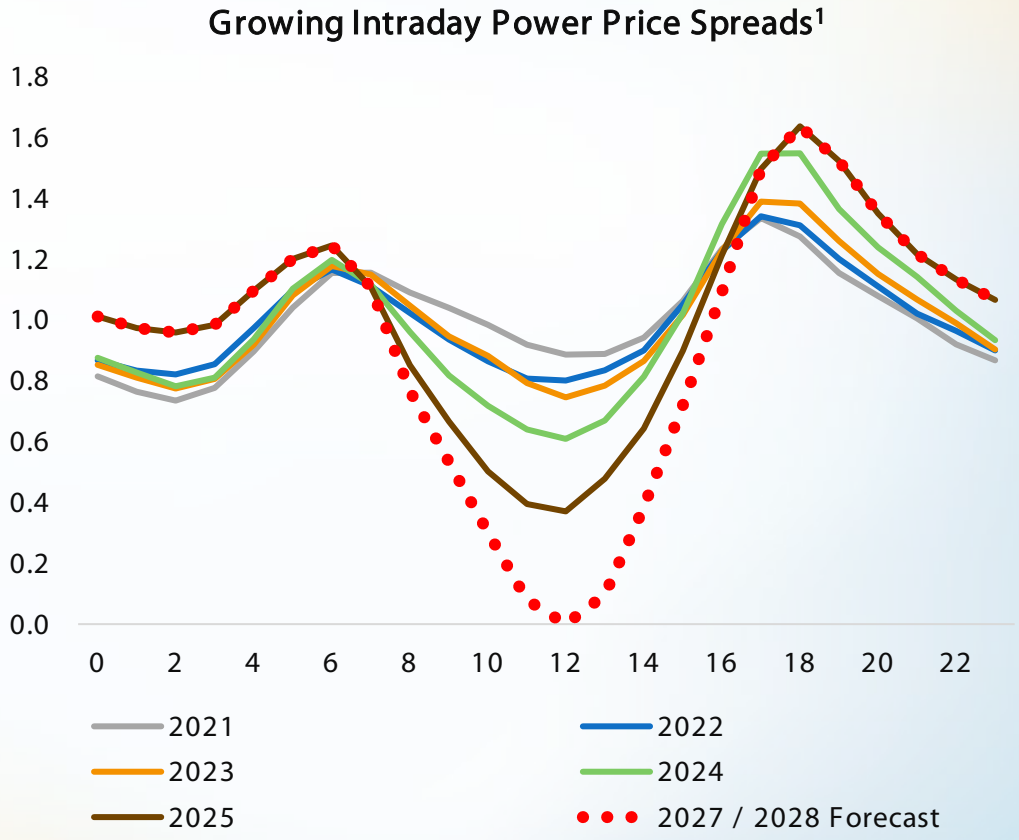
Belgium offers a strong a strong regulatory and favourable market environment for BESS, driven fundamentally by Elia's appreciation of the value of flexibility in a high renewable penetration system

Positive Regulatory Environment for BESS

1. **Firm Bi-Directional Capacity Available at the Transmission Level**
2. **BESS Can Stack Revenues Across Ancillary Services and Energy Markets**
3. **Intraday and Imbalance Price Signals Clarify the Commercial Value of Flexibility**
4. **Elia has Embraced the Ability of BESS to Provide Flexibility and Grid Stability Services**

Positive Market Environment for BESS

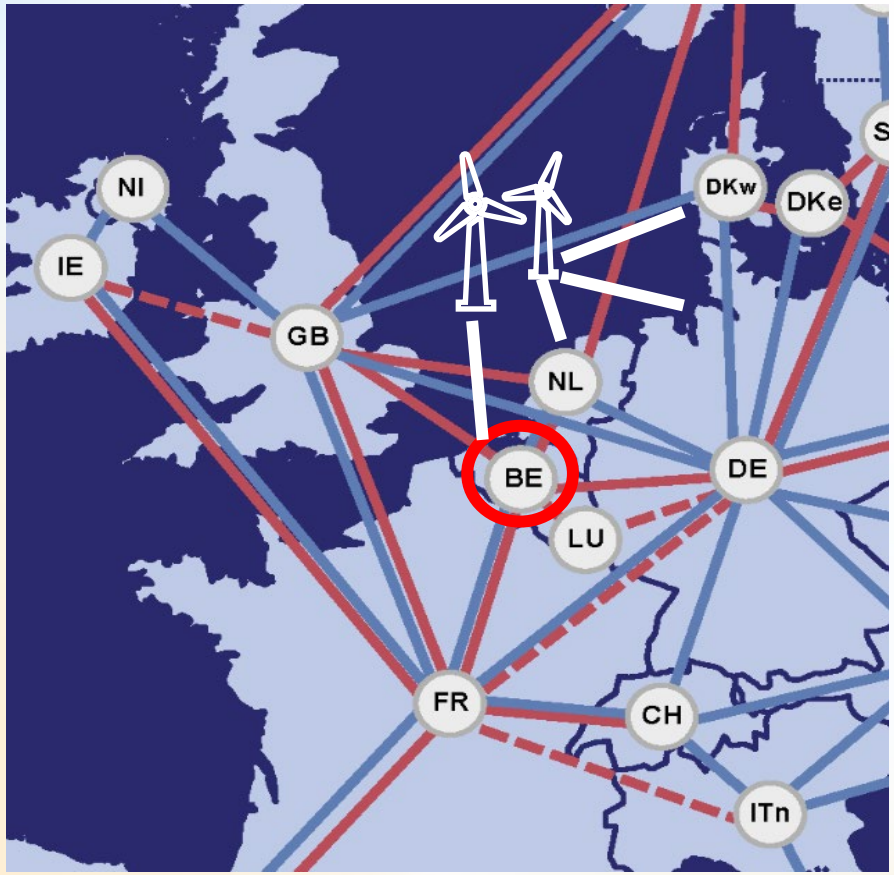


[1] LCP Enact --- 2027/28 Forecast is an MVA Energy Estimate

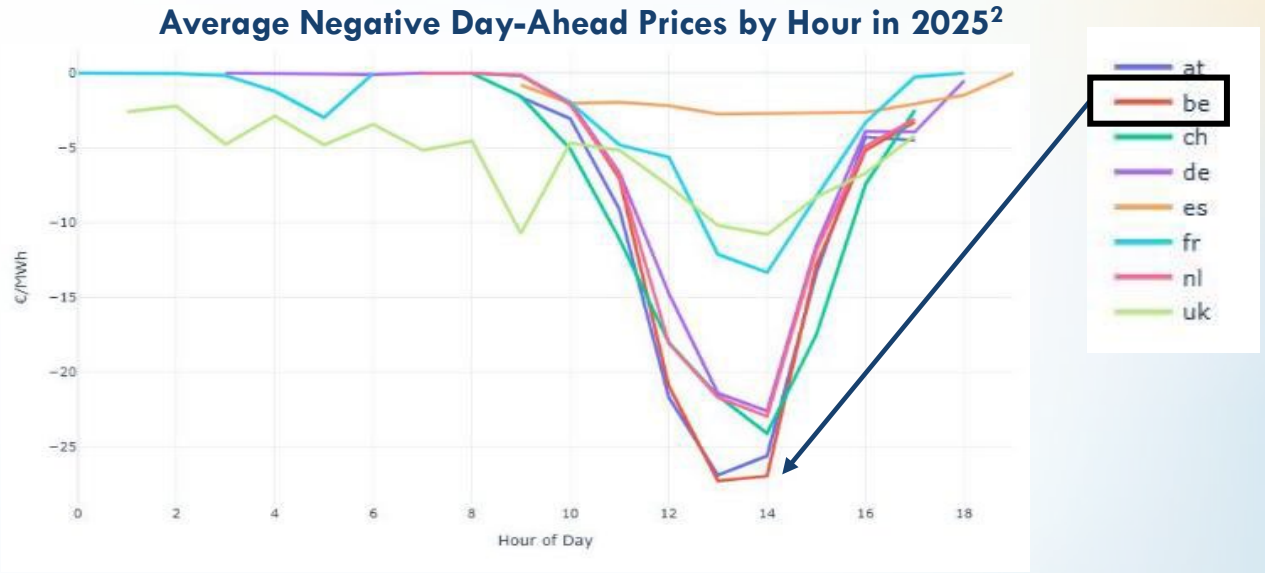
Belgium is at a Critical Node in EU Power

