amprion connects

MARKET REPORT 2026

WEBINAR

PRESENTATION OF KEY FINDINGS

AGENDA

11.00 AM	***WELCOME***	Dr Carsten Lehmköster, Managing Director Amprion Offshore and Director Economic Grid Management
11.10 AM	***MARKET ANALYSIS***	**PRICE VOLATILITY IN LIGHT OF INCREASED RENEWABLE SHARE** David Franzmann, Advisor – International Regulatory Management and Market Development
11.25 AM	***GRID ANALYSIS***	**CURRENT DEVELOPMENTS IN CONGESTION MANAGEMENT** Desiree Czyba, Advisor – Energy Market Models, Data & Transparency
11.40 AM	***Q&A SESSION***	Dr Peter Lopion, Advisor – International Regulatory Management and Market Development
12.00 PM	***CLOSURE***	

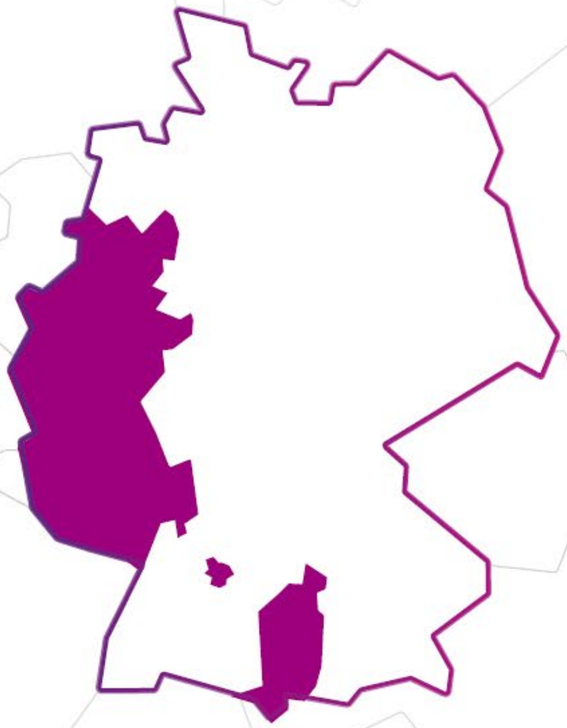
WELCOME TO THE PRESENTATION OF THE AMPRION MARKET REPORT 2026

DR CARSTEN LEHMKÖSTER MANAGING DIRECTOR AMPRION OFFSHORE AND DIRECTOR ECONOMIC GRID MANAGEMENT

Further information is available on:

THE FURTHER INTEGRATION OF THE EU ELECTRICITY MARKET
BETWEEN CHALLENGE AND SOLUTION

In 2025, previous developments in the electricity market have continued and even intensified



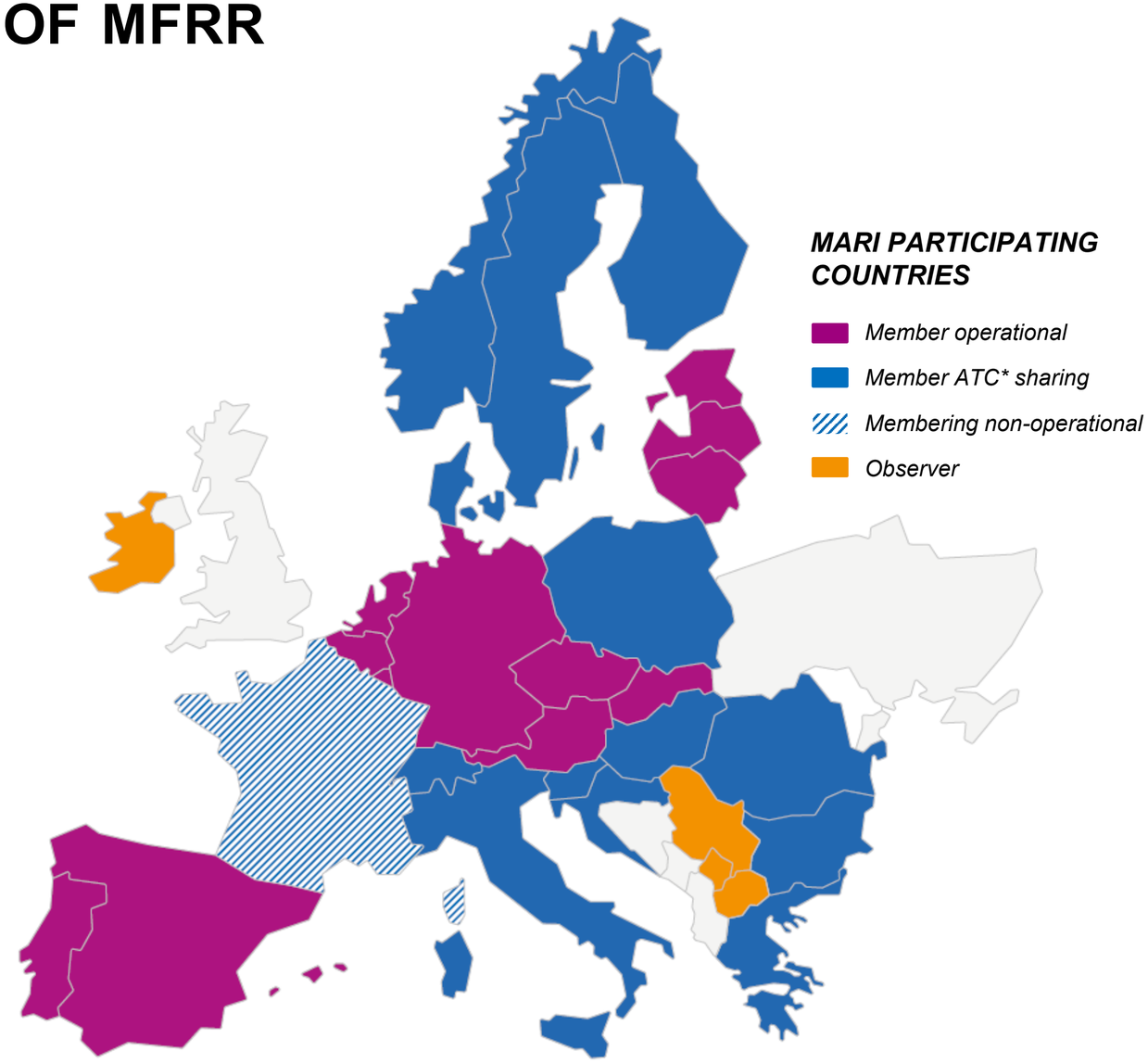
Battery Storage Systems have great potential: They add flexibility to the market, but it is crucial that they are grid-friendly

In the modern energy landscape, we can say: Germany works because Europe works - Europe works because everyone cooperates

MARI – EUROPEAN COORDINATION OF MFRR AND ITS WELFARE EFFECTS

- ***MARI is the EU's common platform*** for cross-border exchange and activation of ***mFRR balancing energy for frequency restoration***
- ***Amprion hosts*** MARI's Central Service
- In 2025, ***welfare gains from European cooperation by MARI increased to €103.7 million*** (compared to €11.7 million in 2024), mainly driven by the accession of the Baltic states and the Iberian Peninsula

