

2025

RENEWABLE ELECTRICITY BULLETIN

JANUARY
2025

PORTUGAL NEEDS
OUR ENERGY

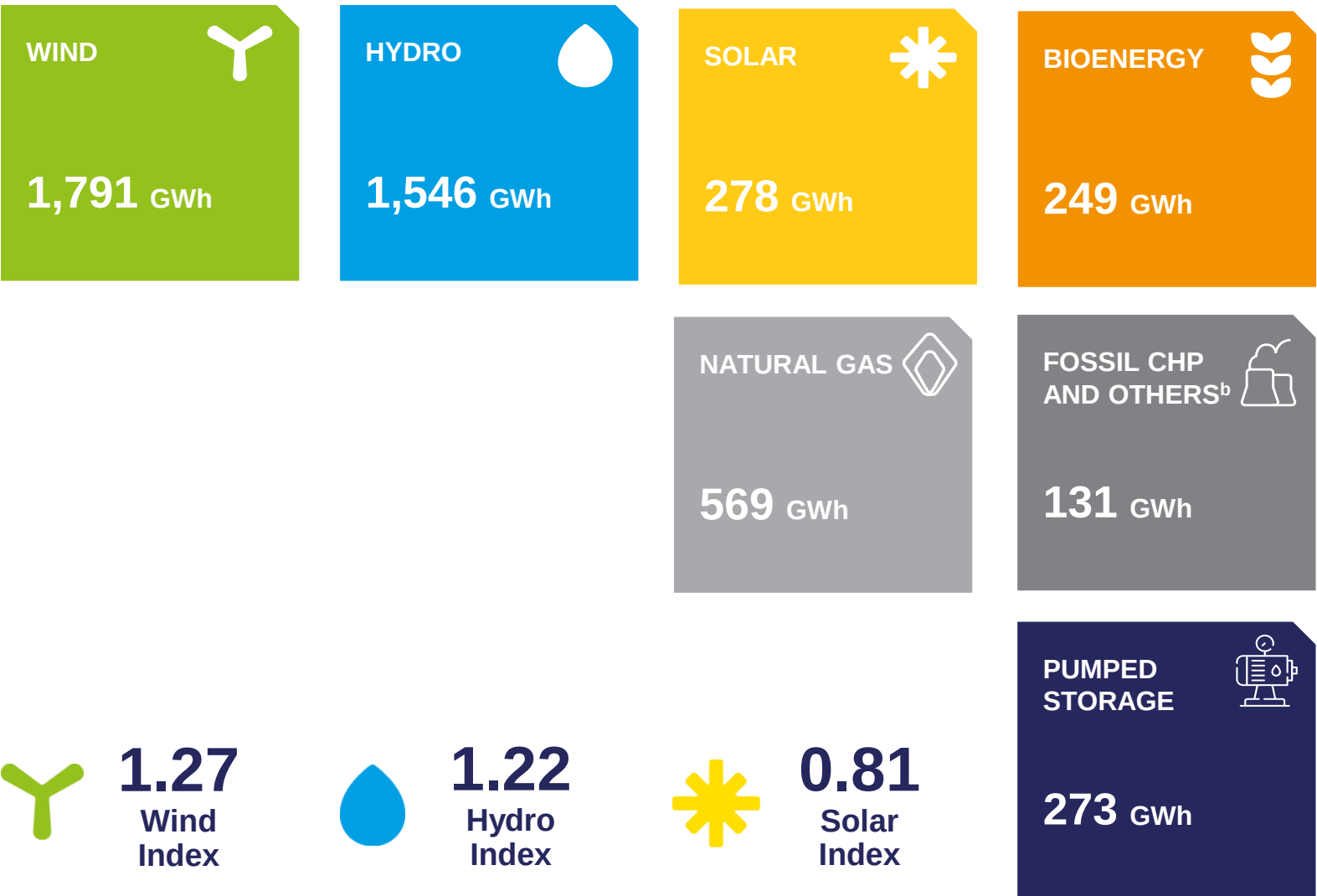
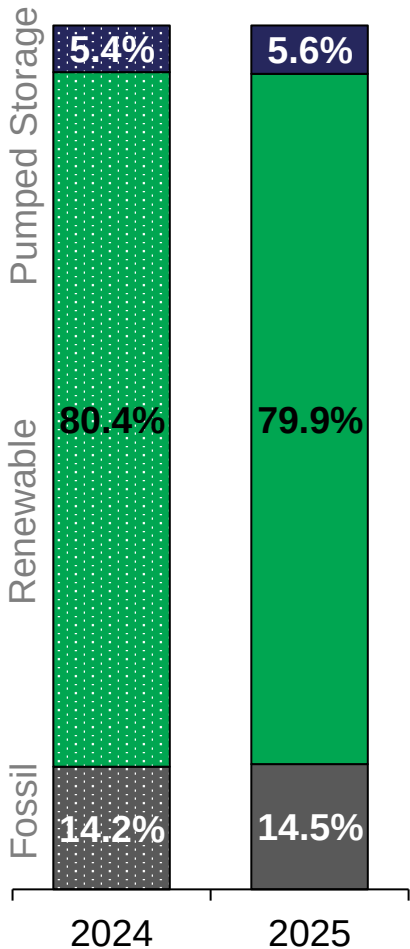
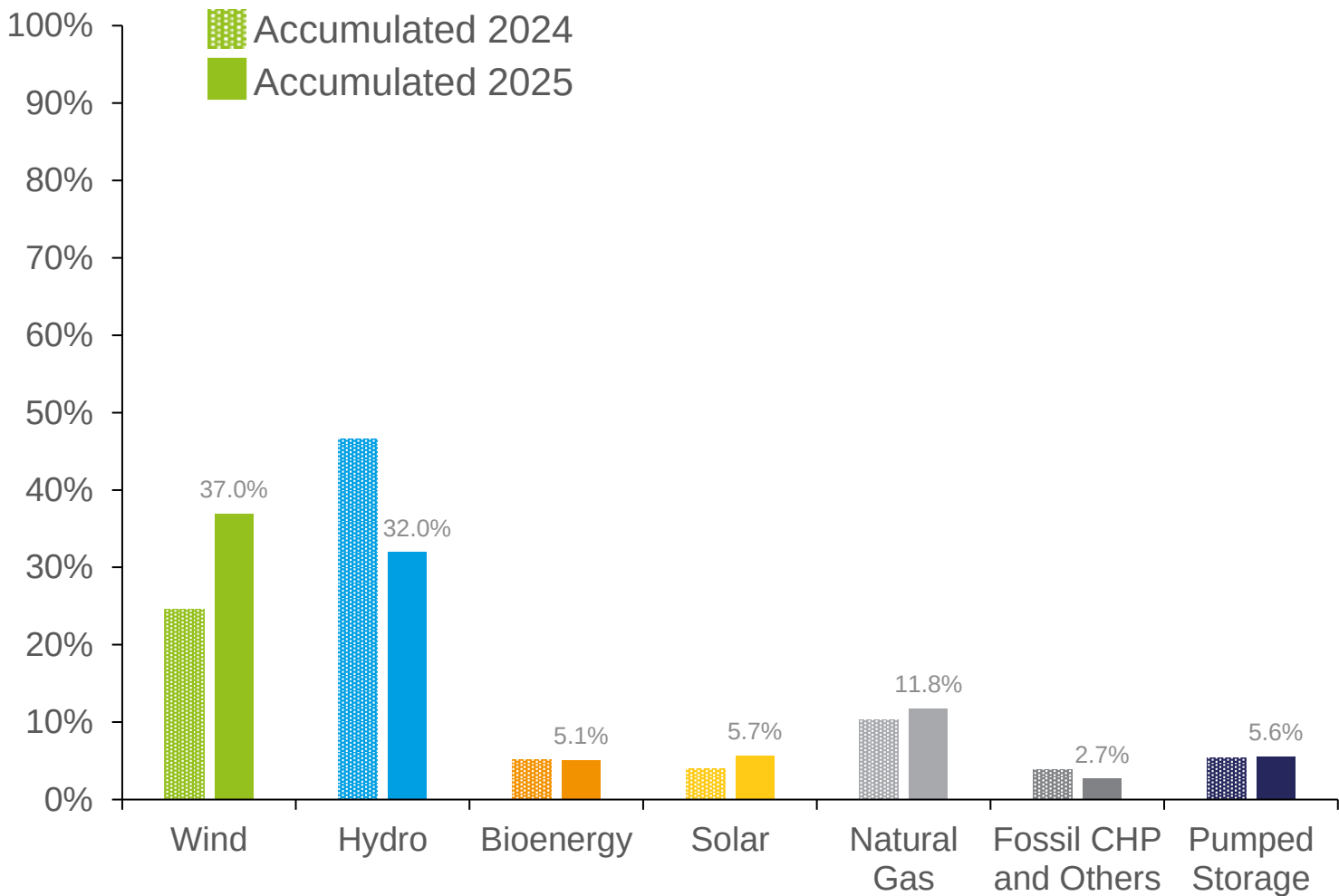


APREN Associação
de Energias
Renováveis

EXECUTIVE SUMMARY

GERAÇÃO ACUMULADA JAN 2025

MAIN INDICATORS



COMPARING TO THE SAME PERIOD IN 2024



a Generation refers to the net energy generation of the power stations, considering the pumping production recently disclosed by REN. Production from pumping is not included in the percentage of production from renewable sources.
b Includes fuel oil, diesel, the non-biodegradable fraction of MSW and new waste.
c Consumption refers to the net generation of energy by power stations, considering the import-export balance.
Source: REN, APREN Analysis

MONTHLY ANALYSIS IN MAINLAND PORTUGAL

JANUARY 2025

From the 1st to the 31st of January, the **renewable incorporation** equalled 79.9%, representing 3,864 GWh from a total of 4,837 GWh produced durind the month.