Belgium sits at the heart of the Northern European grid, with strong interconnection to large neighbouring systems. This provides system security but also can import regional price and grid instability from less well functioning markets

Belgium is a Key Node for Northern European Power[1]



Belgium Balances Neighbour's Surplus Power



- Dutch power market highly constrained with growing excess solar
- German market suffers severe constraint issues with wind and solar
- French market swings between excess baseload and peak shortages
- Growing North Sea wind resource increases load shifting needs within Belgium

[1] ENTSO-E [2] Volue

Belgium Attractive Market for Large BESS

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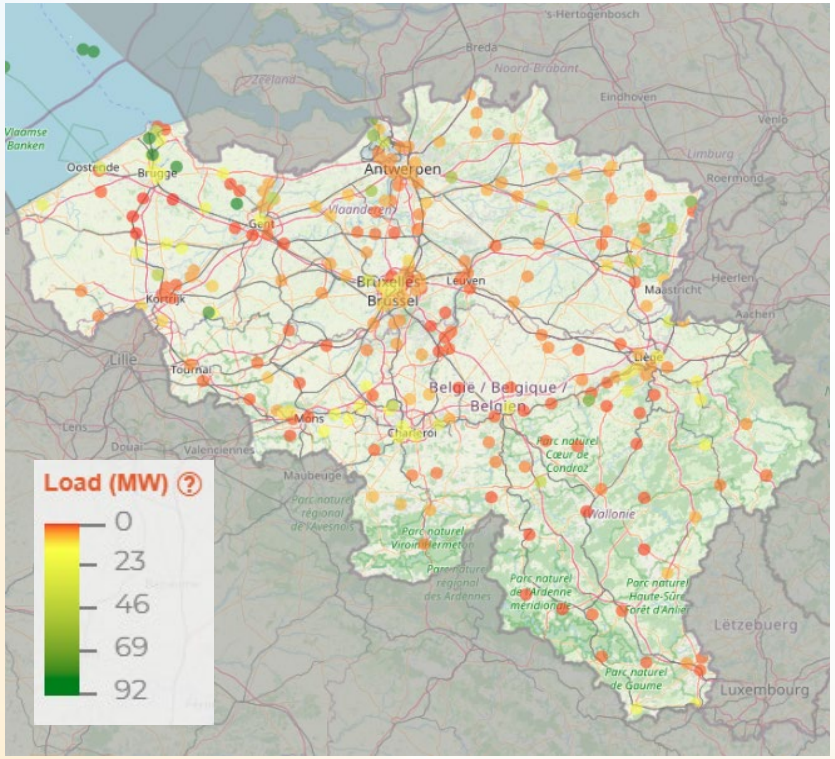
Belgium is a good place to develop large BESS projects, combining grid connection capacity, relatively straight forward planning processes and increasing energy density to accommodate increasingly large projects on rare industrial zoned smaller plots

Belgium Has Available Grid Connection Capacity

Belgium Load Grid Hosting Capacity 2031[1]



[1] Elia Grid Hosting Capacity Map

Opportunities

1. Significantly More Available Grid Capacity in Belgium than Neighbouring Countries like the Netherlands, France
2. Decent Visibility on Permitting Outcomes
3. Trend Towards Higher Energy Density BESS Allows Developers to Build Larger Systems in Land-Constrained Location

Challenges

1. Finding Permittable Plots of Land Suitable for 200MW+ BESS Projects is Challenging
2. Belgium has Some of the Highest Construction Costs in Europe
3. Regulatory Uncertainty Regarding Grid Connection Contracts with Flex

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THANK YOU!

Session 3.4 Benelux – Construction of the Big Projects

Pierre Bayart

BSTOR

BATTERIES AS A SERVICE

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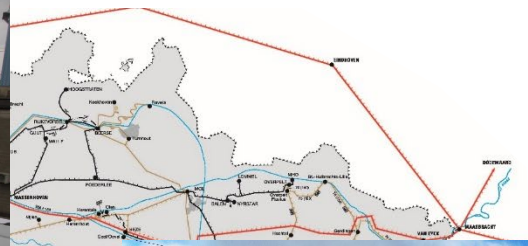
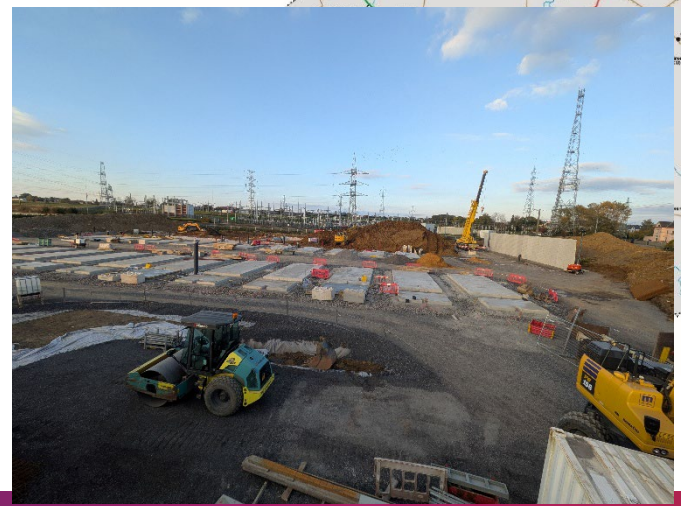
BSTOR Achievements

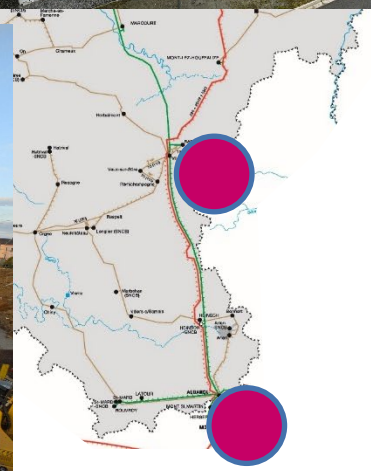
ESTOR-LUX I
- 10MW/20MWh
- TIC 9 MEUR, 50% PF
- BSTOR 75% - Socofé 15% - Idelux 10%
- FC 2020 / COD 2021

DSTOR
- 50MW/140MWh
- TIC 70 MEUR, 55% PF
- BSTOR 50% - Duferco Wallonie 50%
- FC 2024 / COD 2026

ESTOR-LUX II
- 100MW/270MWh
- TIC 124 MEUR, 65% PF
- BSTOR 75% - Socofé 15% - Idelux 10%
- FC 2025 / COD 2026







BSTOR Achievements

- 3 projects brought to financial close
- 160 MW/430 MWh
- Total investment ~200 MEUR
- Fully non-recourse loan of ~125 MEUR sourced, while merchant
- ~1,5 GW of reserved capacity for future projects

Belgium big BESS enablers

Deep market "at grid parity"

Potential for RES in Belgium is limited, not prone to "duck curves" enabling viability of arbitrage spot market

But "fast flexibility market" is deep, with conditions providing for sound, but highly volatile revenue generation

FIGURE 3: THE UNEVEN DISTRIBUTION OF RES ACROSS EUROPE. WHILE BELGIUM AND GERMANY ARE SHORT ON RES, THERE IS AN ABUNDANCE OF RES IN NORTHERN EUROPEAN COUNTRIES