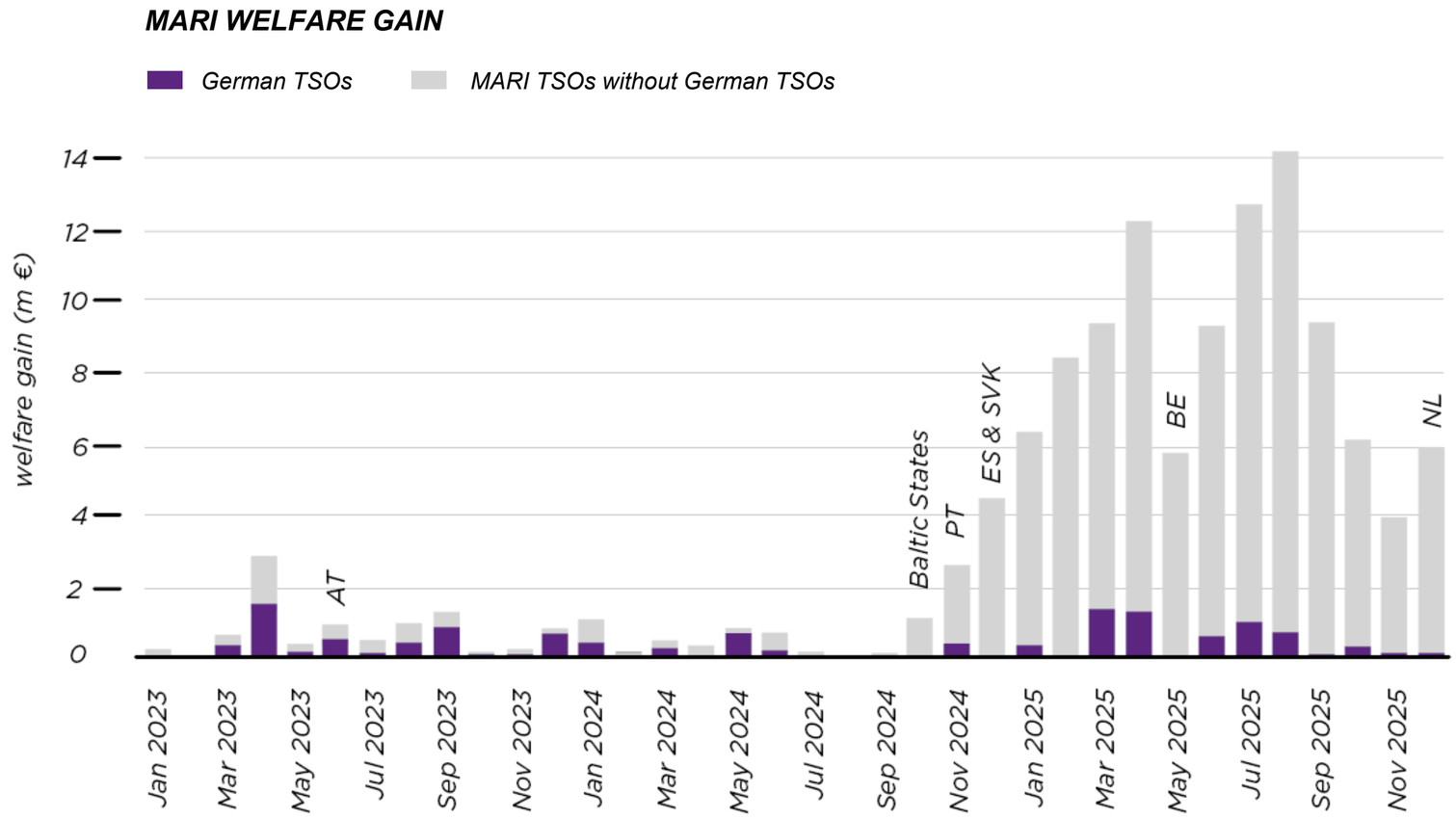
*ATC Available Transmission Capacities



MARI – EUROPEAN COORDINATION OF MFRR
A SUCCESS STORY

- Even with low mFRR activation in Germany in 2025, a welfare gain of ~€5.6 million from competitively priced cross-border bids was achieved
- MARI has an important role in a ***secure, efficient, sustainable European power market***

  → Further European accessions will lift additional welfare gains



OUTLOOK
EUROPEAN GRIDS PACKAGE & CACM 2.0

The Grid Package addresses issues in permitting, financing and supply chains.

The CACM aims to facilitate the exchange of electricity over European borders.

We work with the European regulators to achieve the shared goal of a robust and interconnected market and grid.

Housekeeping Rules

INFORMATION FOR THE WEBINAR

- All participants are automatically muted
- Questions can be asked at any time via Q&A Section in Teams
- Time will be provided for comprehension questions directly after the presentations
- Q&A session for in-depth discussion at the end

MARKET ANALYSIS

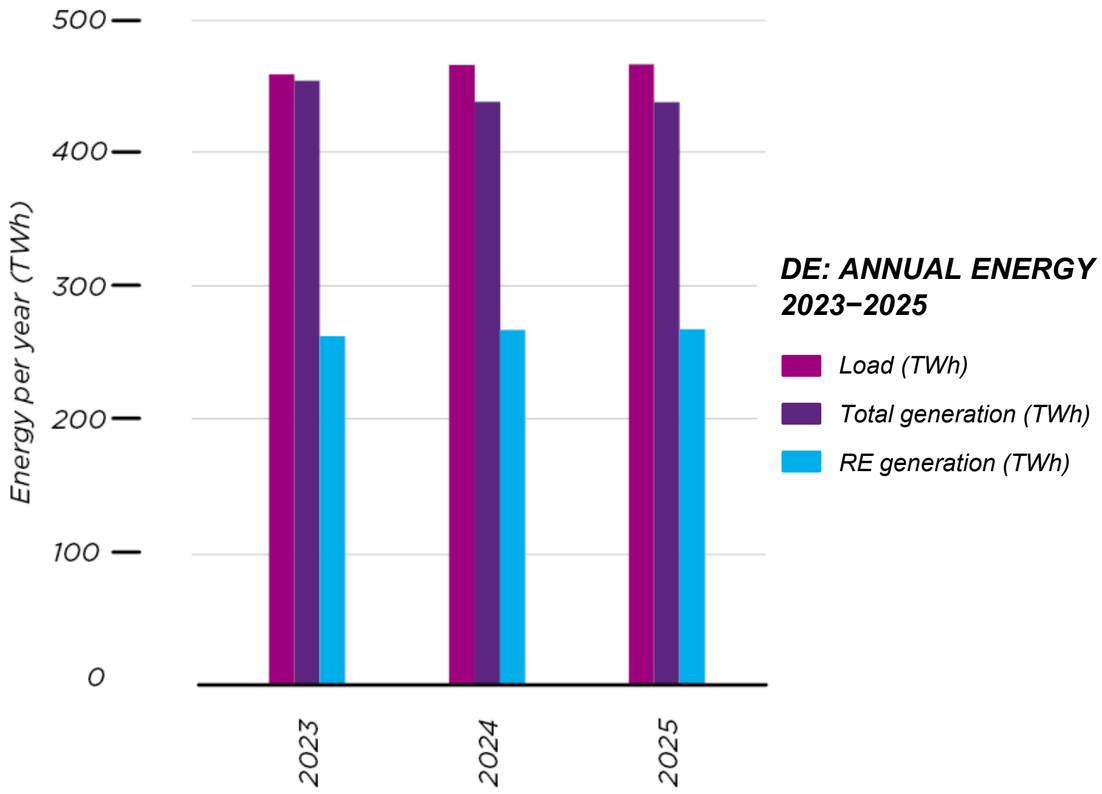
PRICE VOLATILITY IN LIGHT OF INCREASED RENEWABLE SHARE

DAVID FRANZMANN ADVISOR – INTERNATIONAL
REGULATORY MANAGEMENT AND MARKET DEVELOPMENT

LOAD & GENERATION DEVELOPMENT

- Electricity demand* increases from 458 TWh in 2023 to 466 TWh in 2025
- Generation reduces from 454 TWh in 2023 to 437 TWh in 2025
- Renewable share increases from 58% in 2023 to 61% in 2025
- In total, 267 TWh of renewable energy production in 2025, which is an all-time high

*Actual total load per bidding zone per market time unit based on ENTSO-E definition



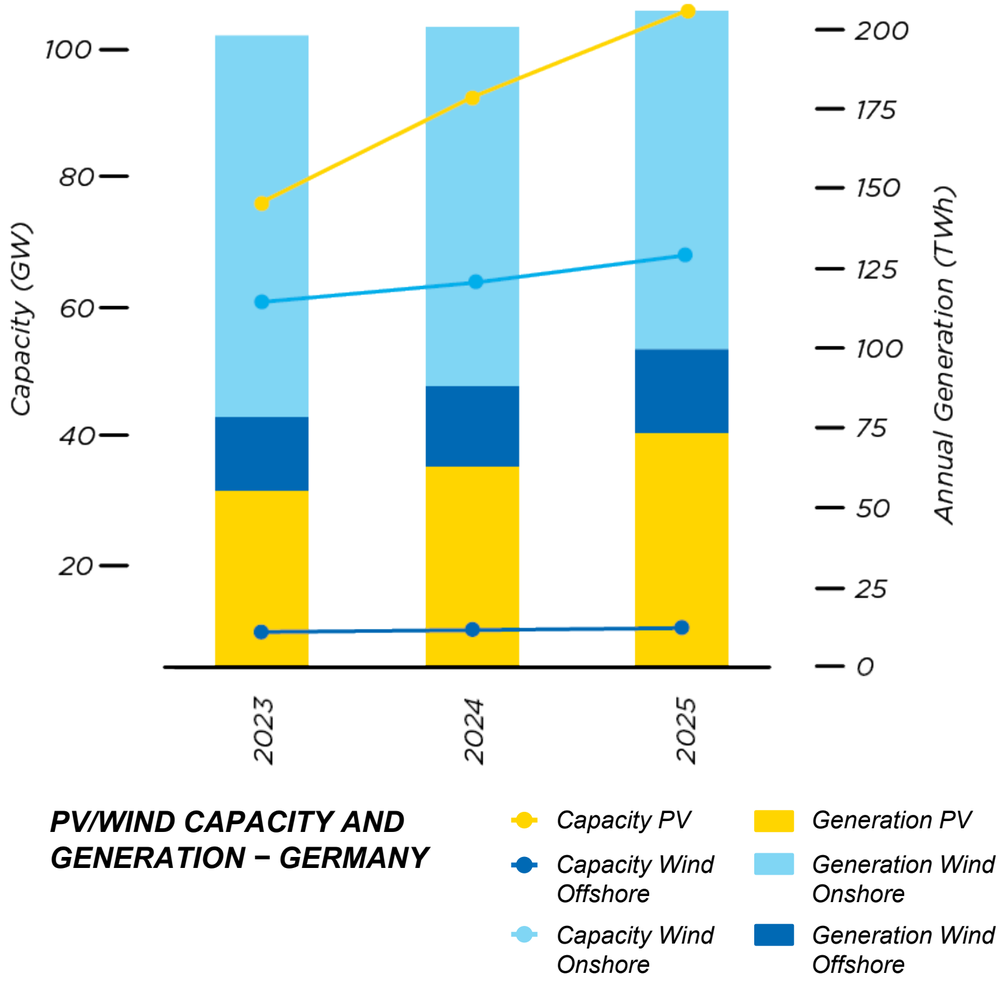
RENEWABLE ENERGIES SHARE AT ALL-TIME HIGH

- RE capacity expansion 2024–2025:
  - PV: highest expansion of +14.5 GW (+16%)
  - Offshore wind: +0.4 GW (+4%)
  - Onshore wind: +4.6 GW (+7%)

- RE generation:
  - PV: +10 TWh
  - Offshore wind: +0.4 TWh
  - Onshore wind: –6 TWh