The amount of energy generated was simillar to that of january of 2024, specially given the high contribution from the hydro and wind technologies.

In january of 2025, the **electricity imports** reached up to 10.6% of the consumption in Mainland Portugal.

To highlight the occurence of **curtailment** for two consecutive hours in wind and solar, which consisted in an instruction to curtail the generation of a cumulative of 490 MW in the 1st of january.

MAIN INDICATORS COMPARING TO JANUARY 2024

GWh

4,837

Generation^a

▽ **2.8%**

GWh

4,664

Consumption^c

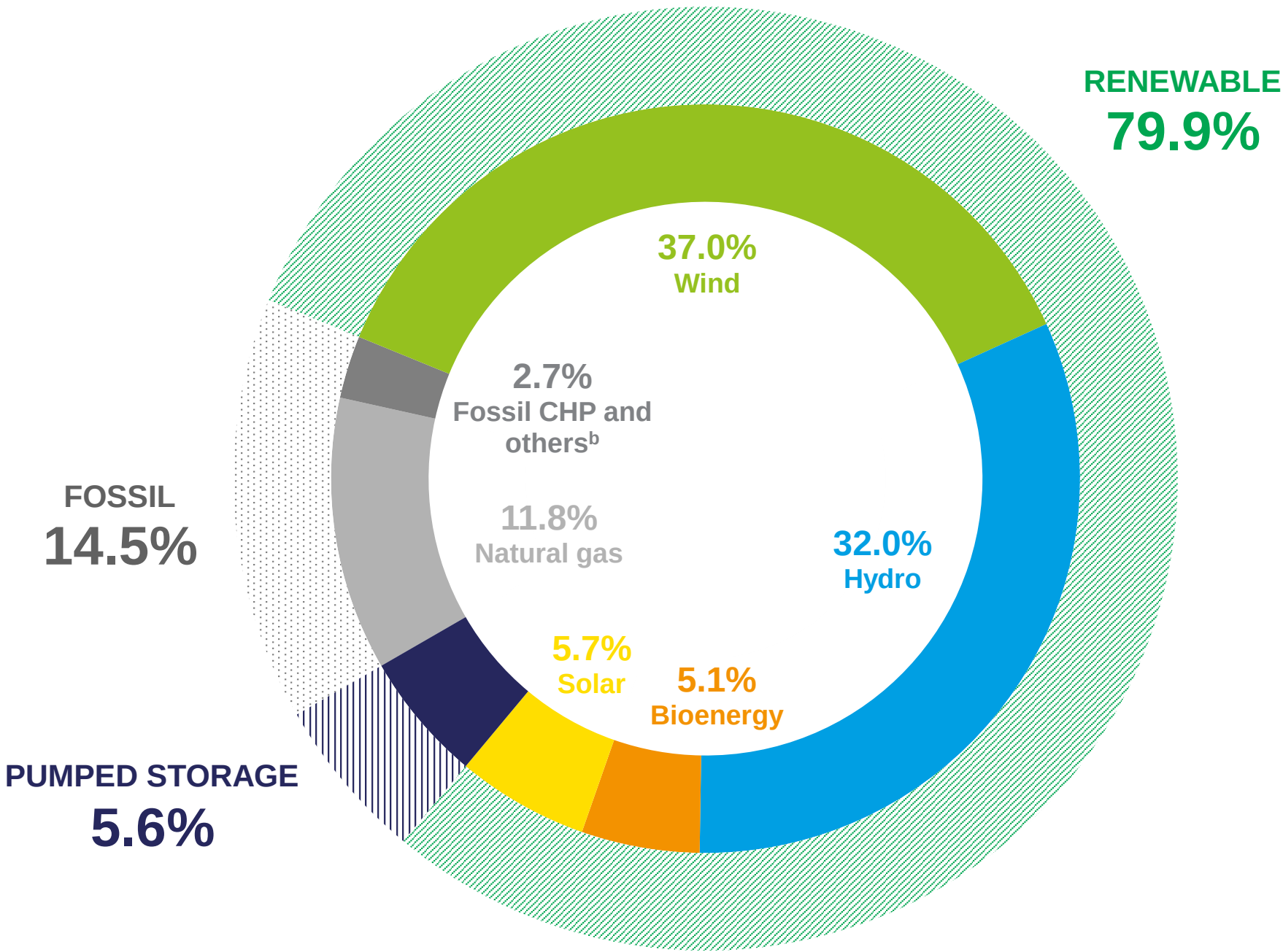
△ **4.3%**

%

79.9

Renewable incorporation

▽ **0.5 p.p.**



RENEWABLE
79.9%

WIND INDEX



1.27

HYDRO INDEX



1.22

STORAGE IN DAMS



78.6%

SOLAR INDEX

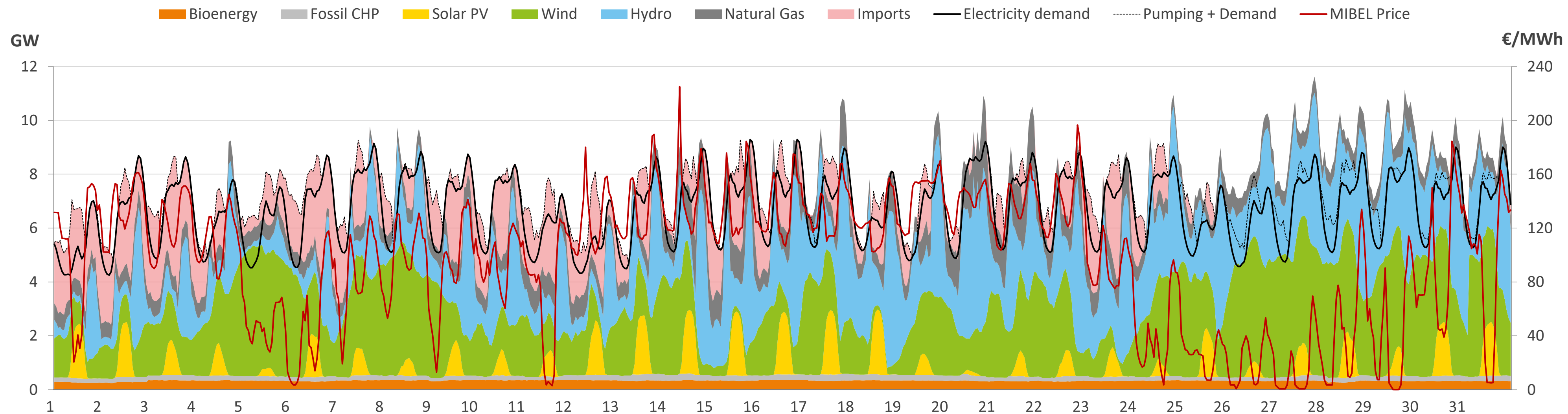


0.81

^a Generation refers to the net energy generation of the power stations, considering the pumping production recently disclosed by REN. Production from pumping is not included in the percentage of production from renewable sources.
^b Includes fuel oil, diesel, the non-biodegradable fraction of MSW and new waste.
^c Consumption refers to the net generation of energy by power stations, considering the import-export balance.
Source: REN, APREN Analysis