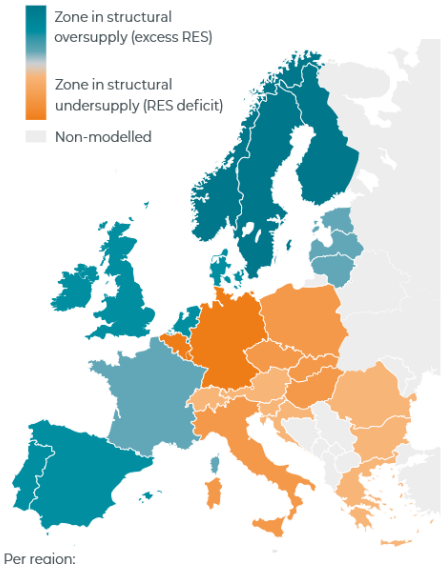
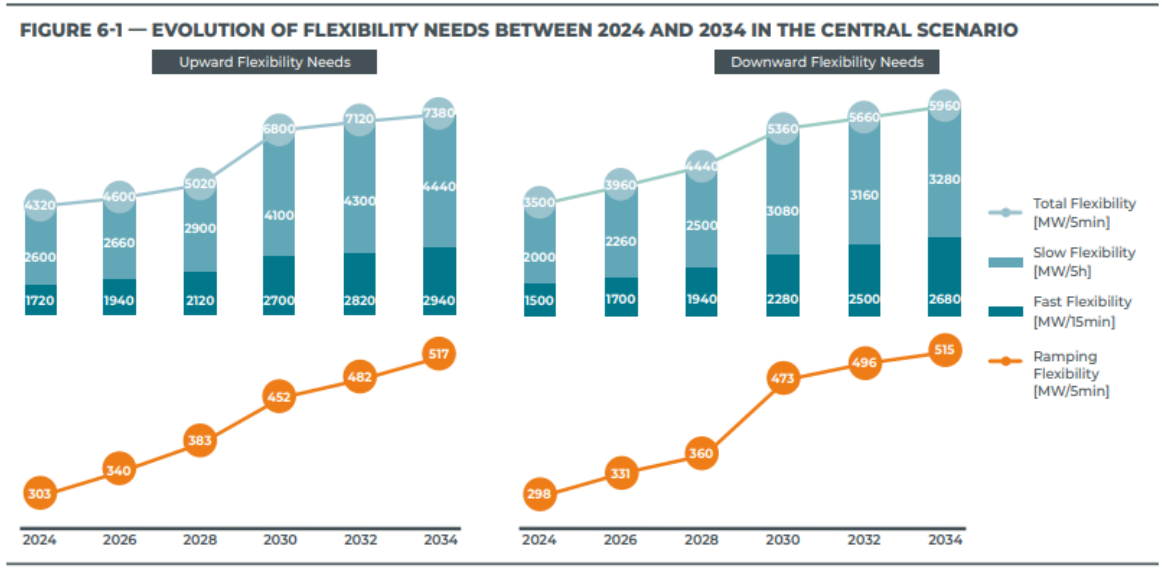
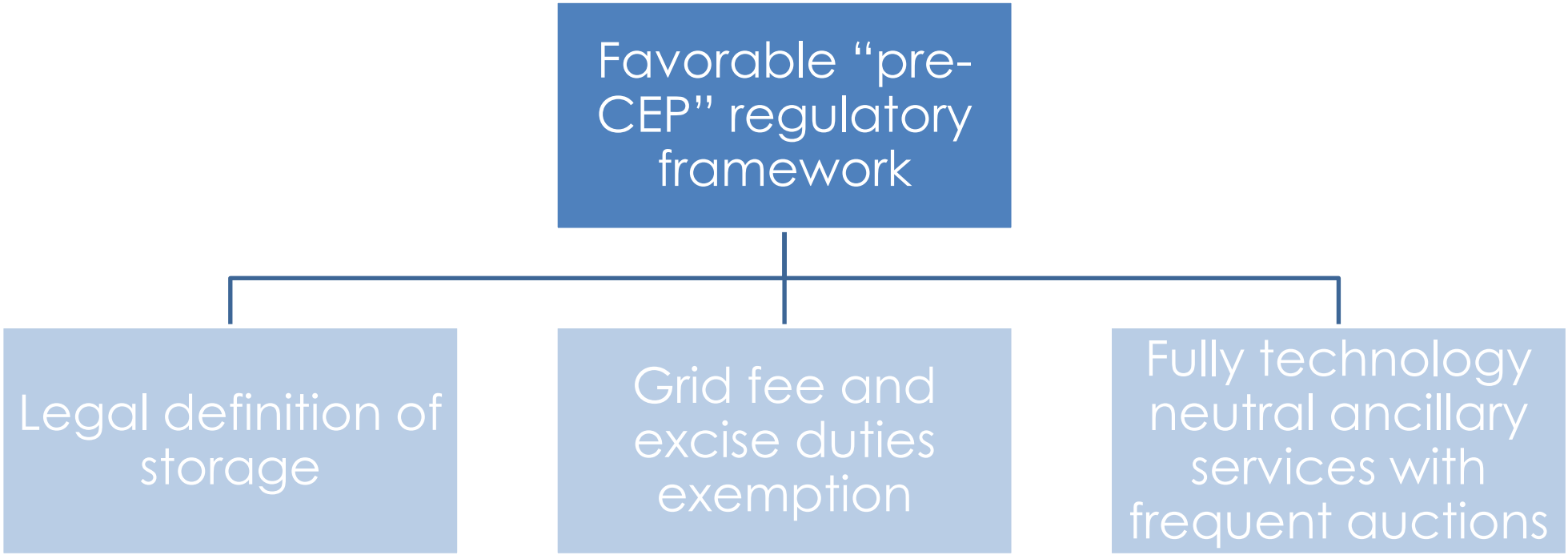


FIGURE 6-1 — EVOLUTION OF FLEXIBILITY NEEDS BETWEEN 2024 AND 2034 IN THE CENTRAL SCENARIO



Belgium big BESS enablers



- But reluctancy in full translation of Clean Energy Package afterwards
  - No explicit ban on double charge for (front-of-meter) storage in Electricity Law
  - (Flexible) Grid connection allocation everything but "transparent, objective, non-discriminative"
  - Procrastination on market based congestion management, "cost-reflexivity" very limited for BESS in meantime