    ➞ Reason is a low wind yield in 2025 compared to 2024:
    Full load hours for onshore wind –12% compared to 2024

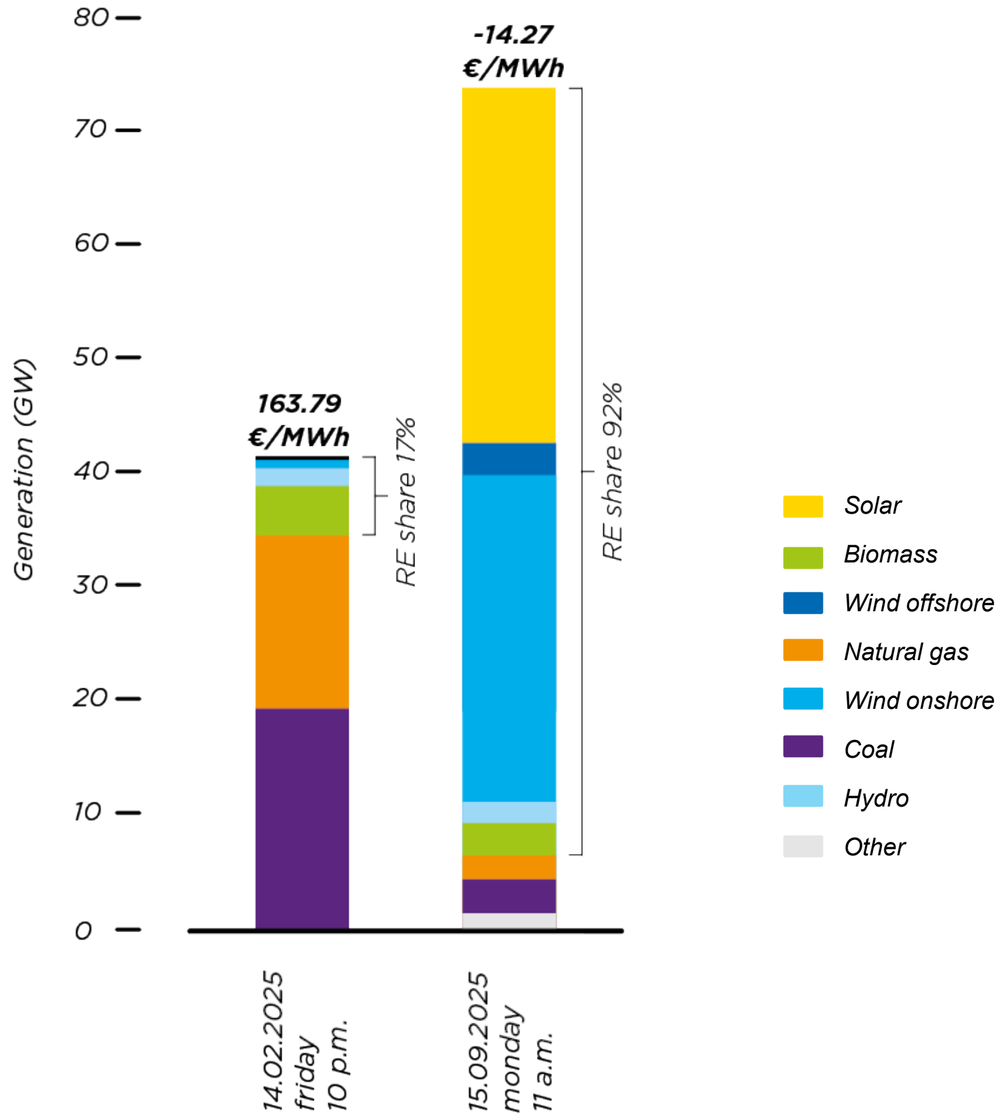
DUE TO WEATHER EFFECTS, RENEWABLES GENERATION IS NOT LINEAR TO RENEWABLES CAPACITY EXPANSION IN 2025.



PV/WIND CAPACITY AND GENERATION – GERMANY

VOLATILITY OF RENEWABLE ENERGIES

- With RE expansion both the lowest and the highest RE share increase from 2024 to 2025
- Mostly hydro and biomass are the available RE during low RE times (14% dispatch), while volatile RE generation can be as low as 2.5% of the generation
- Coal plants and natural gas plants bridge this gap



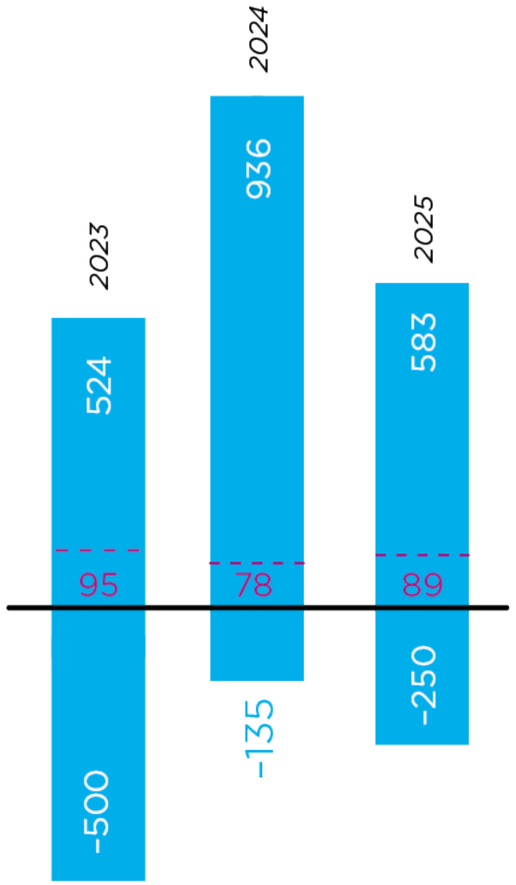
PRICE VOLATILITY

Trends in 2025

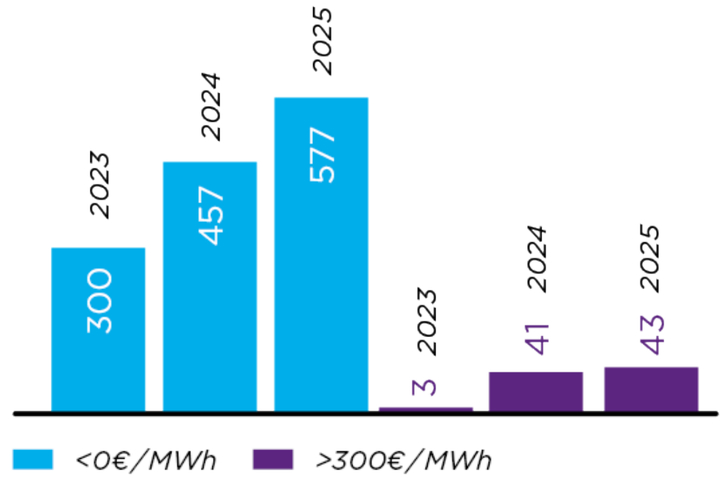
- Average wholesale electricity price increased to 89 €/MWh
- More hours with negative or extremely high prices
- 577 hours with prices below 0 €/MWh in 2025

WHILE EXTREME PRICES ARE REDUCED, OVERALL PRICE VOLATILITY INCREASED IN 2025.