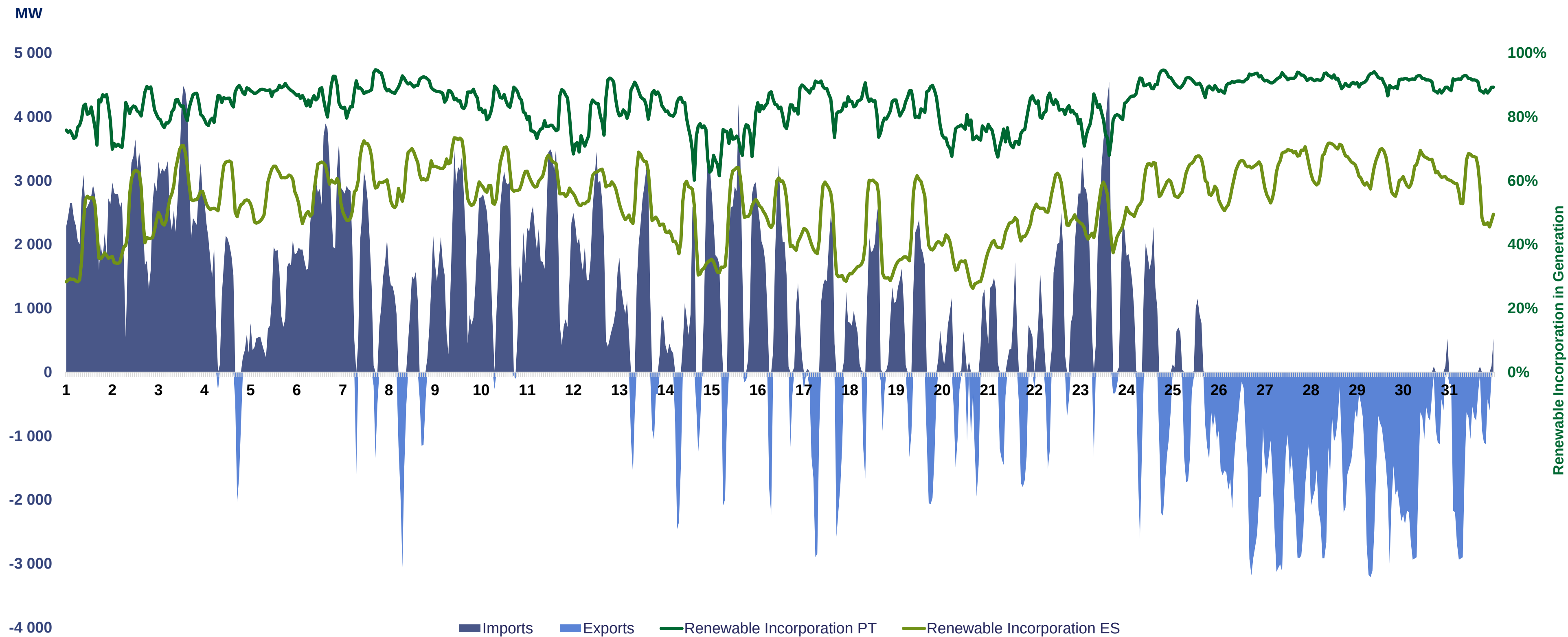
MONTHLY ANALYSIS IN MAINLAND PORTUGAL

LOAD DIAGRAM FOR JANUARY 2025



MONTHLY ANALYSIS IN MAINLAND PORTUGAL

IMPORTS AND EXPORTS DIAGRAM

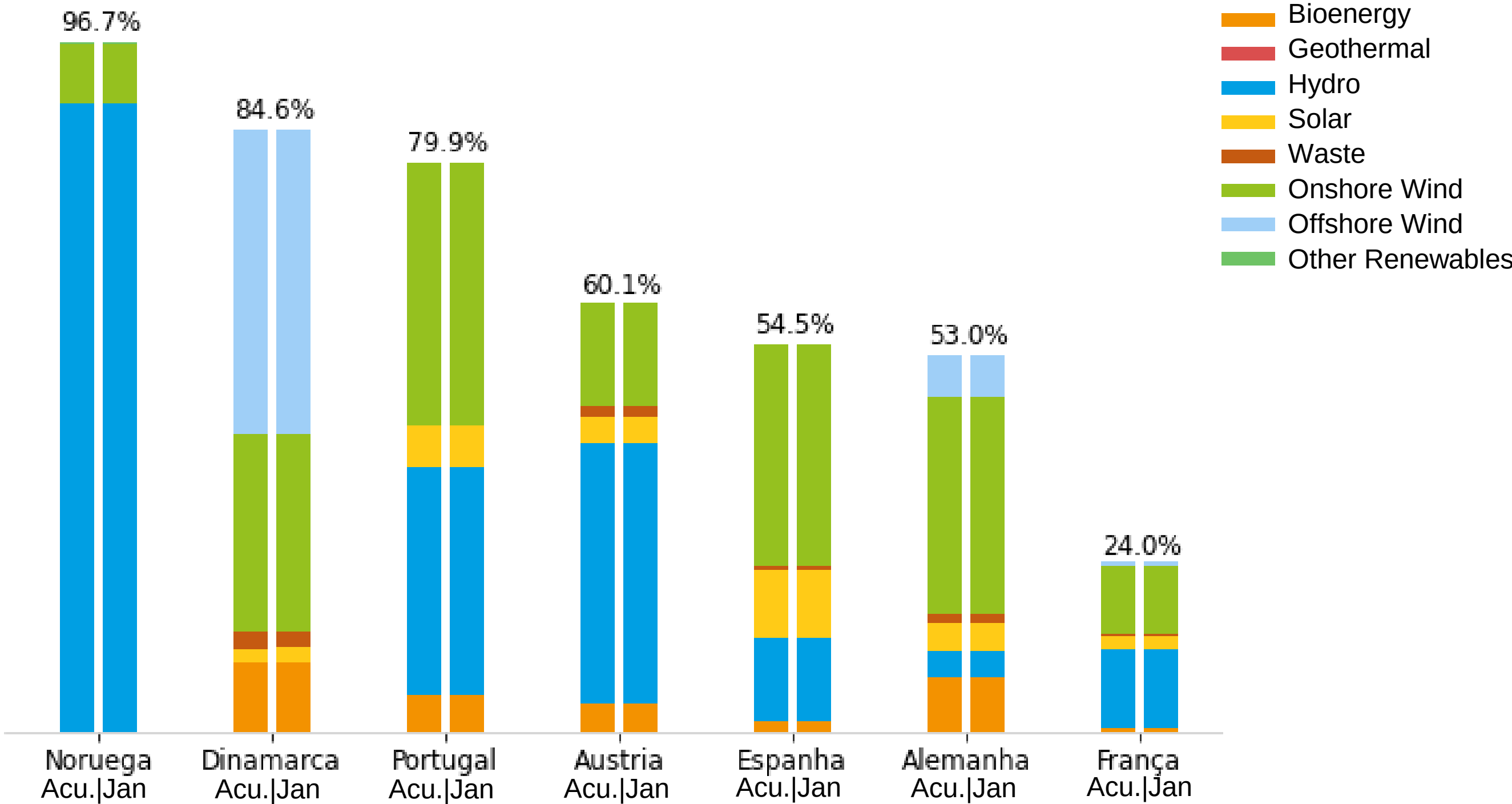


RENEWABLE ELECTRICITY EUROPE

In this analysis, only the main countries in the different European markets were considered, to obtain a representative panorama for comparison.

From the 1st to the 31st of January, Portugal was the third country with the highest **renewable incorporation in the generation** of electricity, with 79.9%, surpassed by Norway and Denmark, which achieved respectively 96.7% and 84.6%.

The renewable technologies with greater presence in the electricity generation mixes amongst the european panorama were hydro followed by onshore wind.



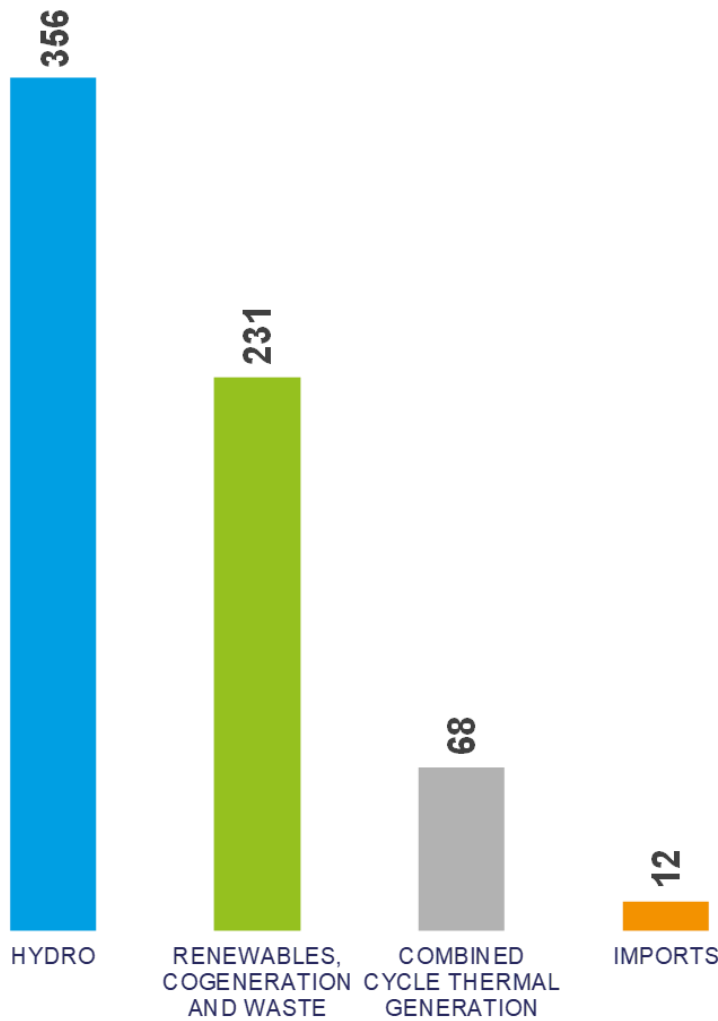
Renewable incorporation in cumulative (1-31 Jan) and monthly (Jan) electricity generation.
Source: REN, Fraunhofer, REE, Terna, National Grid, ENTSO-E, APREN Analysis.
Note: given the unavailability of data for Italy, it was not possible to include it in the analysis.