BSTOR keys for success

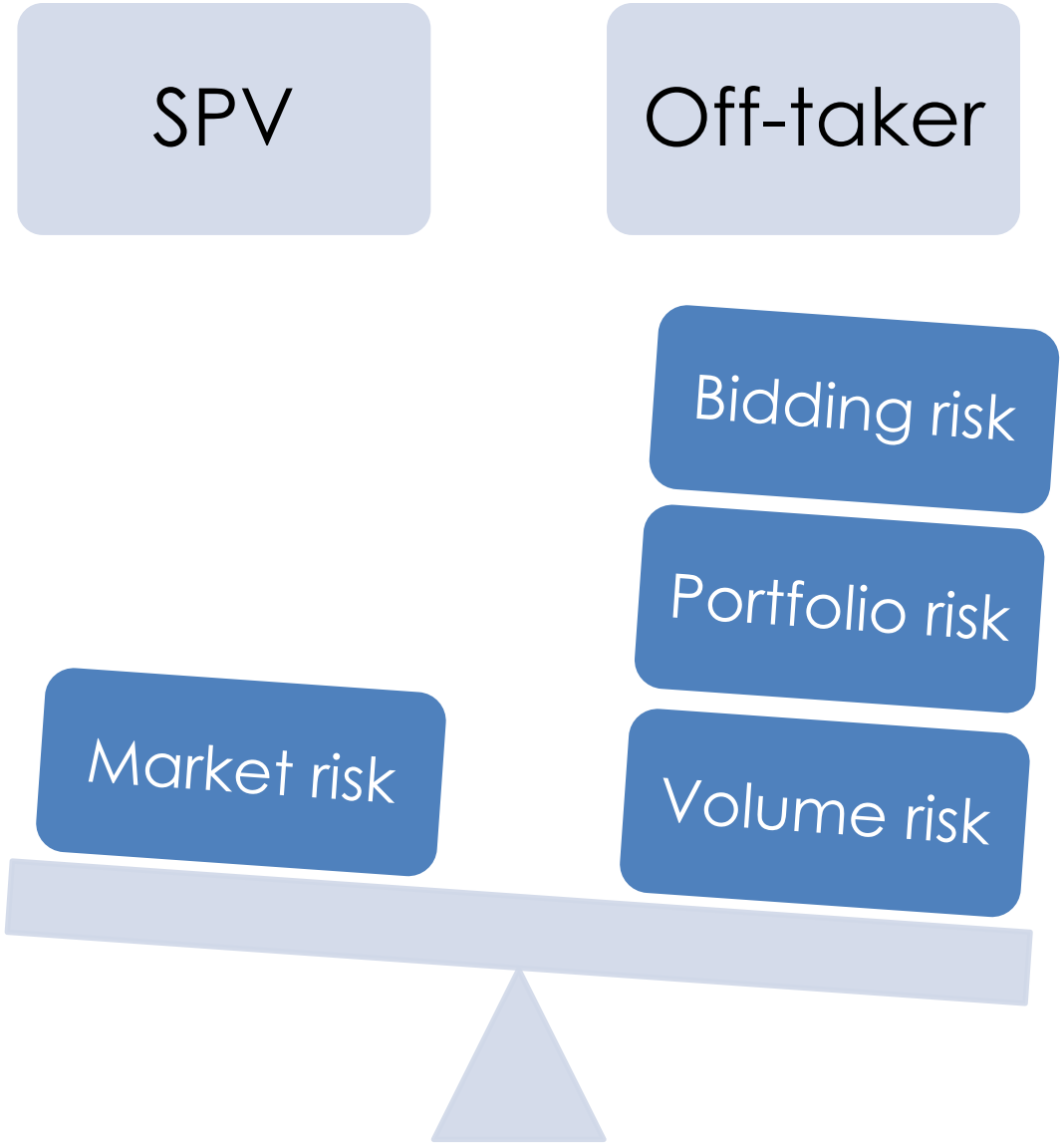
Project finance (fully non-recourse) replicable to large scale embedded in development from scratch

Respect (but don't worship) the codes from project finance known on past deals

Back to basics: risks to be borne by fittest party

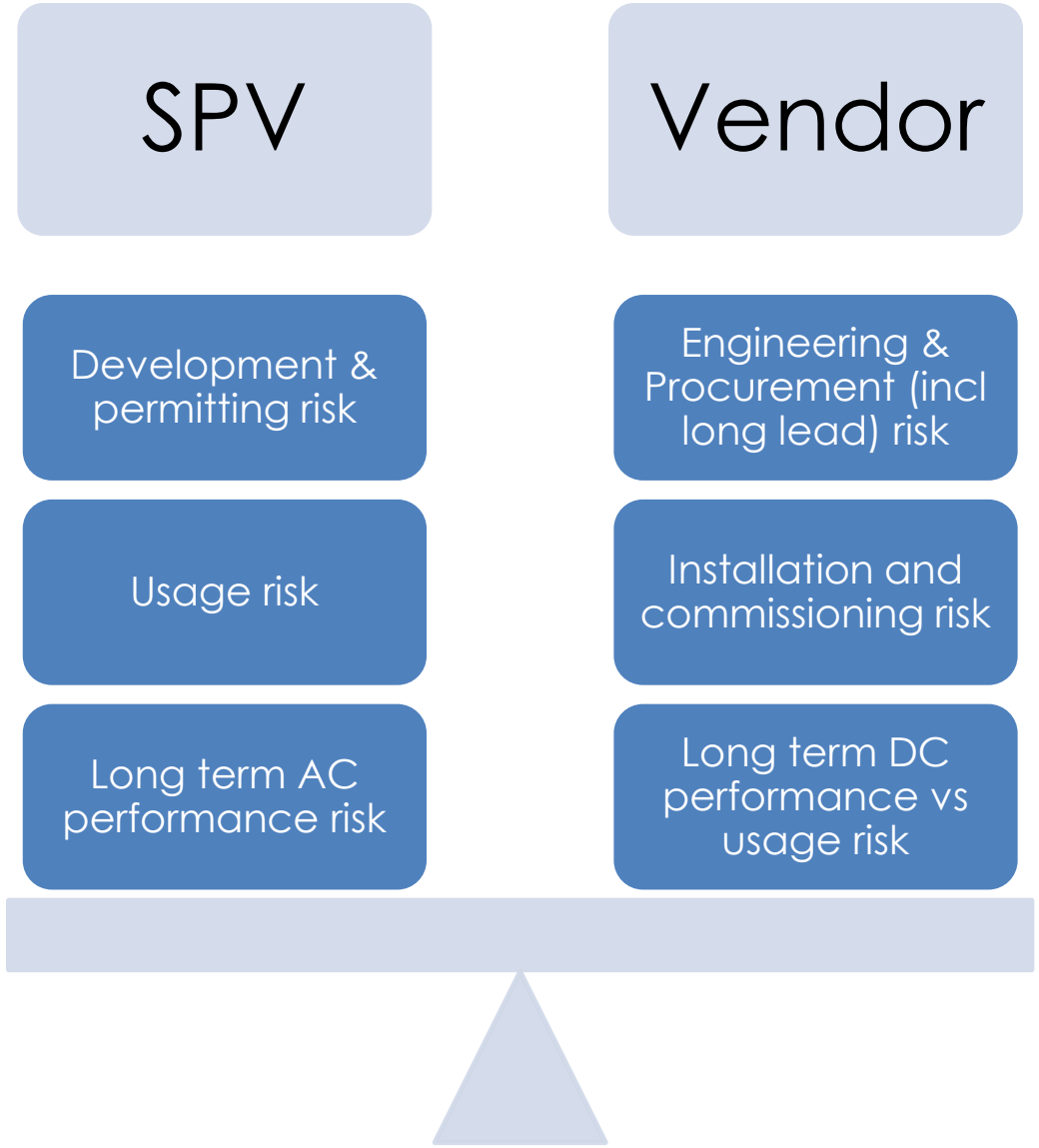
Revenue side risks

- Bidding, portfolio and volume risk externalized through a long-term "Flexibility Purchase Agreement"
- Take-or-pay fee per "hour of MW availability" depending on
  - Energy retention and associated daily throughput budget
  - Market index encompassing all flexibility markets



Asset side risks

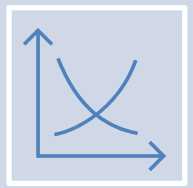
- EPCI & BESS LT performance (vs usage) risks outsourced on investment grade (or ~=) vendor
- EPCI including long lead items
- Flexible and anticipable performance guarantees (availability, energy retention, RTE) with very limited excuse event under 15 – 20y LTSA



Overall risk allocation

Asset with strongly guaranteed availability and energy retention (+ lifetime) under a "reference daily throughput budget"

Revenues partially de-risked (over a long period):
No volume risk, take-or-pay on availability and reference daily throughput budget



But fully exposed to market risk (**and opportunities**). Addressed through price curves with sufficient sensibilities to allow for definition of "P50, P90, P95" revenue scenarios enabling "classical" gearing and DSCR sizing