MAX. AND MIN. PRICE IN DE-LU IN €/MWH

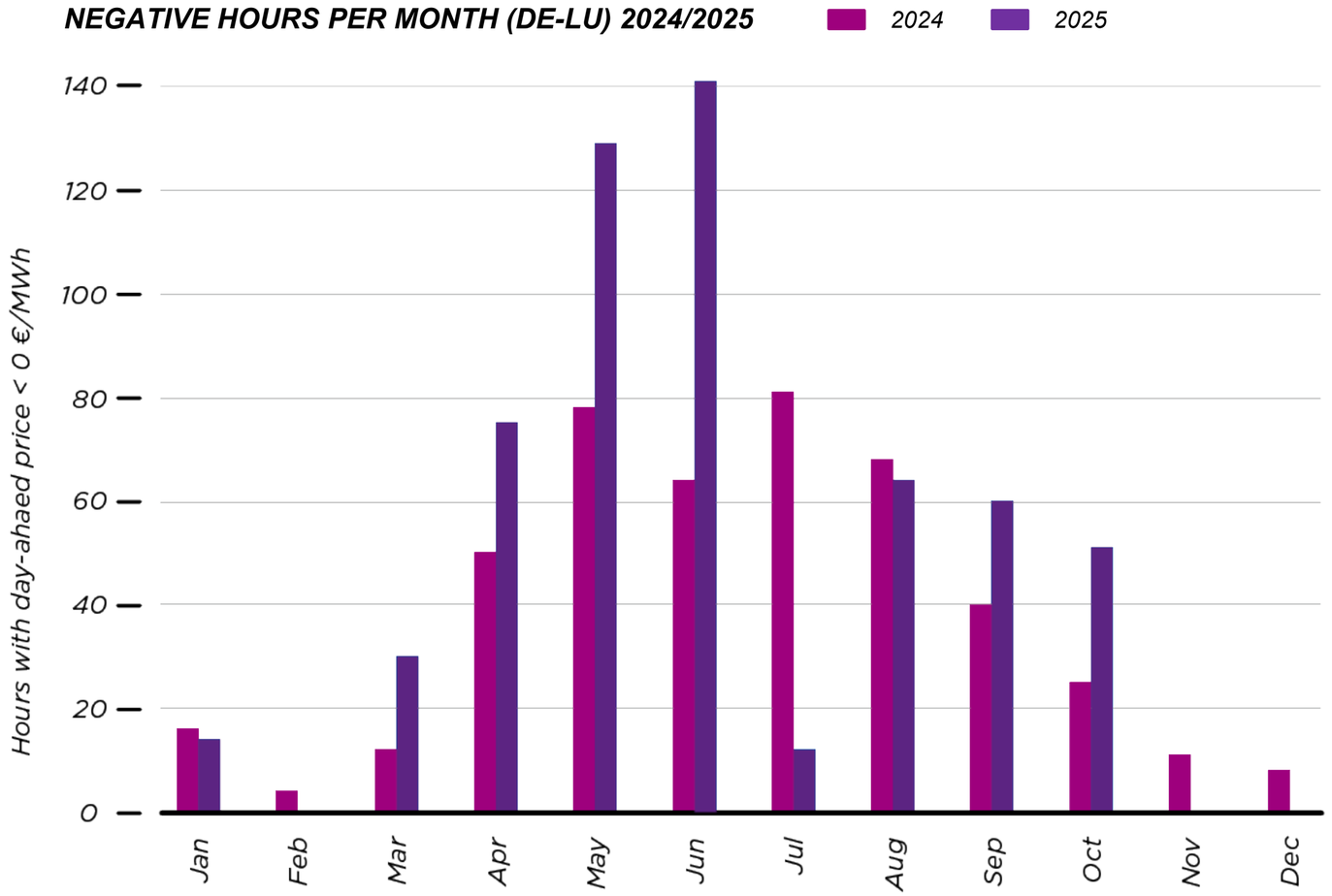


HOURS PER YEAR



NUMBER OF NEGATIVE HOURS INCREASING ANNUALLY

- Number of hours with negative prices in 2025 higher than in 2024, especially in June by more than +100%.
- July 2025 experienced unusually rainy weather and low hours of sunshine, which reduced PV generation and negative hours.
- The total number of hours with negative prices at 577 is at an all-time high, steadily increasing since 2022.
- Most negative hours occur during the summer due to high PV yield, but a few negative hours occur in winter.



NEGATIVE PRICES FROM RENEWABLE ENERGIES

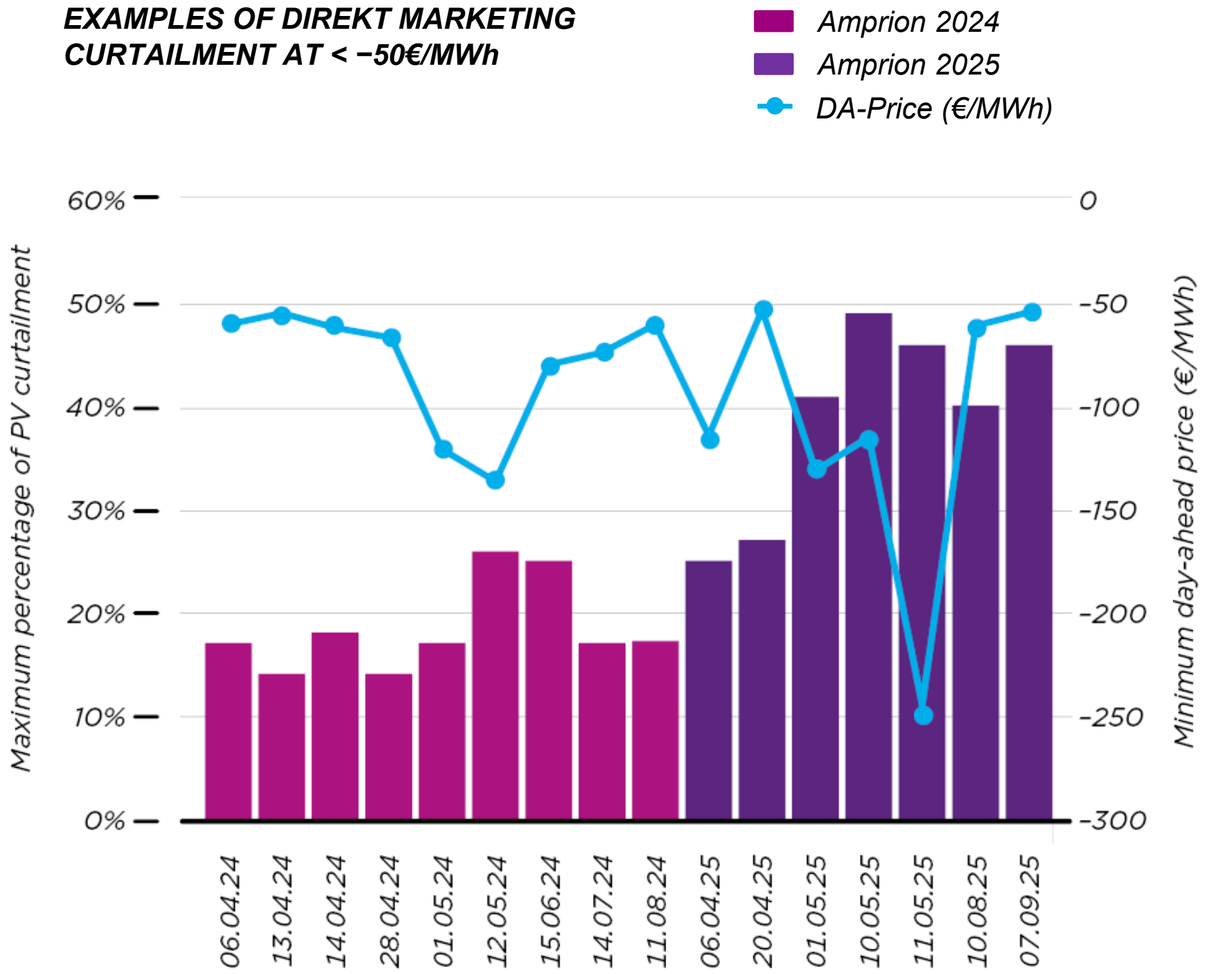
Different incentives for different support schemes:

① Direct marketing (with and without market premium)
- Usually, larger plants above 100 kW
- Nearly **130 GW** (>60% of total RE) in 2025
- In theory, incentive for curtailment at (high) negative prices
- In practice, there has been a mixed response in the past:
  Wind: curtailment of 50–80%
  PV: around 20%

② Feed-in-tariffs and
power purchase agreements (PPAs)
- Only small incentive to curtail at negative prices

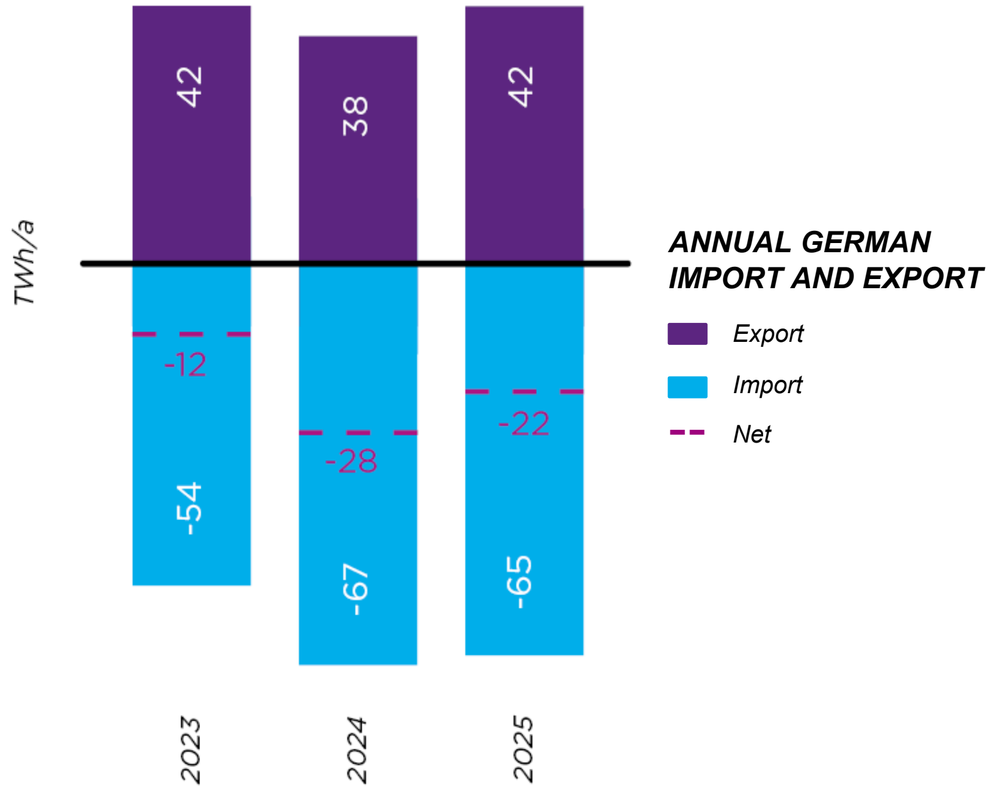
LAST YEAR, HOWEVER, WE WERE ABLE TO ACHIEVE SIGNIFICANT SUCCESS FOR PV CURTAILMENT TOGETHER WITH DIRECT MARKETERS