MARKET PRICE SETTING PORTUGAL

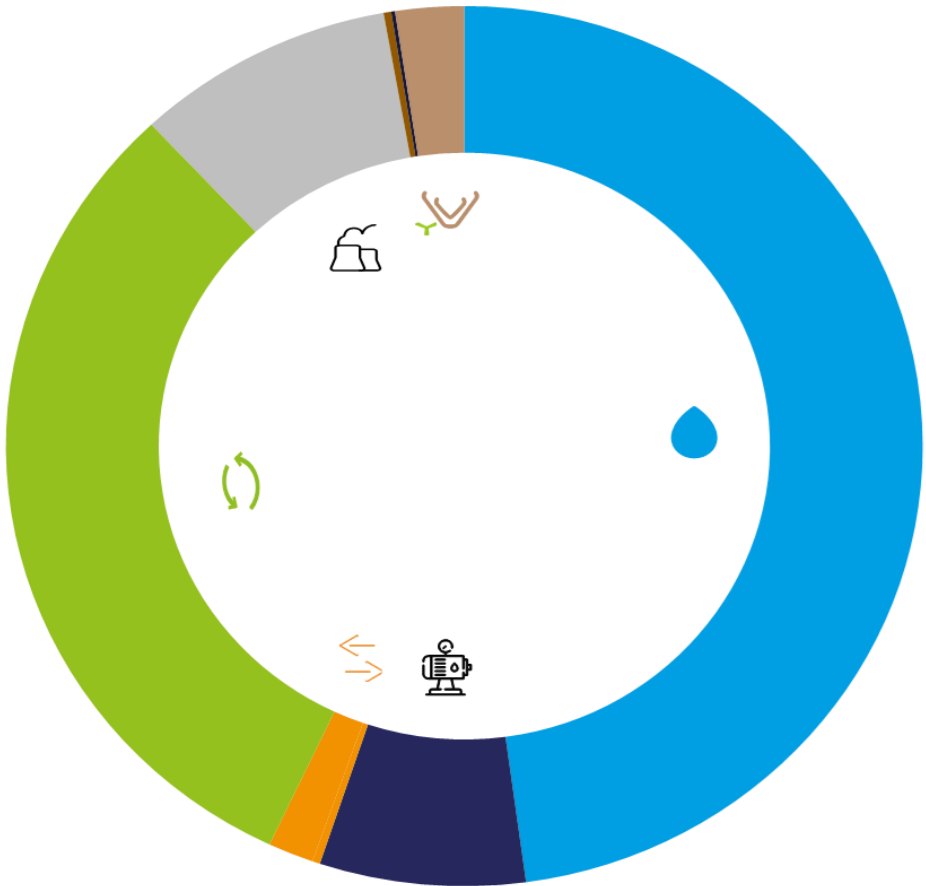
From the 1st to the 31st of January, the technology with the highest number of **market clearing** hours was hydro, with 356 non-consecutive hours, followed by Renewables, Cogeneration and Waste, with 231 hours, and Combined Cycle Thermal Generation, with 68 hours.



ACCUMULATED JAN 2025



Number of market clearing hours (accumulated) for the three main closing technologies and imports (jan).
Source: OMIE, APREN Analysis



Percentage distribution of the number of hours of market clearing for the various technologies, totalling 744 hours (Jan).
Apart from the technologies represented, there were also 0,3% of International Imports, 0,3% of Nuclear and 0,1% of Conventional Thermal Generation.
Source: OMIE, APREN Analysis

ELECTRICITY MARKET PORTUGAL

From the 1st to the 31st of January, the average hourly price recorded in **MIBEL in Portugal** (96.7 €/MWh^d) represents a 30.6% increase comparing to the same period in 2024.

In the same period, the renewable generation was sufficient to supply Mainland Portugal’s electricity consumption for 191 non-consecutive hours, with an average hourly price in MIVEL of 66.5 €/MWh.

n.a.
Hours

100% RENEWABLE HOURS
[Accumulated]

n.a.
€/MWh

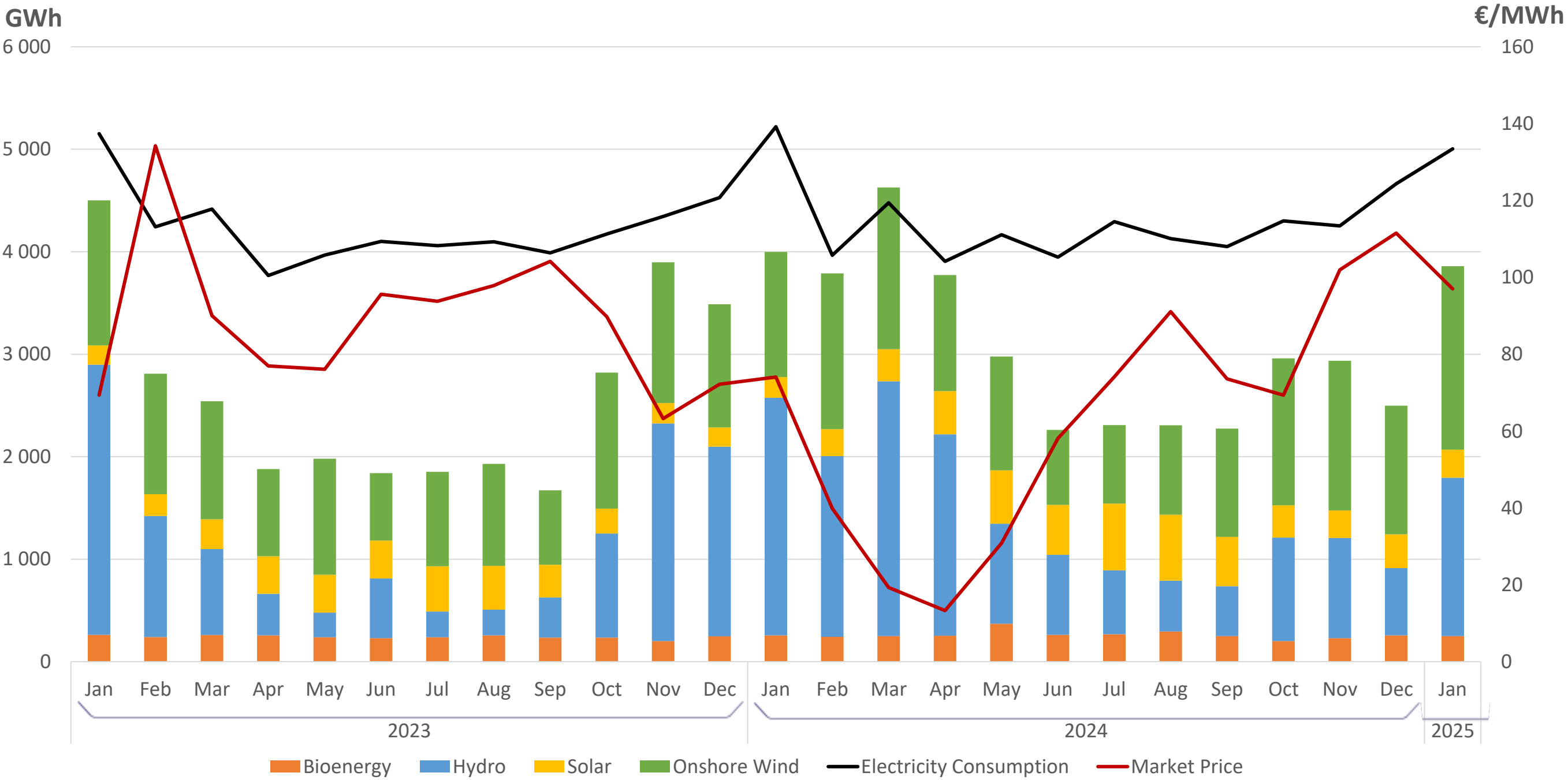
MIBEL’S AVERAGE PRICE (IN 100% RENEWABLE HOURS)
[Accumulated]

191
Horas

100% RENEWABLE HOURS
[jan]

66.5
€/MWh

PREÇO MÉDIO MIBEL (EM HORAS 100% RENOVÁVEIS)
[janeiro]



^d arithmetic average of MIBEL prices.
Source: OMIE

Electricity market analysis, renewable generation, consumption and market price (jan-2023 a jan-2025)
Source: OMIE, APREN analysis

RENEWABLE ELECTRICITY

EUROPE

During the month of January 2025, the **minimum hourly price in MIBEL** in Portugal equalled 0.00 €/MWh, when the market was cleared mostly by Hydro.

On the other hand, the **maximum hourly price** reached up to 225.0 €/MWh, when the market was also cleared by Hydro.