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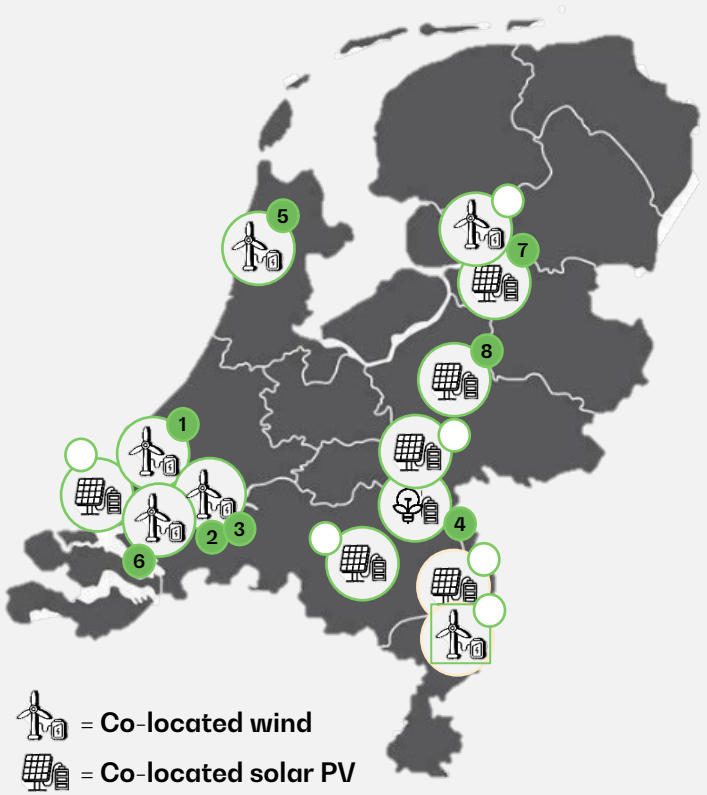
Rianne 't Hoen

Senior Project Manager BESS
Green Energy Storage

GREEN ENERGY STORAGE

GES has a proven track-record of successfully developing and constructing multiple BESS p

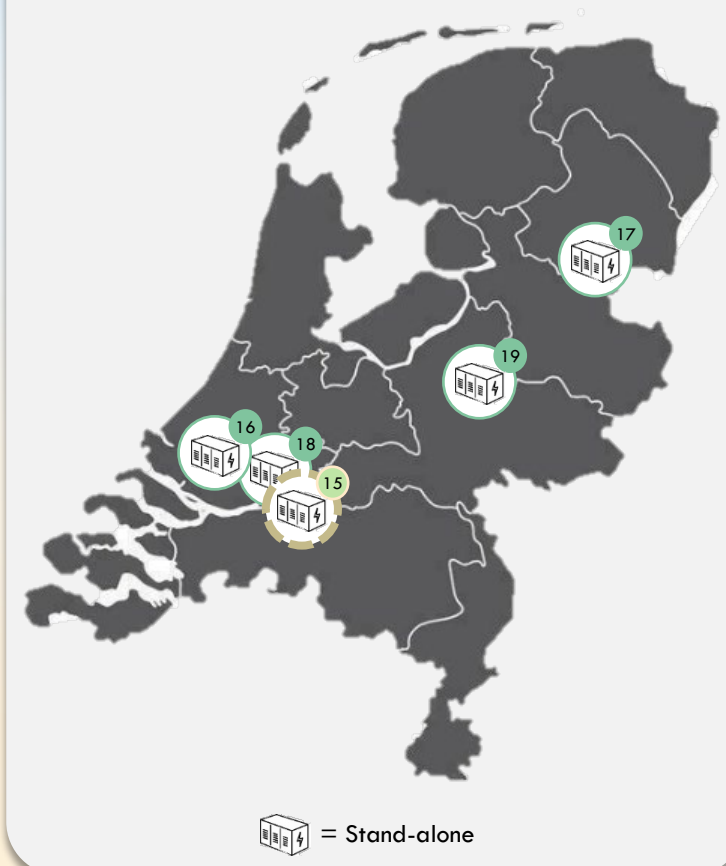
Project locations



- 8 projects operational & construction, adding up to 86 MW/ 115 MWh
- 6 co-located projects in (advanced) development: 115 MW/ 270 MWh

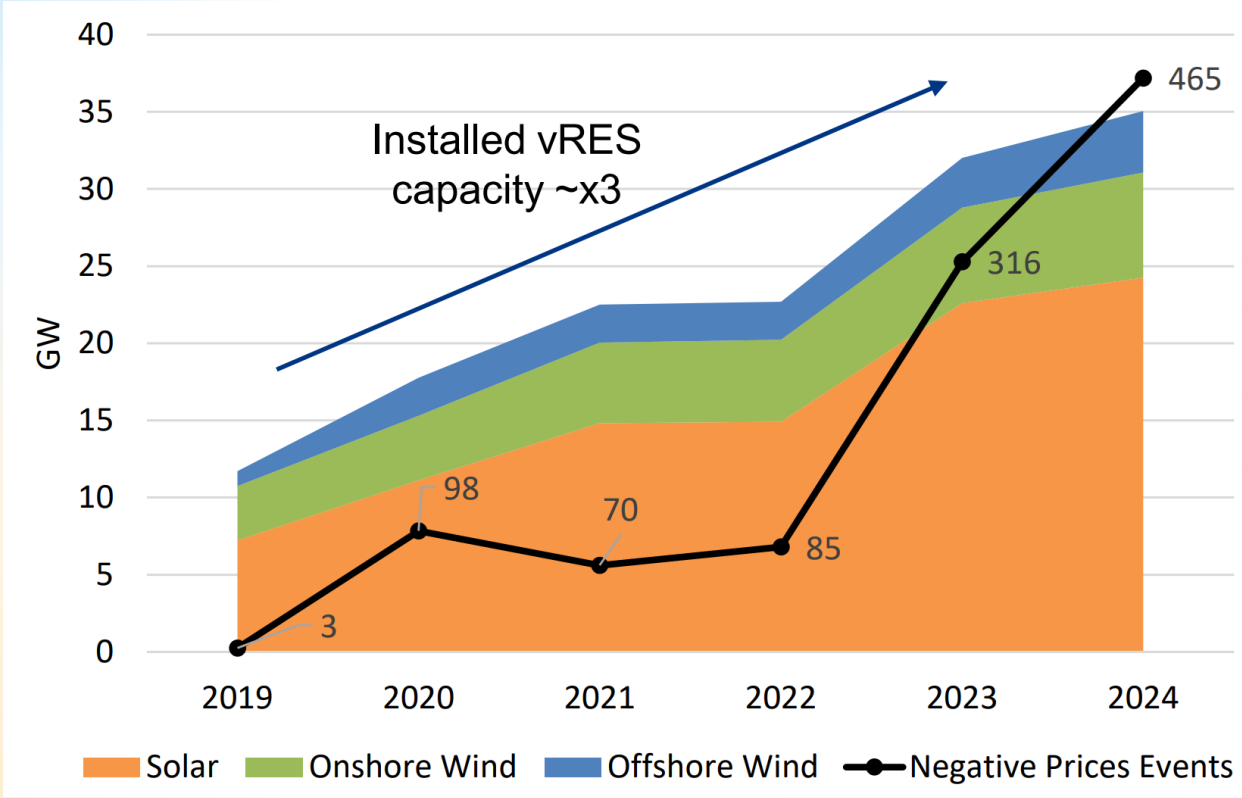
Development of 5 stand-alone BESS projects in NL