EXAMPLES OF DIREKT MARKETING CURTAILMENT AT < −50€/MWh



IMPORT & EXPORT

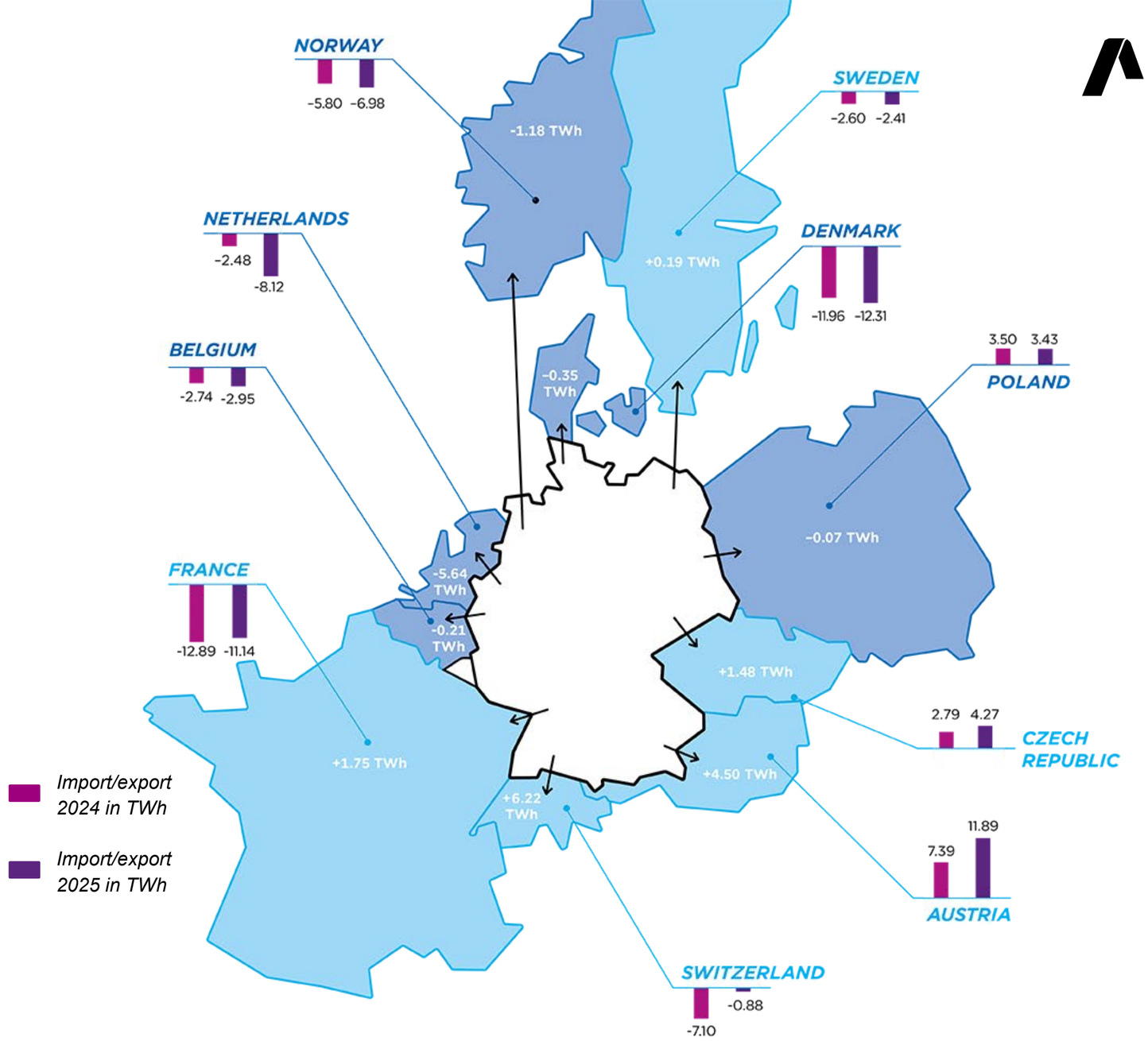
- Germany remained a net importer
- High values of export and import show transport and temporal changes
- This highlights the important role of Germany in the European electricity market



IMPORT & EXPORT

- Highest imports from France, Netherlands and Denmark, export to south-eastern neighbours
- Not all imports and exports are connected to consumption and production in Germany (transits)
- Significant north-south and west-east cross-country transit flows contribute to imports and exports

THE GERMAN ELECTRICITY MARKET WORKS BECAUSE WE ARE EMBEDDED IN THE EUROPEAN ELECTRICITY SYSTEM.

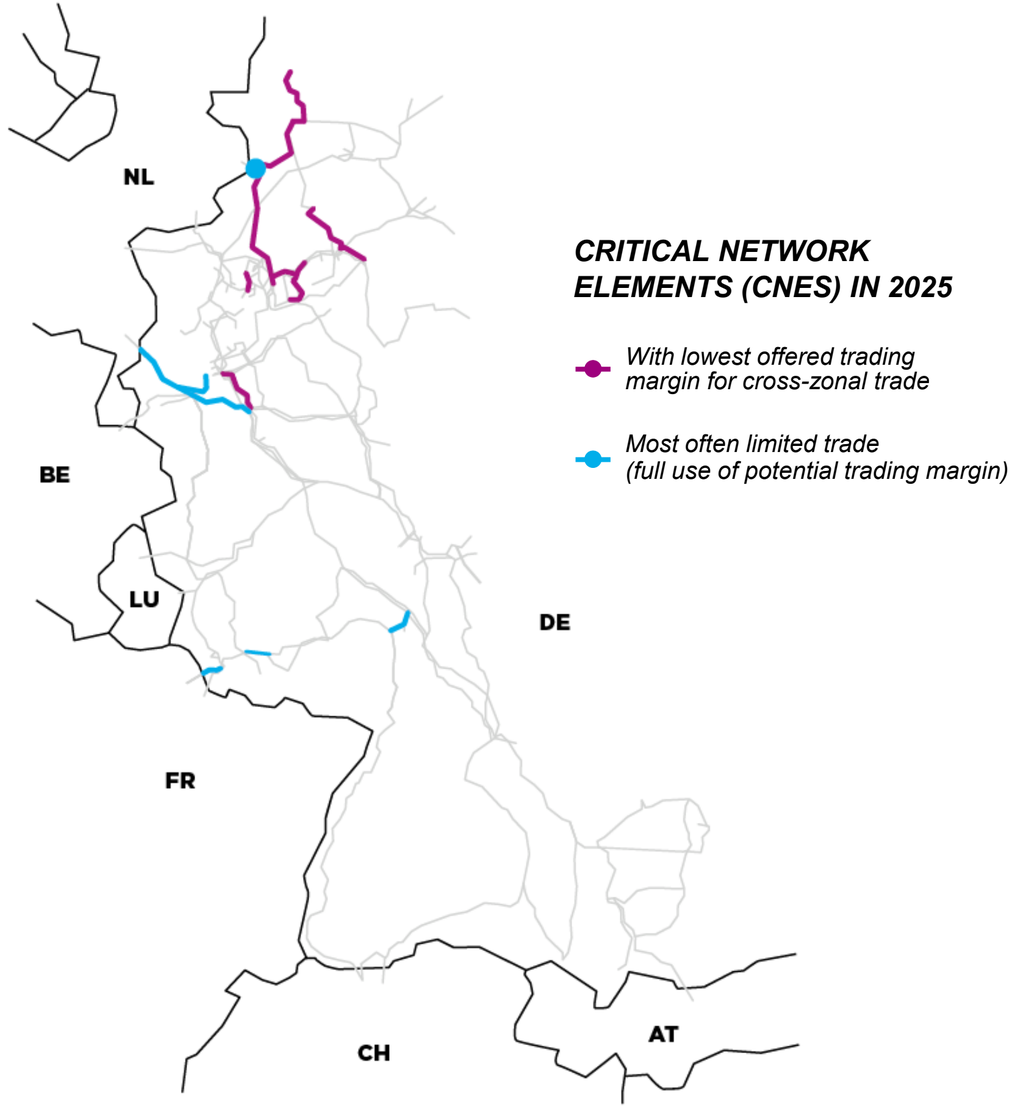


IMPACT ON AMPRION'S GRID

Analysis of Amprion's critical network elements (CNEs):

- TOP 10 of the CNEs with the ***lowest offered trading margin for cross-zonal trade on average*** (red) and those that **limited trade most often** (blue) ***in 2025***
- The comparison illustrates the differences in ***just focussing on a blanket value of 70%*** (red) rather than the ***capacities that are actually needed*** from the market's perspective (blue)

WHILE THE NEED FOR HIGH CROSS-ZONAL TRADE HAS BEEN CORRECTLY IDENTIFIED, A HIGH LEVEL OF KNOWLEDGE OF THE NETWORK TO EFFICIENTLY ALLOCATE MEASURES IS NECESSARY. BLANKET VALUES OF 70% ARE NOT A SUCCESSFUL WAY TO ACHIEVE A MORE EFFICIENT TRANSMISSION GRID.



1

Weather dependency increases due to expansion of renewable energies. This is reflected in short-term generation volatility and annual volumes.

2

Consequently, there are increasingly situations with scarce generation or surpluses, which are reflected in very high or low prices.

3

Greater flexibility in the market ensures grid stability, but is currently not sufficient to completely avoid negative prices.

4

Due to increasing European exchange, both foreign flexibility and inflexibility are having an impact on the German system.

5

Joint action in the further development of the European electricity market and grid allows resources to be used and distributed efficiently. Overall, transmission system operators make these advantages available both in the market and in system management.