 MINIMUM PRICES (JAN)

1° Germany	€/MWh -1.01
2° Denmark ^{DK1} Portugal Spain	€/MWh 0.00
3° France	€/MWh 0.40

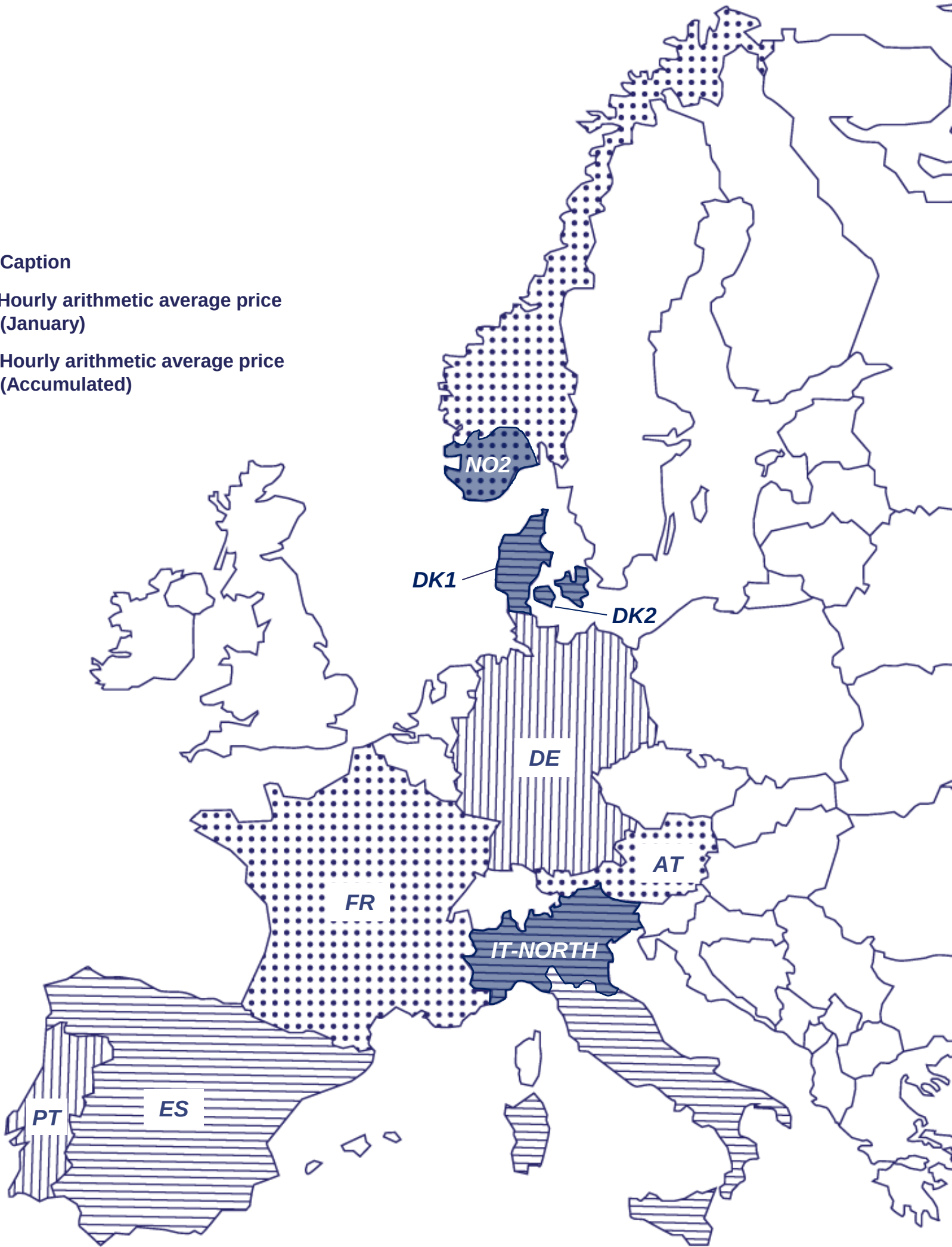
 MAXIMUM PRICES (JAN)

1° Denmark ^{DK1} Denmark ^{DK2} Germany	€/MWh 583.40
2° Austria	€/MWh 561.75
3° Norway ^{NO2}	€/MWh 493.32

Portugal €/MWh	96.7 	n.a. 
Spain €/MWh	96.7 	n.a. 
France €/MWh	102.4 	n.a. 
Italy ^{IT-NORD} €/MWh	143.3 	n.a. 
Germany €/MWh	114.3 	n.a. 
Austria €/MWh	133.9 	n.a. 
Denmark ^{DK1} €/MWh	98.1 	n.a. 
Denmark ^{DK2} €/MWh	100.3 	n.a. 
Norway ^{NO2} €/MWh	66.2 	n.a. 

Caption

-  Hourly arithmetic average price (January)
-  Hourly arithmetic average price (Accumulated)



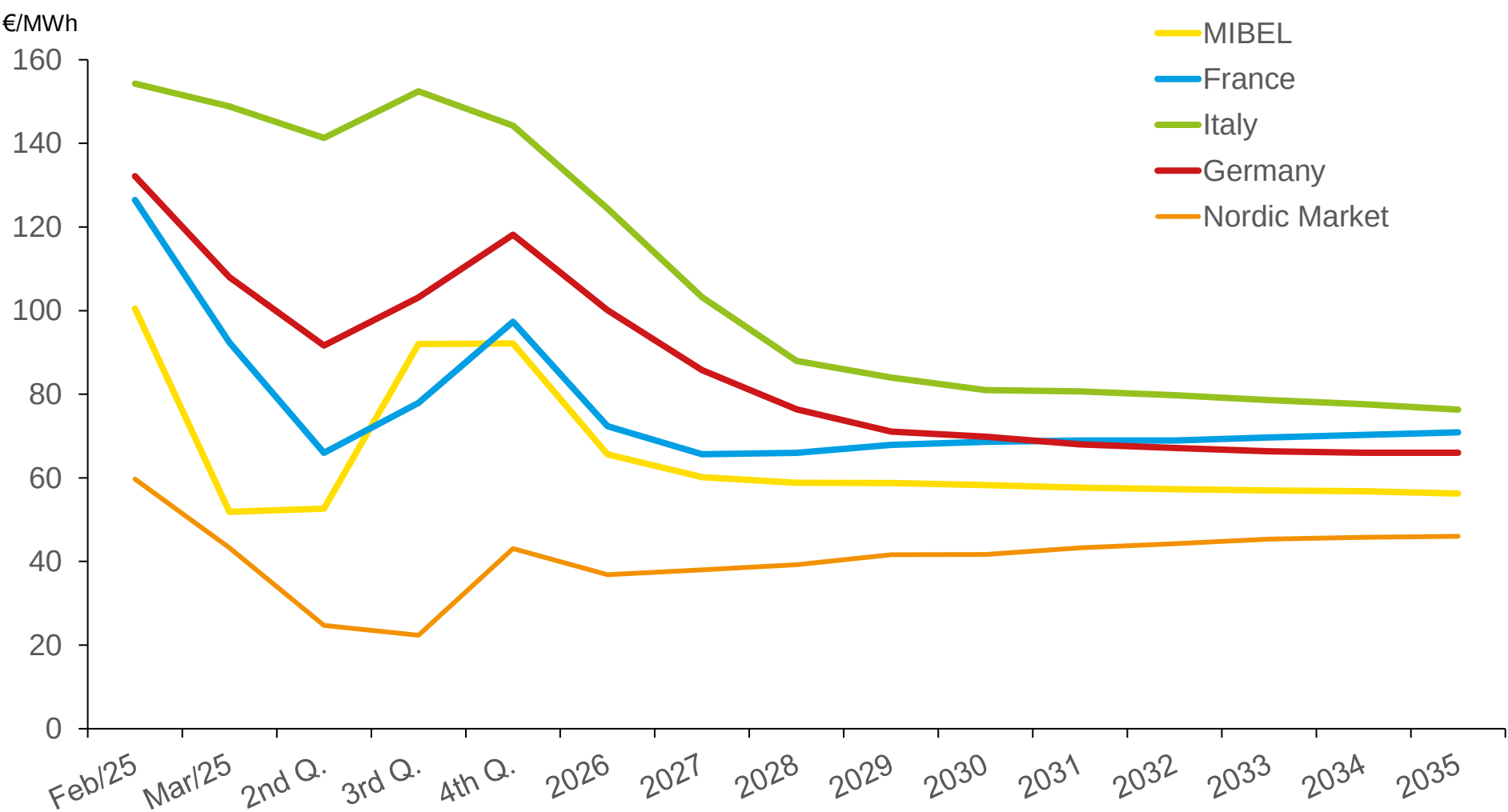
Source: ENTSO-E, OMIE, APREN Analysis
Note: given recent changes in the data reporting format by the ENTSO-E platform, the price values presented correspond to the bidding zones, when applicable. As such, in the case of Italy, Denmark and Norway only the bidding zones with interconnection with neighbouring countries were considered.