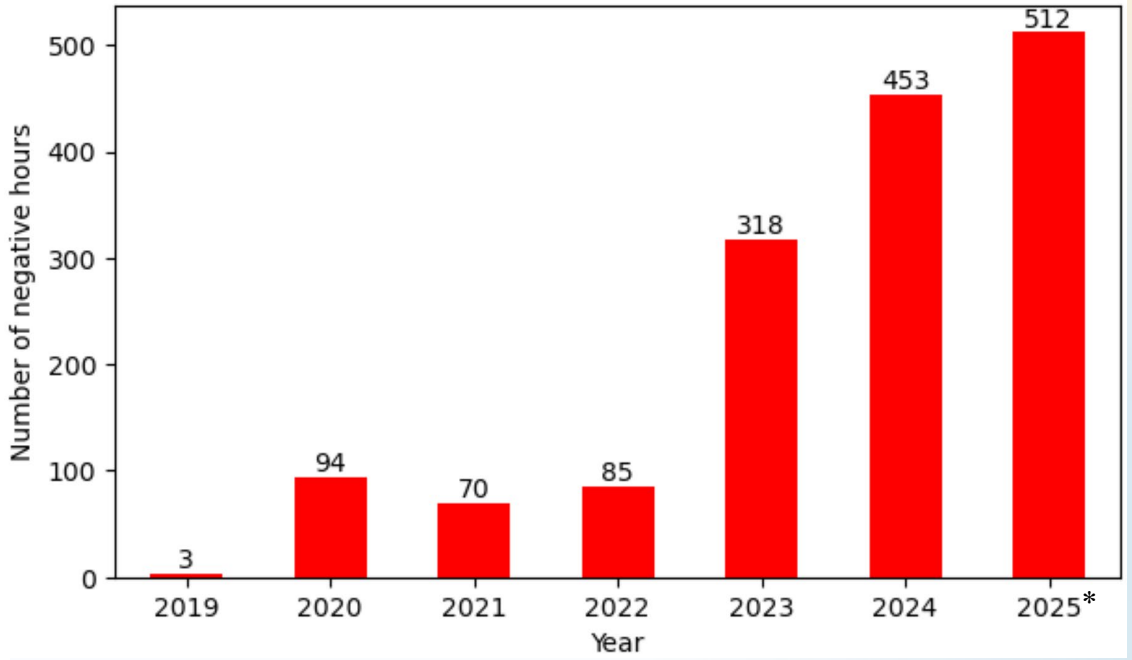
Project locations



Additionally, GES is developing 5 stand-alone BESS projects,
200+ MW, of which the first will go live in Q3 2027