GRID ANALYSIS

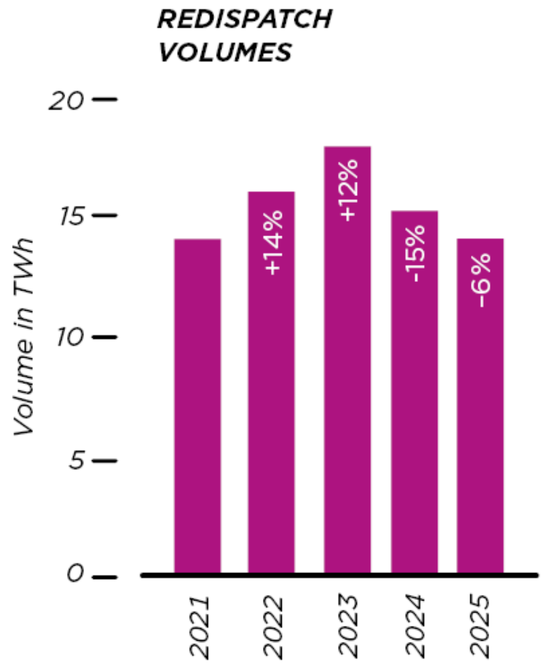
CURRENT DEVELOPMENTS IN CONGESTION MANAGEMENT

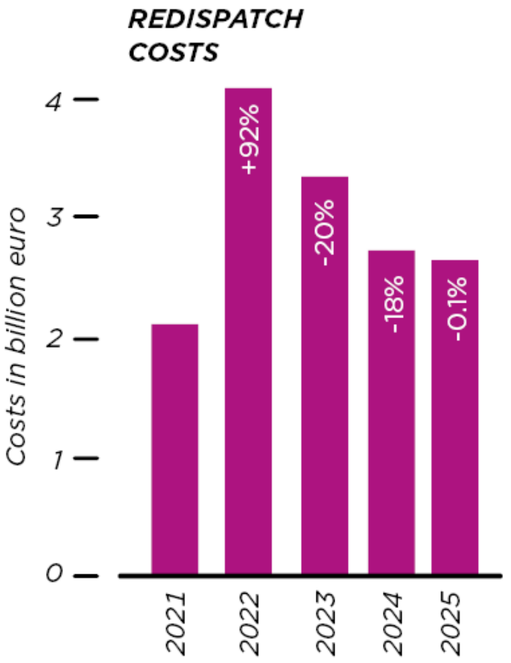
DESIREE CZYBA ADVISOR – ENERGY MARKET MODELS, DATA & TRANSPARENCY

OPERATION ANALYSIS

Decrease in both redispatch costs and volumes, second year in a row:

- lower wind feed-in even though +4.5 GW more installed capacity
- significantly higher PV feed-in +10 TWh
- Cost almost on the same level as previous year
- Lower cost of congestion management but higher cost of fixed reserve costs



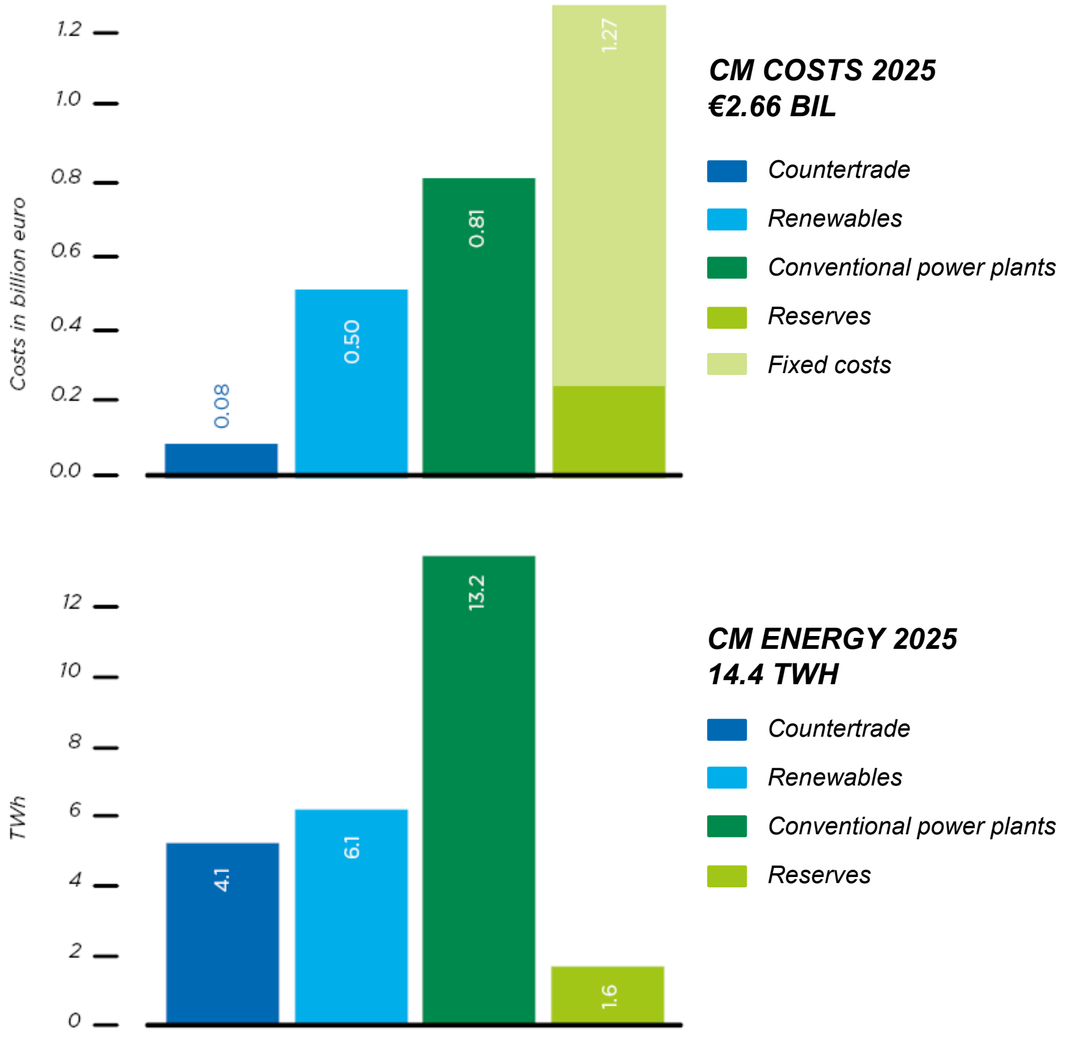


REDISPATCH IS CLOSELY LINKED TO RENEWABLE ENERGY FEED-IN AND IS THEREFORE SUBJECT TO THE SAME WEATHER EFFECTS. REDISPATCH VOLUME AND COSTS THEREFORE REFLECT THE RACE BETWEEN RENEWABLE ENERGY AND GRID EXPANSION.

OPERATION ANALYSIS

Products of congestion management

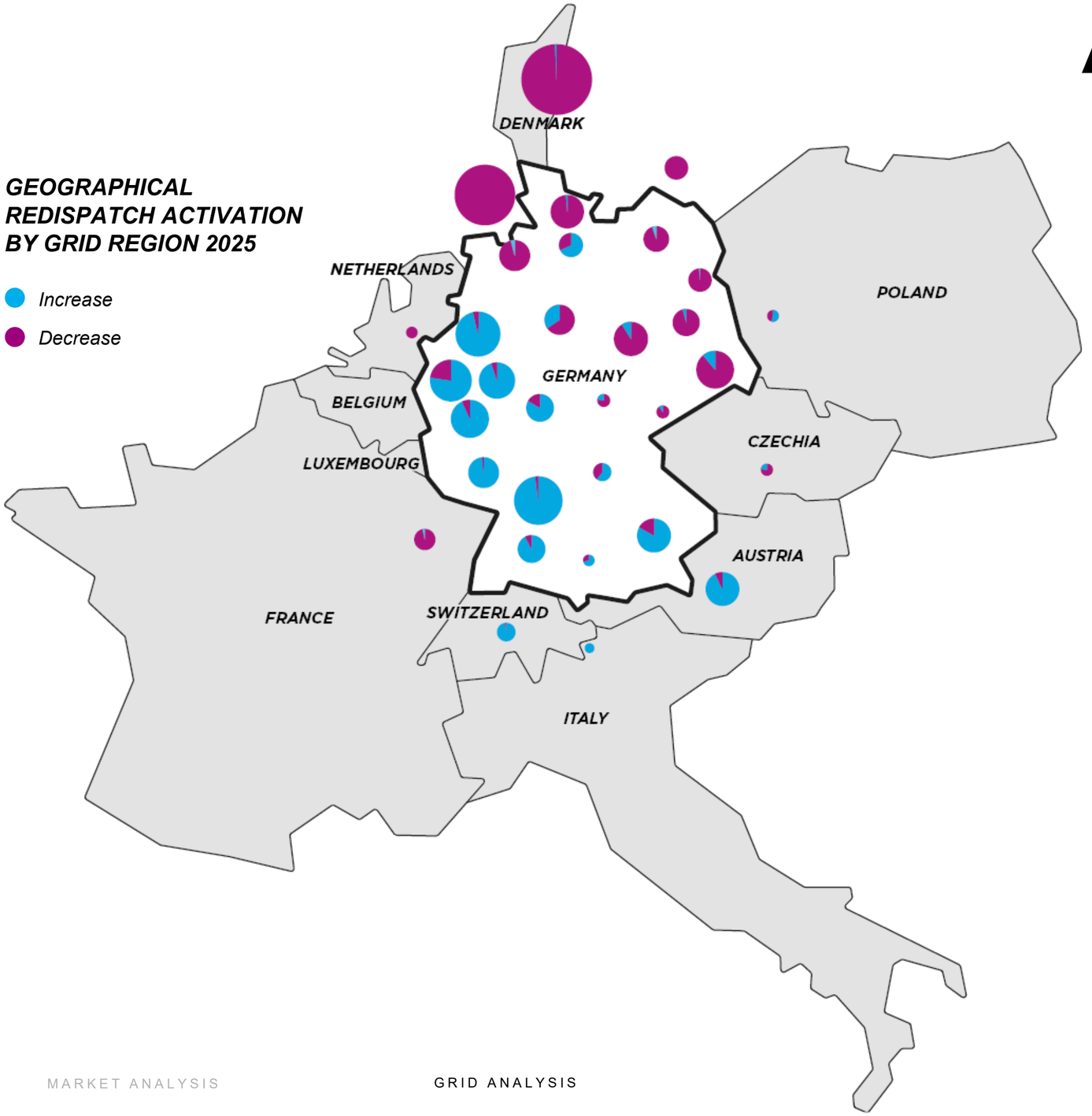
- Countertrade: cross-border management (energy exchange market) especially at the border with Denmark
- Renewables: the reduction of essentially wind offshore, wind onshore and photovoltaics
- German conventional power plants and power plants abroad
- Grid reserves: for exceptional situations, additional compensation for service provision