ELECTRICITY MARKET FUTURES

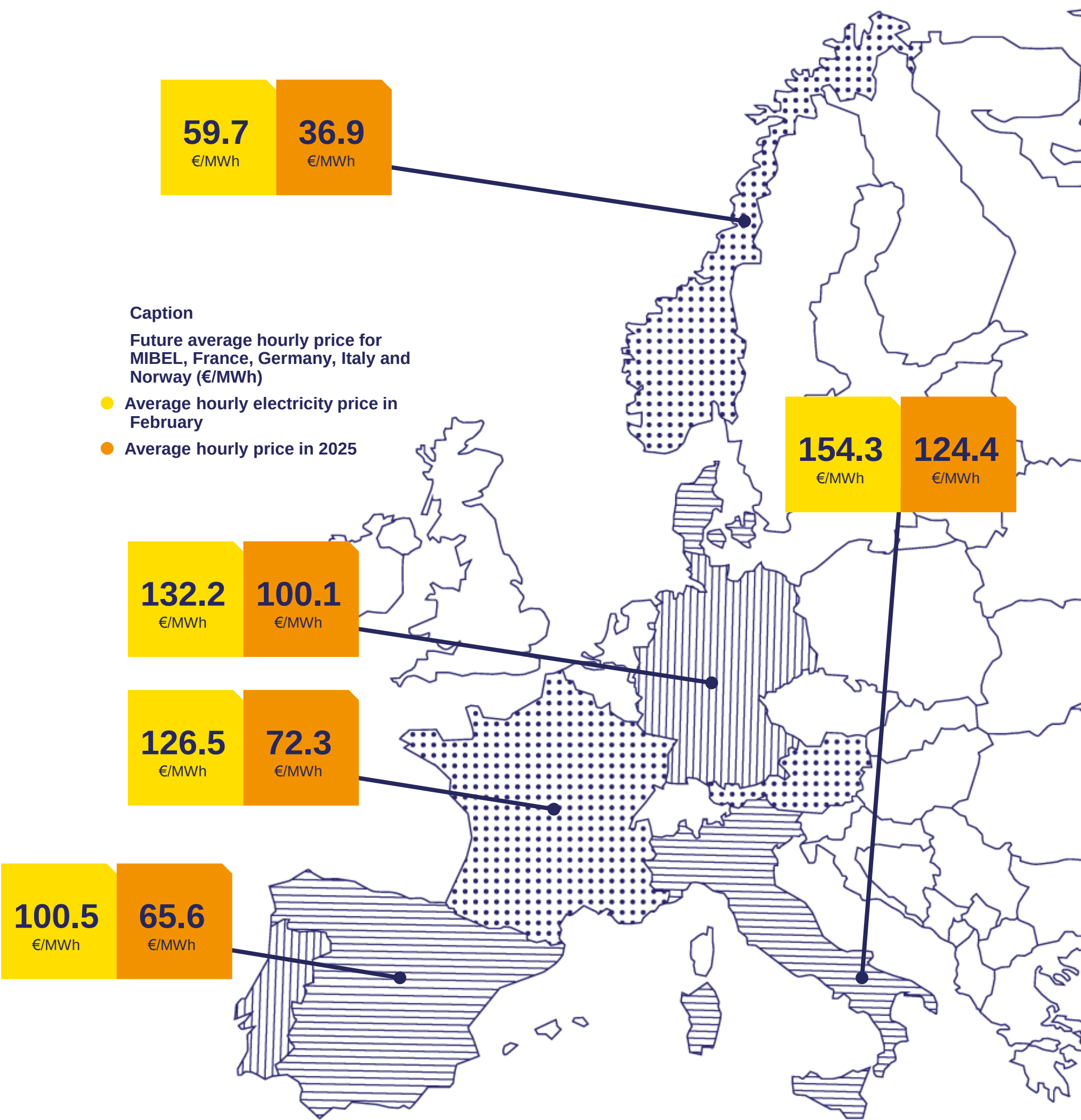
As for the european panorama for the Futures Market, of the **average hourly price** is represented for the coming month (February) e for the next year, considering the example of one specific day^e.

In the next month, MIBEL will be the second market with lower electricity prices. In the longer term, and acording to the selected day^e, MIBEL also presents the second lowest values until **2035**, which is mainly due to the gro^ewing investment in renewables.

The evolution in the future average hourly prices represented is based on the electricity purchase and sell contracts^e. Nonetheless, it must be noted that the volumes traded are very small compared to the electricity consumption of the respective countries.



^e values updated as of 7th of January.
Source: OMIP, EEX, APREN Analysis



Caption
Future average hourly price for MIBEL, France, Germany, Italy and Norway (€/MWh)

- Average hourly electricity price in February
- Average hourly price in 2025

INTERNATIONAL TRADES

EUROPE

From the 1st to the 31st of January, the electricity system in mainland Portugal registered **imports** in the order of 1,036 GWh and **exports** of 506 GWh.

Up until the month of report, Portugal can be characterized as an electricity importer, with na **import balance** of 530 GWh.

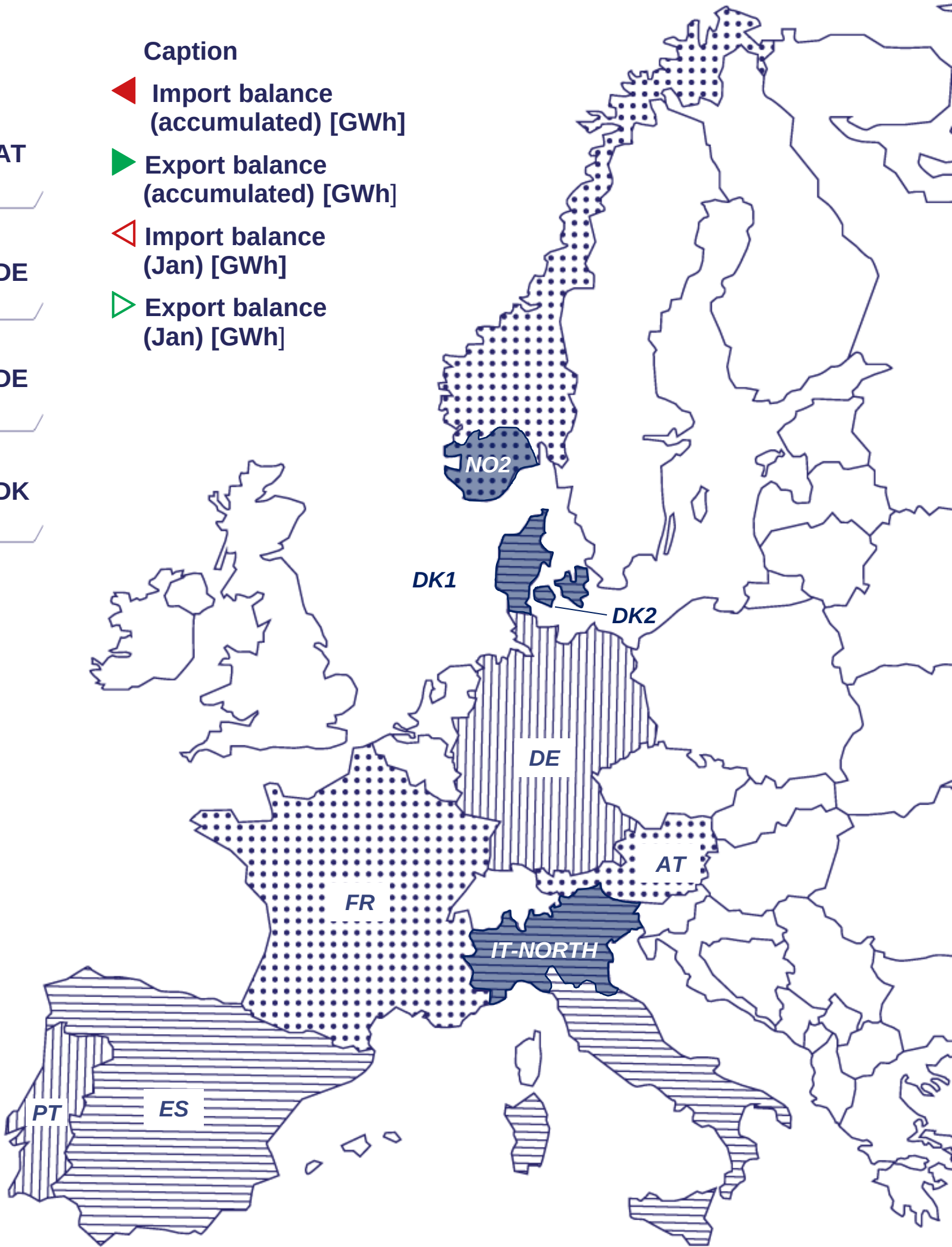
PT	n.a.	530	ES	DE	n.a.	1 048	AT
ES	n.a.	100	MA	DK	n.a.	716	DE
FR	n.a.	448	ES	NO	n.a.	651	DE
IT	n.a.	2 148	FR	NO	n.a.	670	DK
DE	n.a.	1 627	FR				

Caption

- Import balance (accumulated) [GWh]
- Export balance (accumulated) [GWh]
- Import balance (Jan) [GWh]
- Export balance (Jan) [GWh]

MAIN INDICATOR FOR PT-ES INTERCONNECTION

usage	35.7% (jan)	PT-ES	35.7% (n.a.)	47.3% (jan)	ES-PT	47.3% (n.a.)
congestion	7.8% (jan)	PT-ES	7.8% (n.a.)	5.0% (jan)	ES-PT	5.0% (n.a.)
market split	5.9% (jan)	PT-ES	5.9% (n.a.)	98.9% (jan)	MIBEL-FR	98.9% (n.a.)



Source: ENTSO-E, OMIE, APREN Analysis
Note: given recent changes in the data reporting format by the ENTSO-E platform, the price values presented correspond to the bidding zones, when applicable. As such, in the case of Italy, Denmark and Norway only the bidding zones with interconnection with neighbouring countries were considered.

POWER PRODUCTION EMISSIONS

From the 1st to the 31st of January, the **specific emissions** reached up to 52.5 gCO₂eq/kWh, corresponding to a total of emissions from the electricity generation sector of around 0.25 MtCO₂eq.

The **European Carbon Emission Trading Scheme** (ETS) registered a price of 76.1 €/tCO₂^d, which means a reduction of 16.9% comparing to the same period of 2024.