Netherlands: Installed variable renewable energy sources capacity is increasing

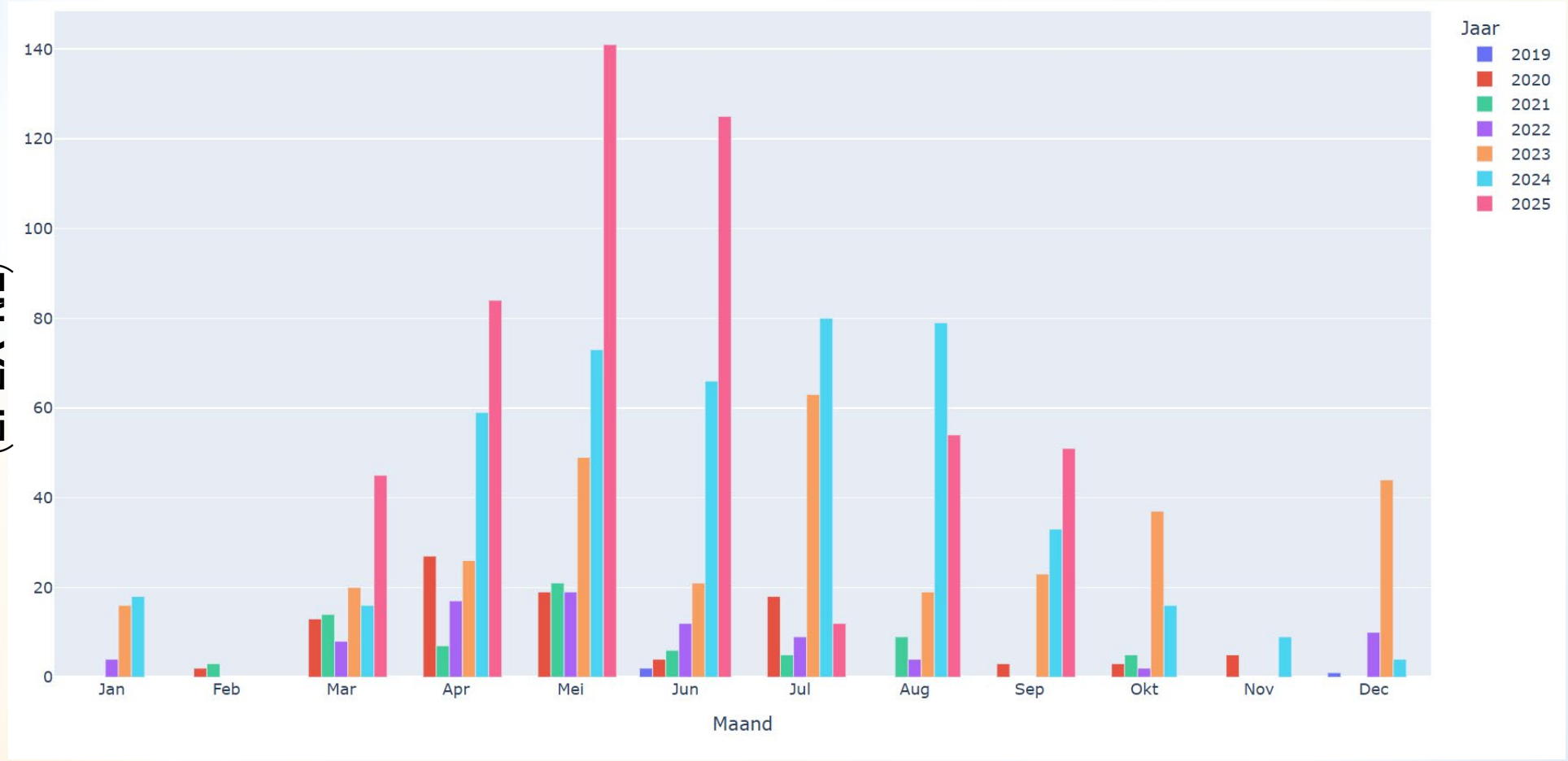




* Day-ahead market data until 1st Oct 2025

TenneT. Market-Based Flexibility from Renewables. May 2025

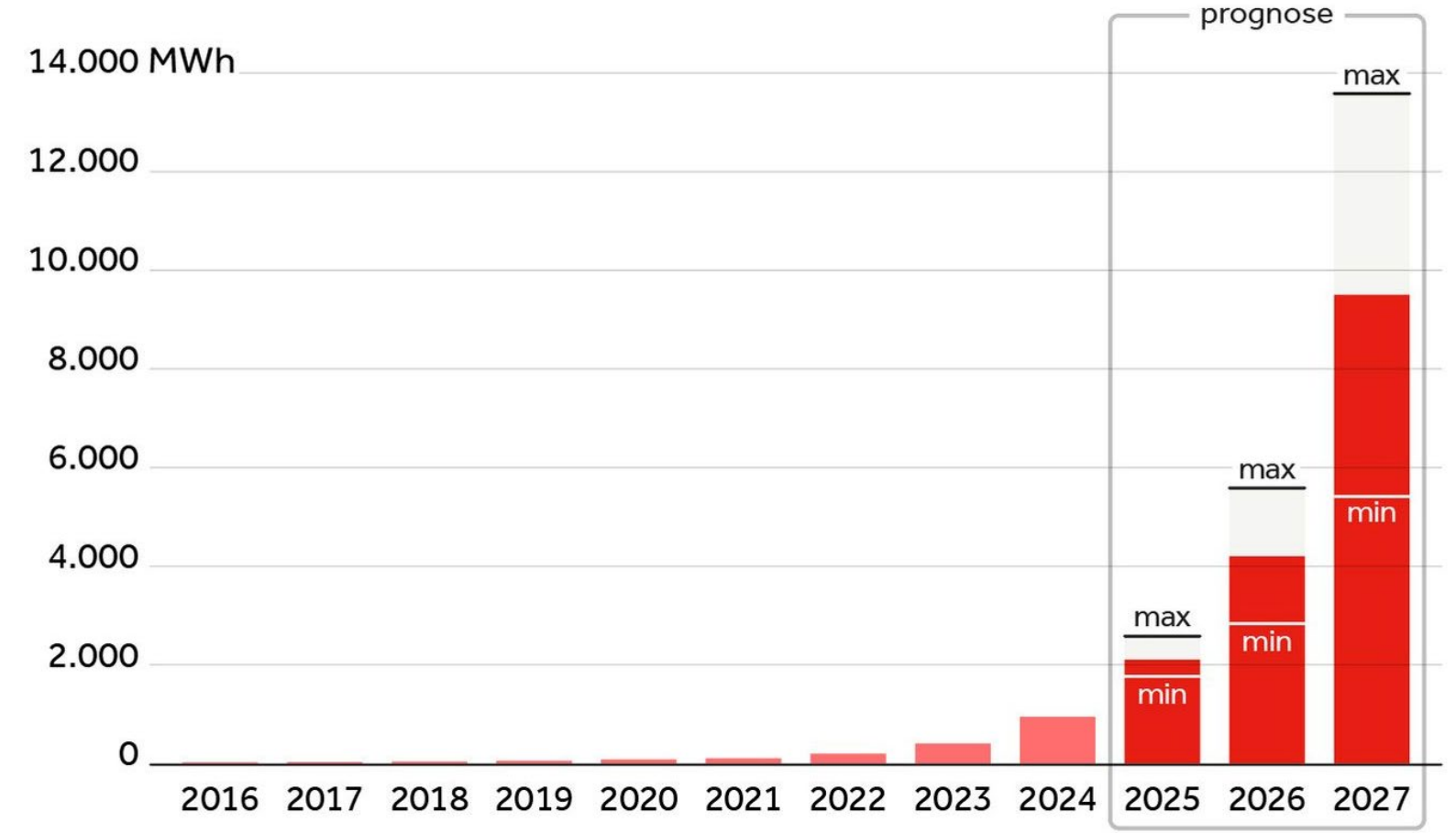
Mismatch between demand and supply leads to negative day-ahead prices



Number of negative hours.html, Data until 1st Oct 2025

Battery energy storage system roll-out

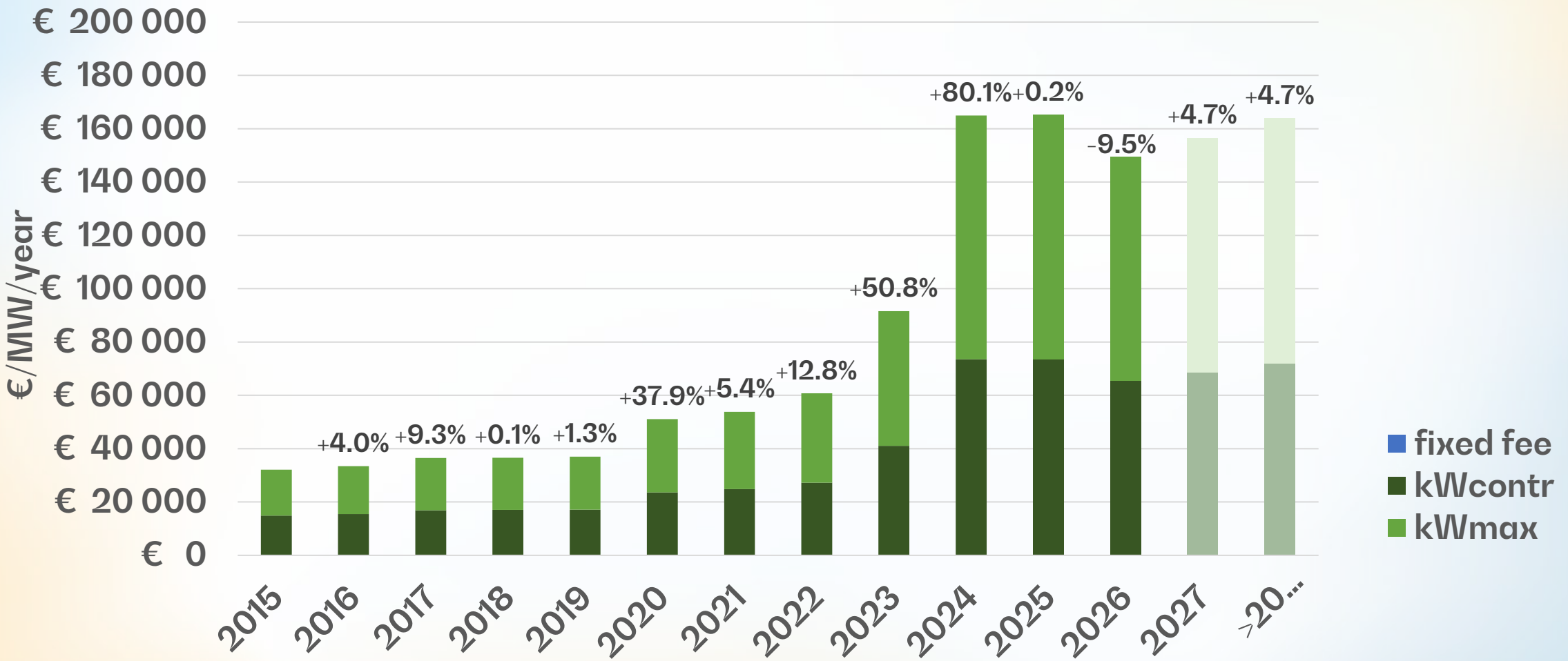
Expected BESS capacity in NL (MWh)