OPERATION ANALYSIS

Geographical congestion management activations

- Reduction in the north – especially wind offshore and countertrade in Denmark
- Increase in the south, Germany and Switzerland/Austria
  - Negative RD in France is an indicator of high imports from France



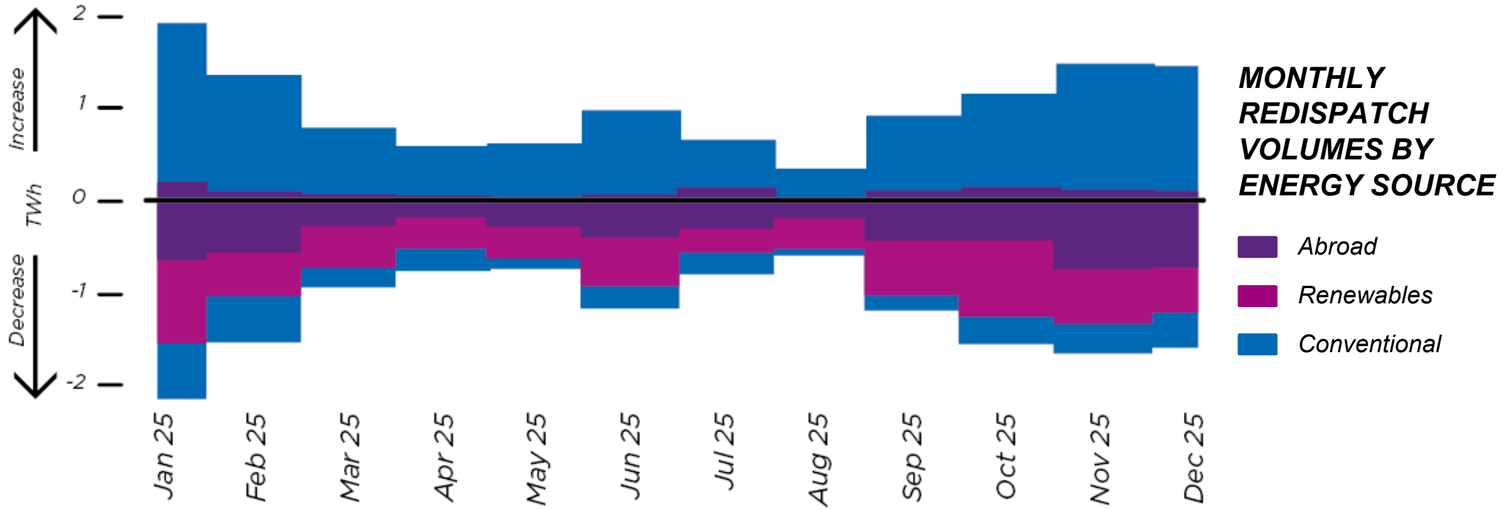
OPERATION ANALYSIS

Redispatch energy throughout the year

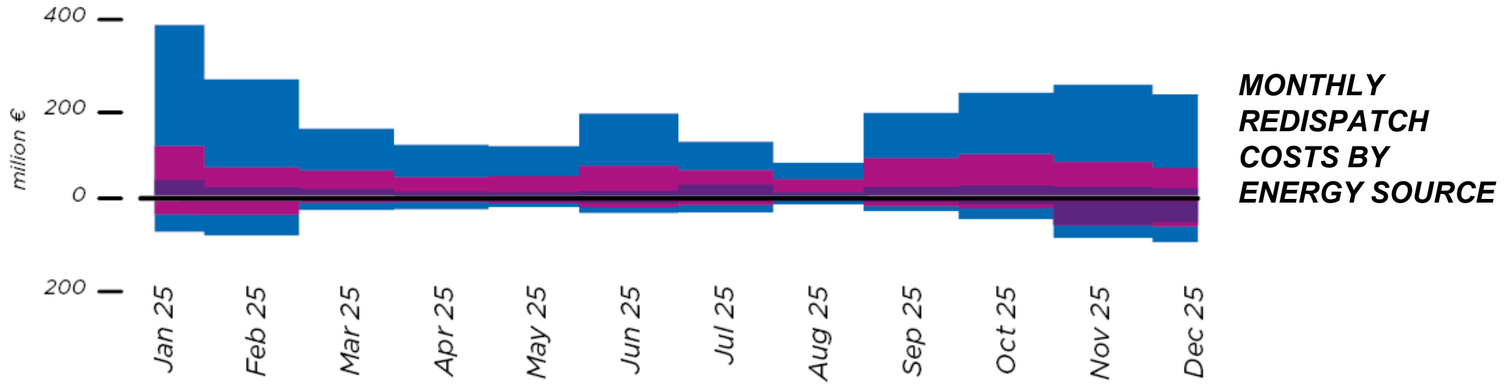
- Symmetrical in increase and decrease
- High Redispatch demands in winter and increasing in summer

Redispatch costs

- Asymmetrical costs; influenced by compensation for renewable energy



MONTHLY REDISPATCH VOLUMES BY ENERGY SOURCE

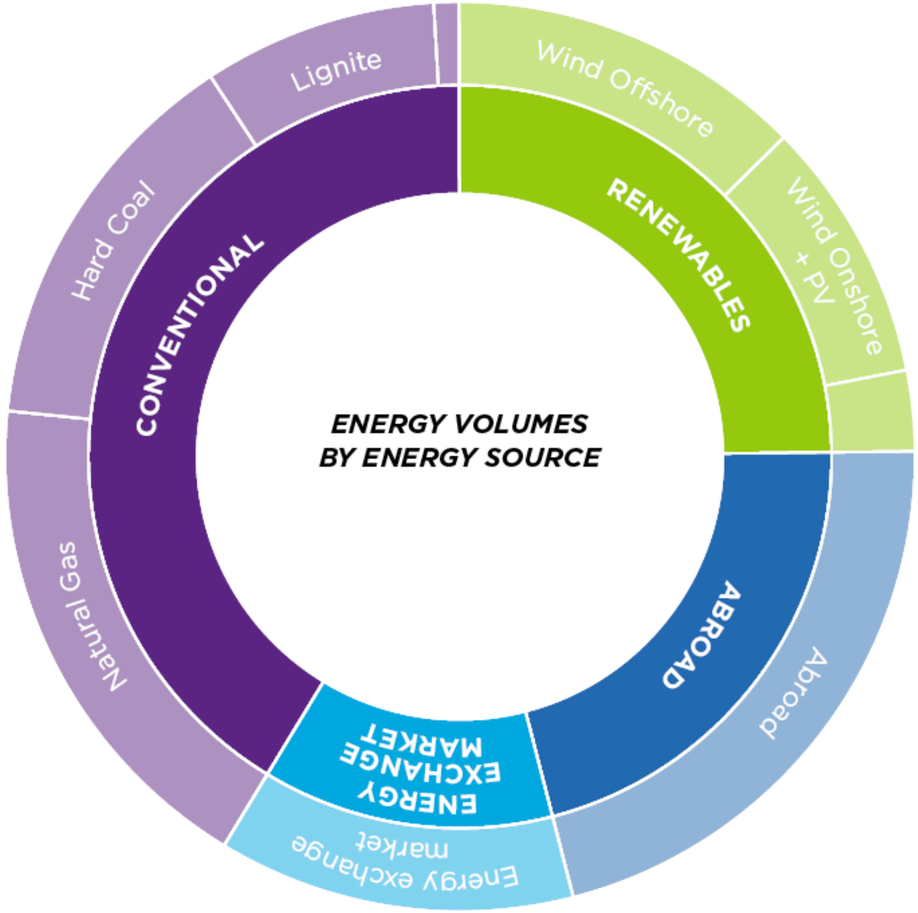


MONTHLY REDISPATCH COSTS BY ENERGY SOURCE

OPERATION ANALYSIS

Energy sources of redispatch

- Renewables (24.8%)
  mostly wind offshore, wind onshore and PV
- Conventional (41.3%)
  mainly natural gas, hard coal and lignite
- Abroad (21.2%)
- Energy exchange market (12.7%)