0.25
MtCO₂eq

SECTOR'S EMISSIONS

76.1
€/tCO₂

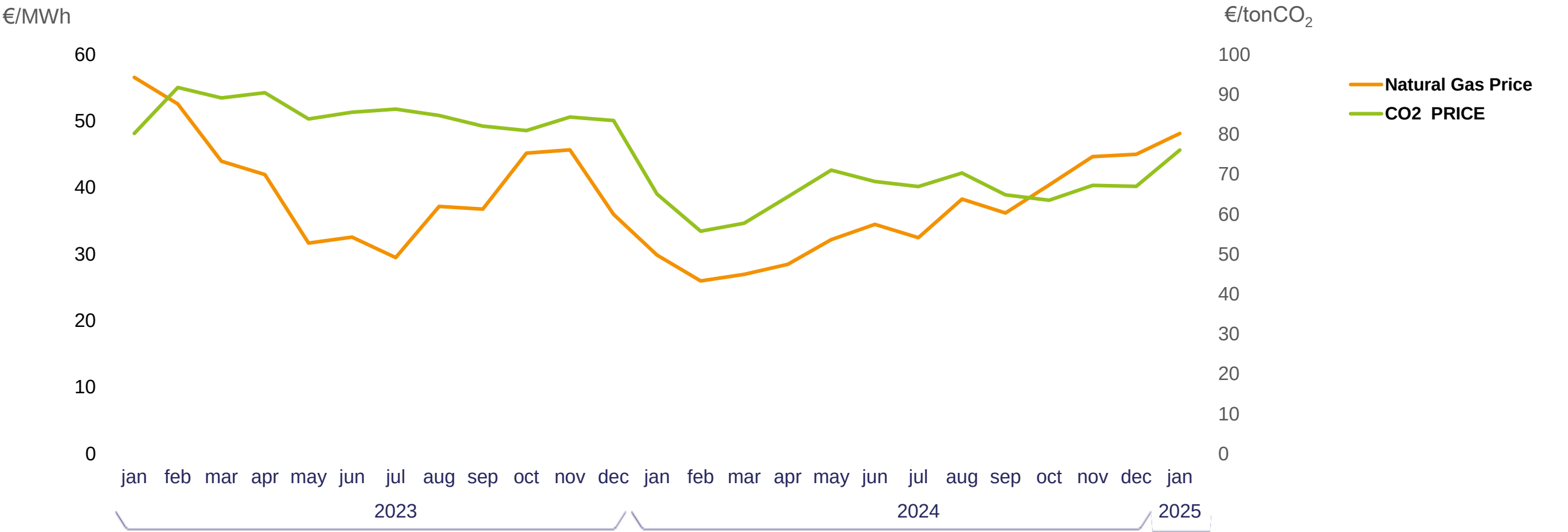
AVERAGE ALLOWANCE PRICE

0.3
%

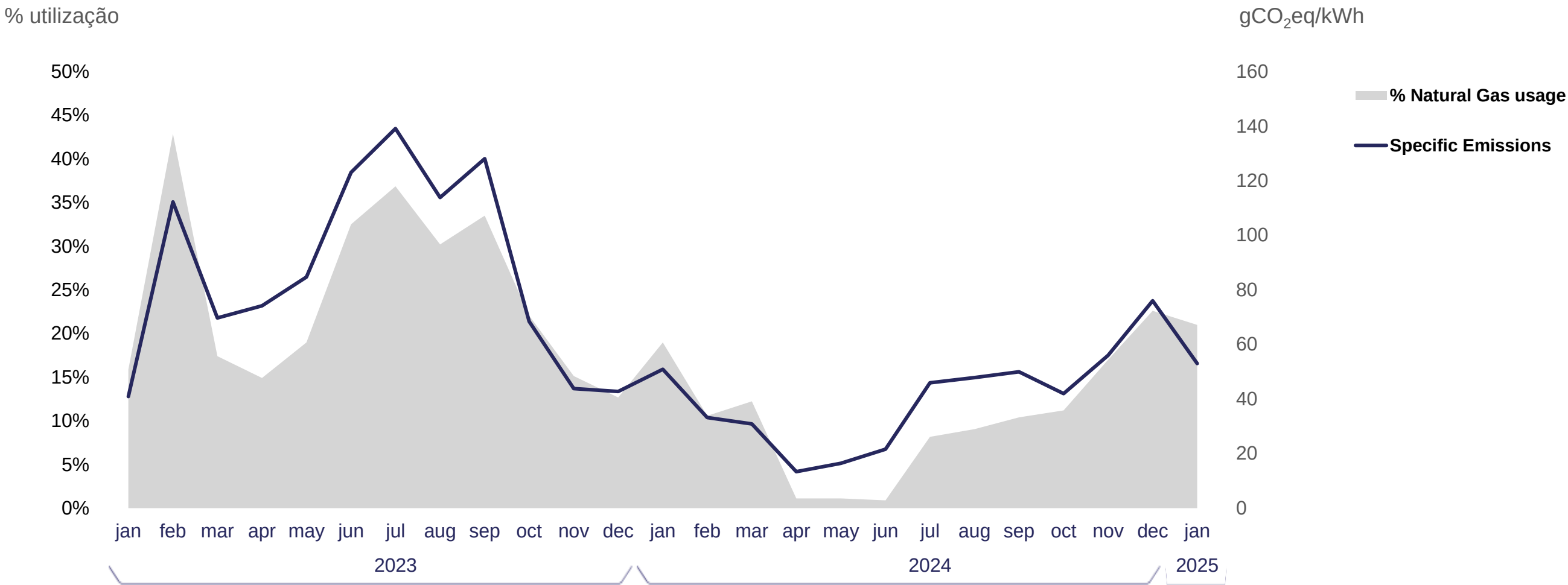
COMPARED TO JAN 2024 [Accumulated]

16.9
%

COMPARED TO JAN 2024 [Accumulated]



Price of CO₂ allowances in the EU ETS and price of natural gas in Europe (Nov-2022 to Nov-2024).
Source: SendeCO2, WorldBank, REN



Specific emissions from the electricity sector in mainland Portugal, % use of coal and natural gas power stations (Jan-2023 to Jan-2025).
Source: REN, DGEG, ERSE, APREN Analysis

^D Arithmetic mean of the hourly prices
Source: OMIE, WorldBank.

SIMULATION OF PRICE FORMATION WITHOUT SPECIAL REGIME PRODUCTION (PRE)

RENEWABLES HAVE AVOIDED:

The indicators below identify the savings achieved by the **Order of Merit** between the 1st and the 31st of January of 2025 given the contribution of special regime production (PRE).

This study is carried out for PRE, which includes all installed fossil cogeneration power. Considering that the capacity equivalent to this technology within PRE is residual and that the other technologies are renewable, the figures are close to the real savings generated by renewables.

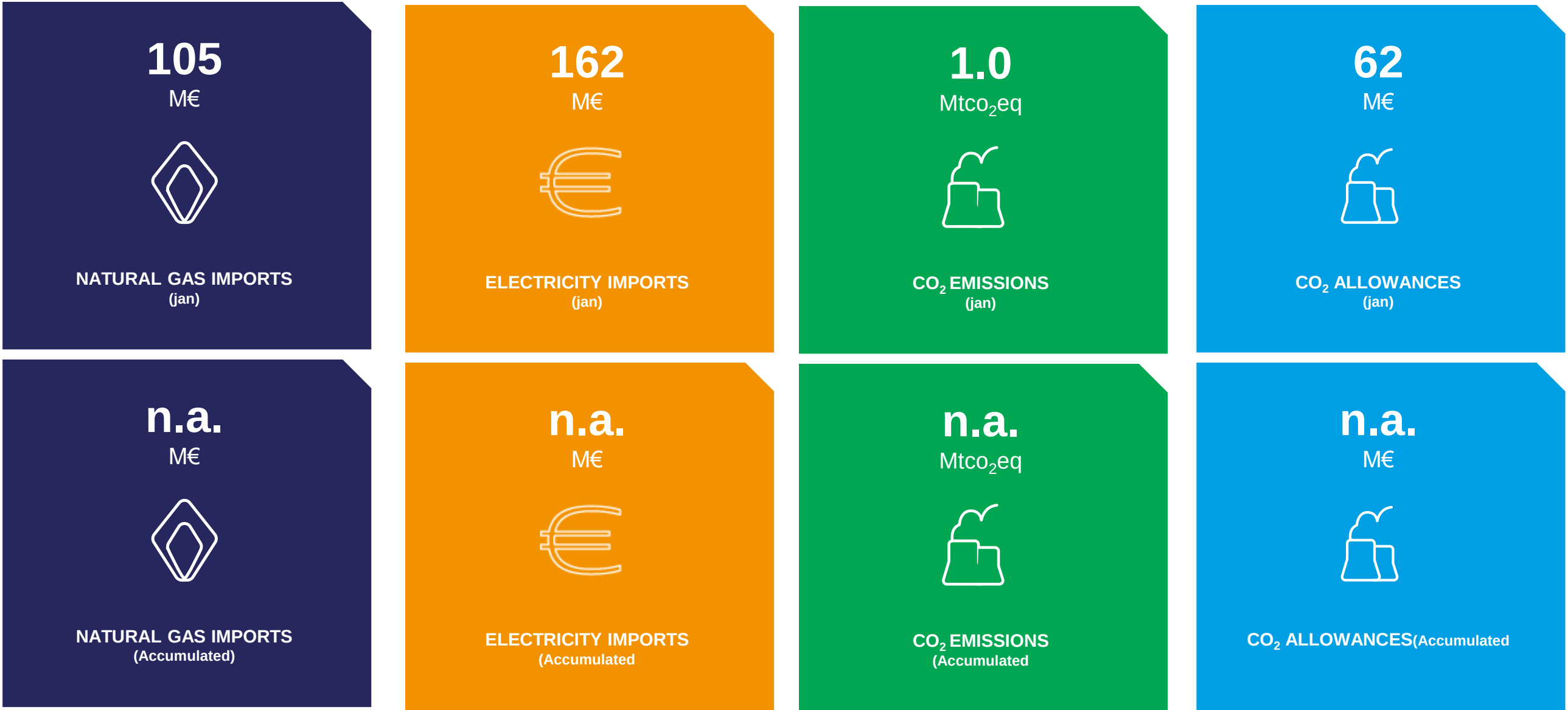


ENVIRONMENTAL SERVICE

RENEWABLES AVOIDED:

The indicators below identify the **savings** achieved between the 1st and the 31st of January of 2025 in natural gas, CO₂ emissions and CO₂ emission allowances, as a result of incorporating renewables into electricity generation.