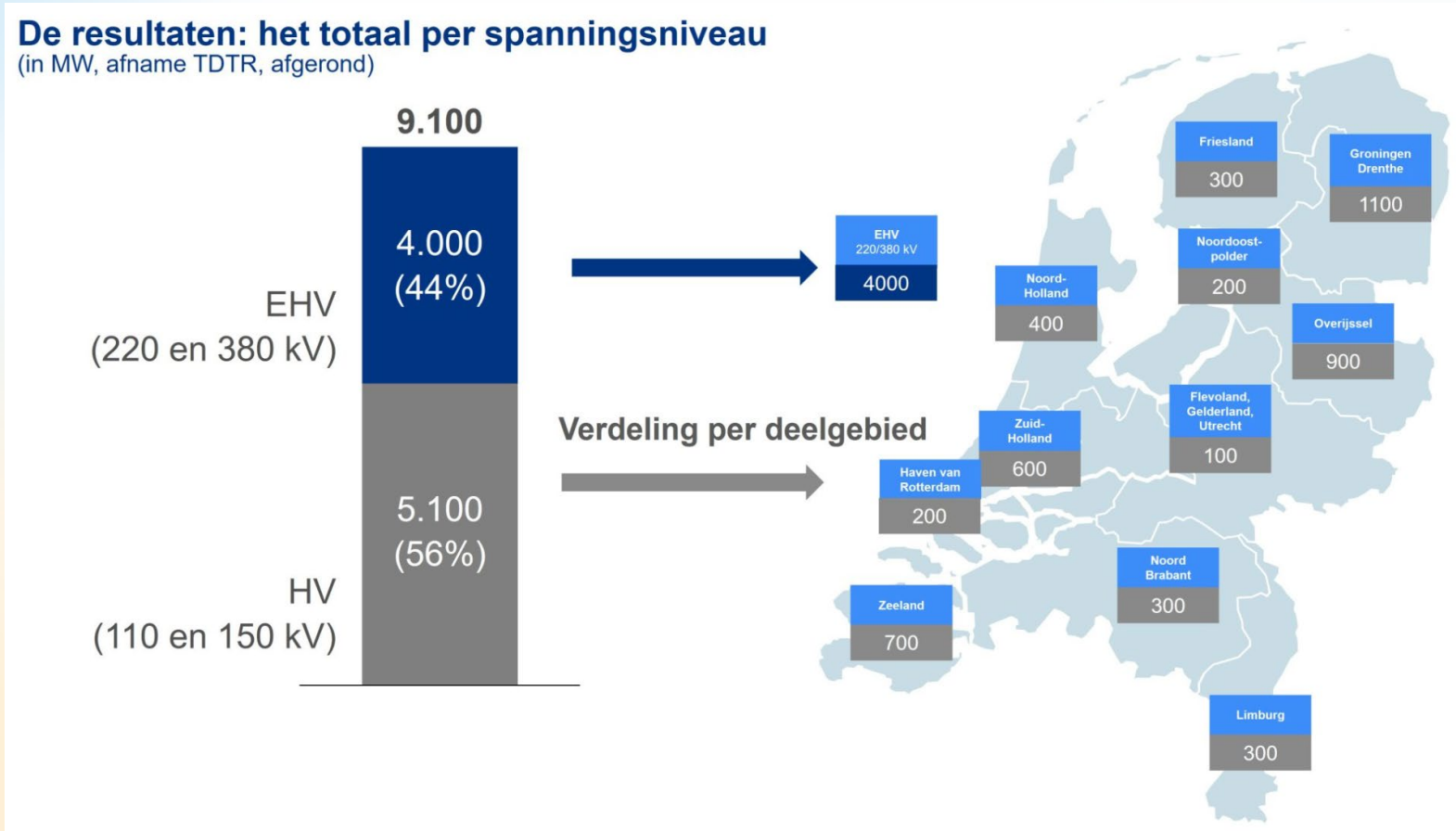
bron: Voltho

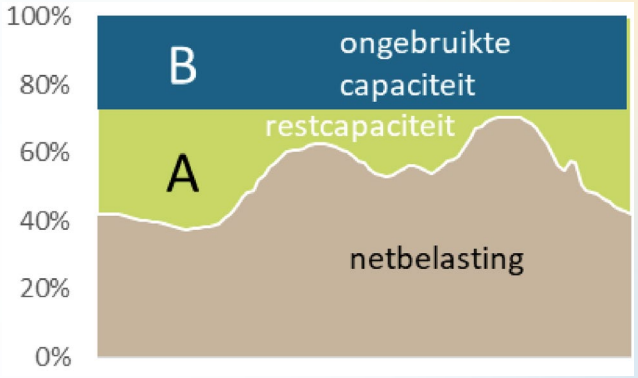
Grid costs

TenneT HV connections (110-150 kV)



TenneT announced 9.1 GW of capacity available for TDTR





Hour	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Jan	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.9	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.9	0.8
Feb	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.9	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.9	0.8
Mar	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	1.0	1.0	1.0	1.0	0.9	0.8	0.8
April	0.7	0.7	0.6	0.6	0.6	0.6	0.7	0.8	0.8	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.8
May	0.7	0.7	0.6	0.6	0.6	0.6	0.7	0.8	0.8	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.8
June	0.7	0.7	0.6	0.6	0.6	0.6	0.7	0.8	0.8	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.8
July	0.7	0.7	0.6	0.6	0.6	0.6	0.7	0.8	0.8	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Aug	0.7	0.7	0.6	0.6	0.6	0.6	0.7	0.8	0.8	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Sep	0.7	0.7	0.6	0.6	0.6	0.6	0.7	0.8	0.8	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Oct	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	1.0	1.0	1.0	1.0	0.9	0.8	0.8
Nov	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	1.0	1.0	1.0	1.0	0.9	0.8	0.8
Dec	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.9	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.9	0.8
weekend	0.7	0.7	0.6	0.6	0.6	0.6	0.7	0.8	0.8	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.8

Project Gertrudis

Key enablers

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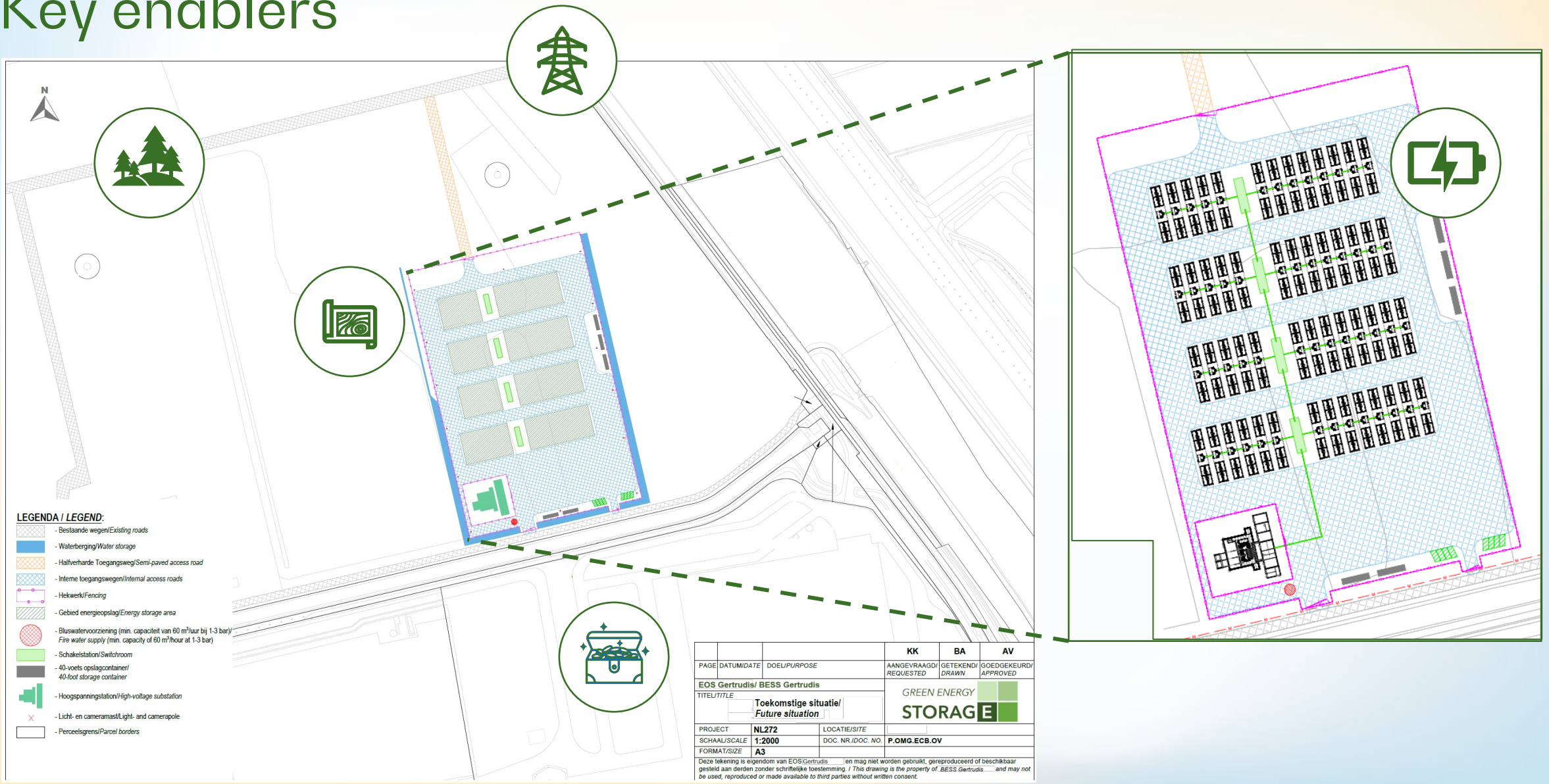

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THANK YOU!

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Nicolas Giuliano

VP Development and Public Affairs

Engie