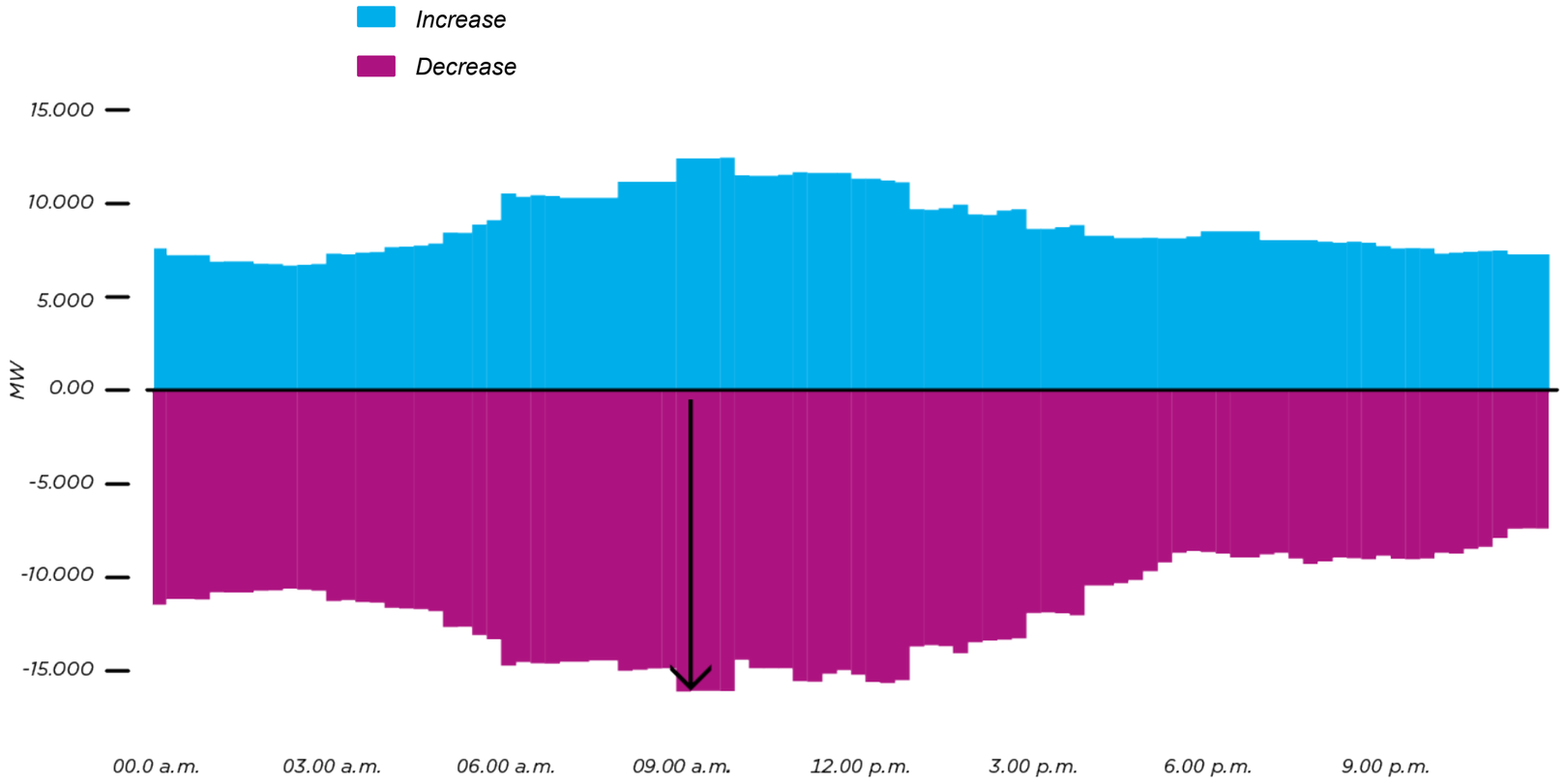
OPERATION ANALYSIS - CHALLENGES

Challenges winter

- Higher Demand in max. Redispatch
- New max. Redispatch in 2025 16.12 GW
  - Share RE 10.06 GW (09 a.m.)
- max. Redispatch in 2024 14.85 GW

DESPITE LOWER ANNUAL REDISPATCH IN GERMANY, THE REDISPATCH MAXIMUM IN 2025 REACHED AN ALL-TIME HIGH

NEW MAXIMUM REDISPATCH

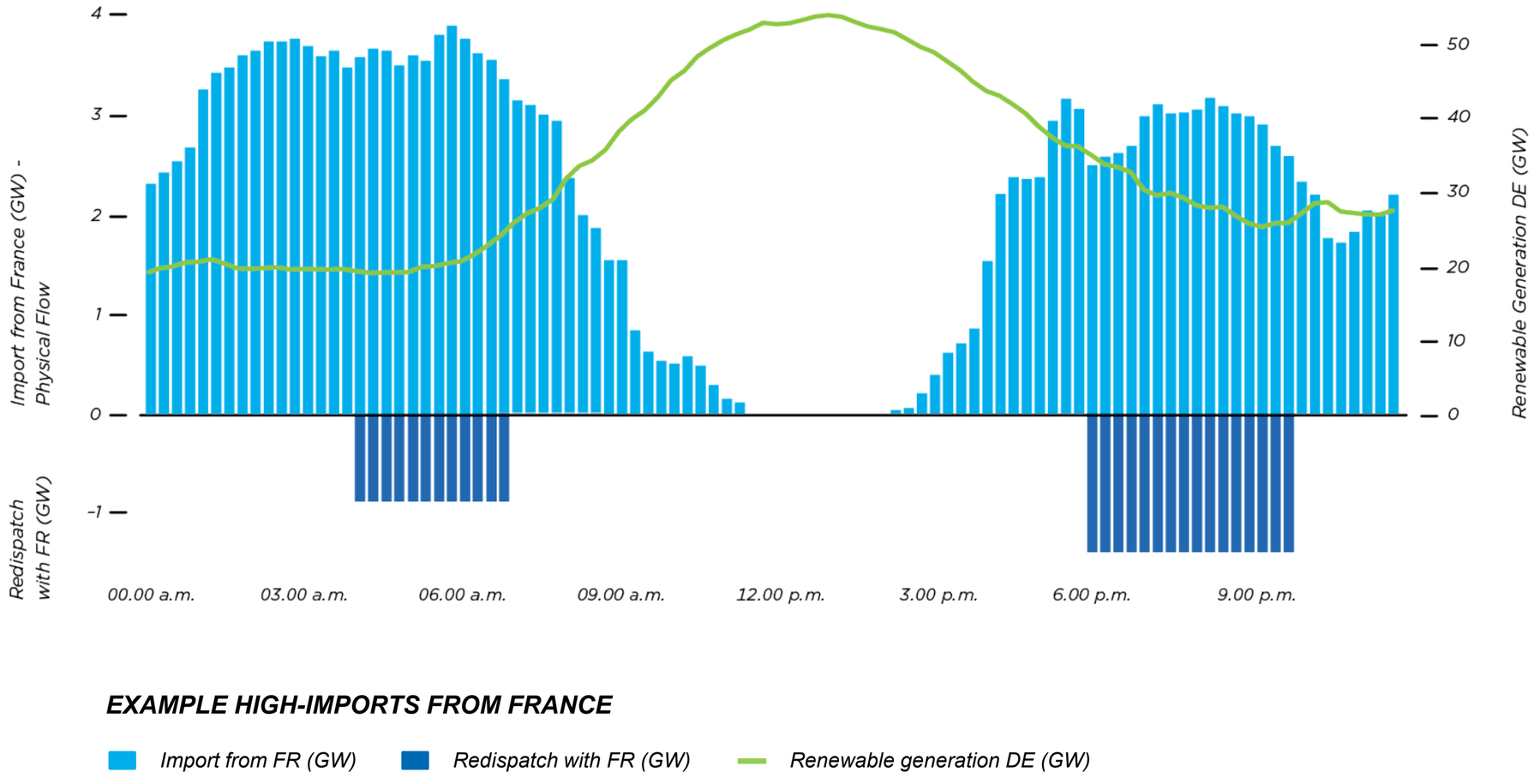


OPERATION ANALYSIS - CHALLENGES

Challenges summer

- Higher redispatch demand with France:
  - Redispatch with RTE
    2025: 183 GWh
    2024: 100 GWh

- More commercial trades than physical capacity
  ➞ results in Redispatch



1

Fundamentally, redispatch volume and costs reflect the competition between renewable energy and grid expansion.

2

To leverage efficiencies from the European electricity market, even greater cooperation on redispatch and ancillary services will be important in the future.

3

The European market and cooperation in system management allow for more flexibility but also require more flexibility from all players to be able to react to short-term findings.

4

In the long term, grid expansion is the only feasible solution for reducing Redispatch demand. Nevertheless, further market design instruments will be necessary in the future to enable TSOs to respond more flexibly to market conditions in the short term.

QUESTIONS?

DR CARSTEN LEHMKÖSTER MANAGING DIRECTOR AMPRION OFFSHORE AND DIRECTOR ECONOMIC GRID MANAGEMENT

DAVID FRANZMANN ADVISOR – INTERNATIONAL REGULATORY MANAGEMENT AND MARKET DEVELOPMENT

DESIREE CZYBA ADVISOR – ENERGY MARKET MODELS, DATA & TRANSPARENCY

DR PETER LOPION ADVISOR – INTERNATIONAL REGULATORY MANAGEMENT AND MARKET DEVELOPMENT

Ask questions via Q&A section

THANK YOU VERY MUCH

IN CASE YOU HAVE ANY FURTHER QUESTIONS, PLEASE DO NOT HESITATE TO CONTACT US AT:

MARKETREPORT@AMPRION.NET

WE ARE LOOKING FORWARD TO YOUR MESSAGE.