This analysis is based on the assumption that, in the absence of renewables, production would be ensured primarily by natural gas, followed by electricity imports.



RENEWABLE INSTALLED CAPACITY

PORTUGAL

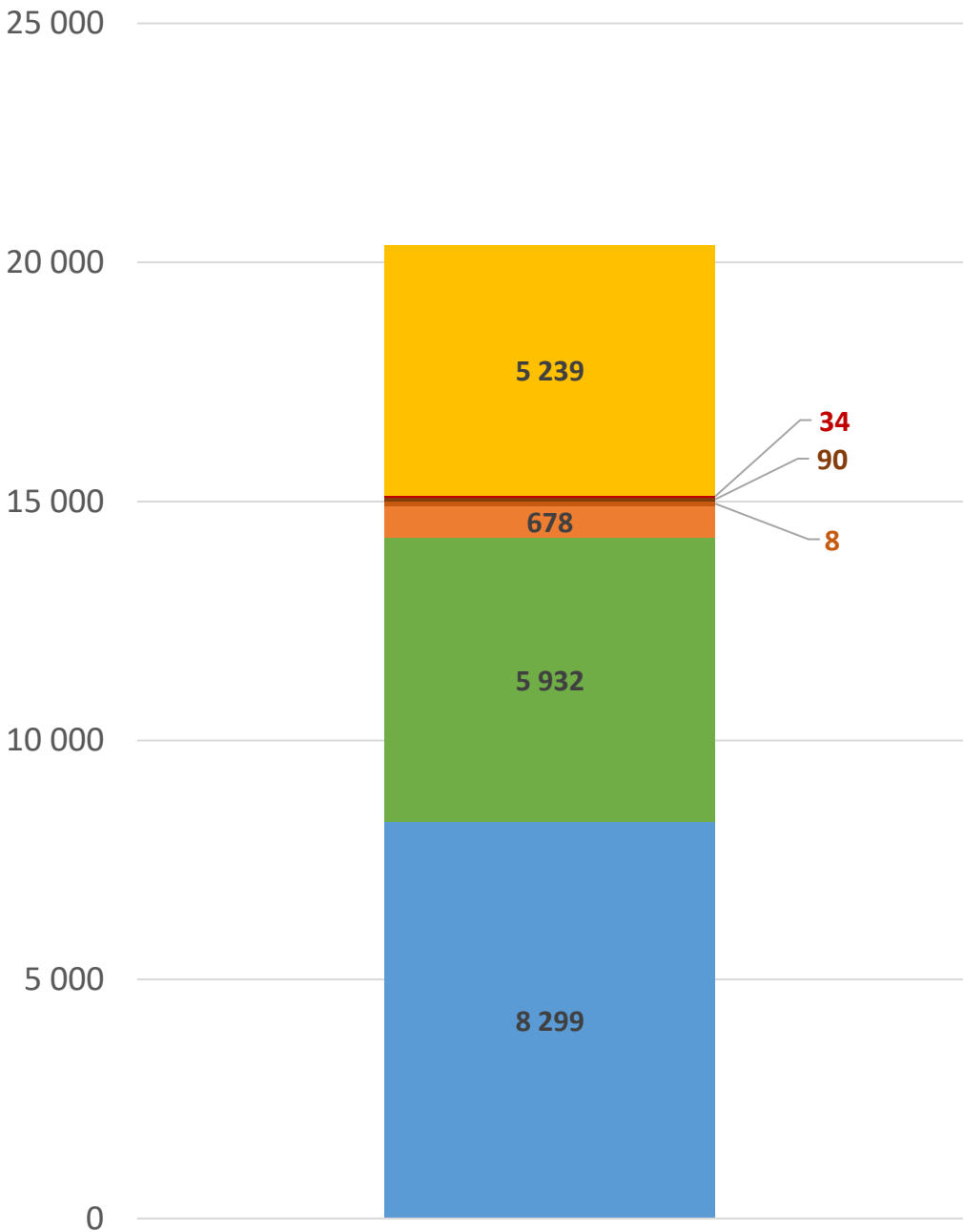
From january of 2015 to January of 2024, the installed capacity of renewable technologies increased 8,515 MW, which represents a growth of 69.3%.

Last year, the installed capacity saw an increment of 1,974 MW, mostly due to solar photovoltaics that contributed with 1,144 MW from the centralized and 624 MW from the distributed components.

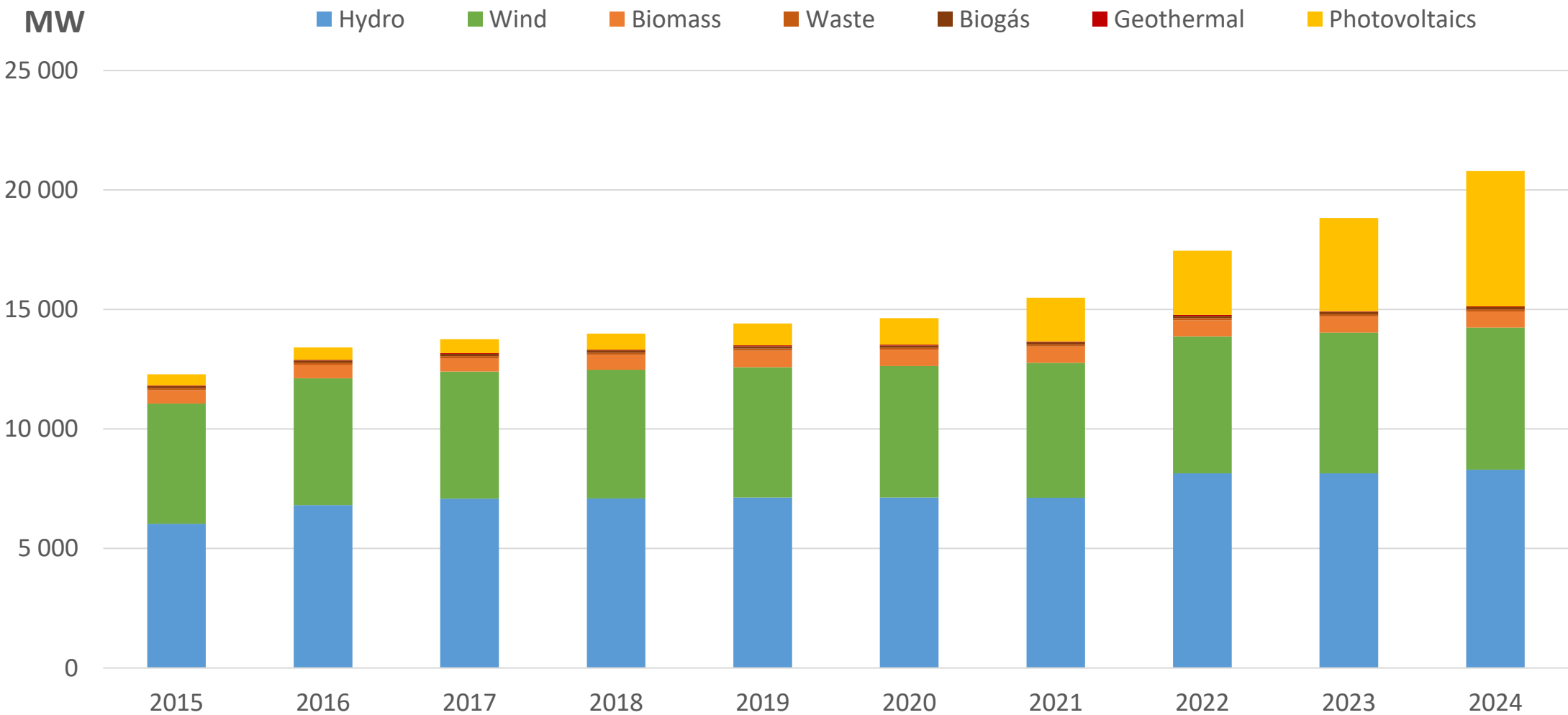
As per December 2024, the renewable capacity represented around 76% of the total installed capacity in Portugal.

DECEMBER 2024

MW



MW



Source: DGEG, APREN Analysis
Nota: information available at the source with one month of delay to the month under analysis.

20
25

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E COMUNICAÇÃO**

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