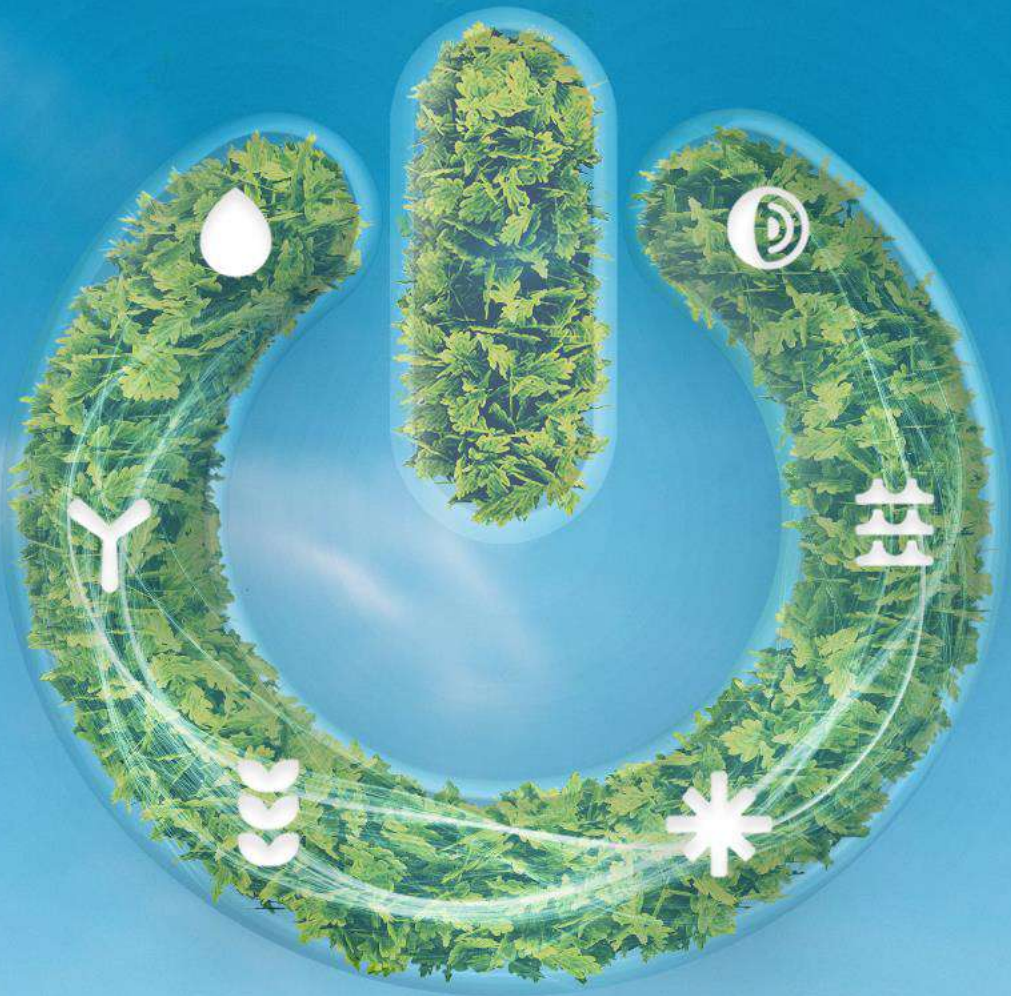


October

BULLETIN

2021

Renewable Electricity

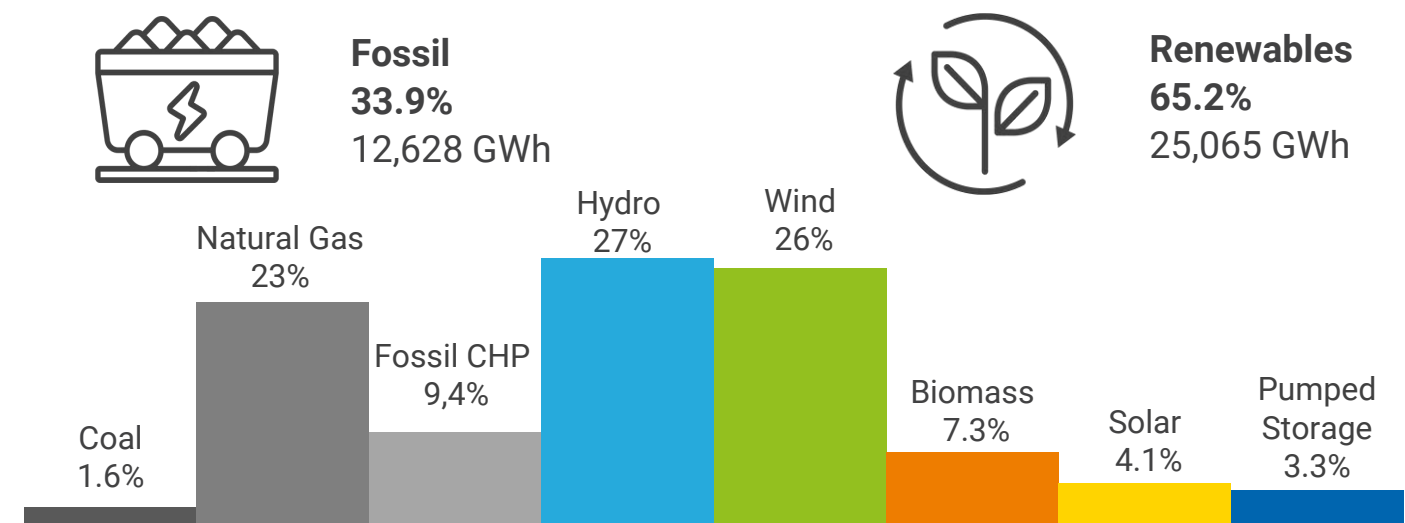


APREN

Associação
de Energias
Renováveis

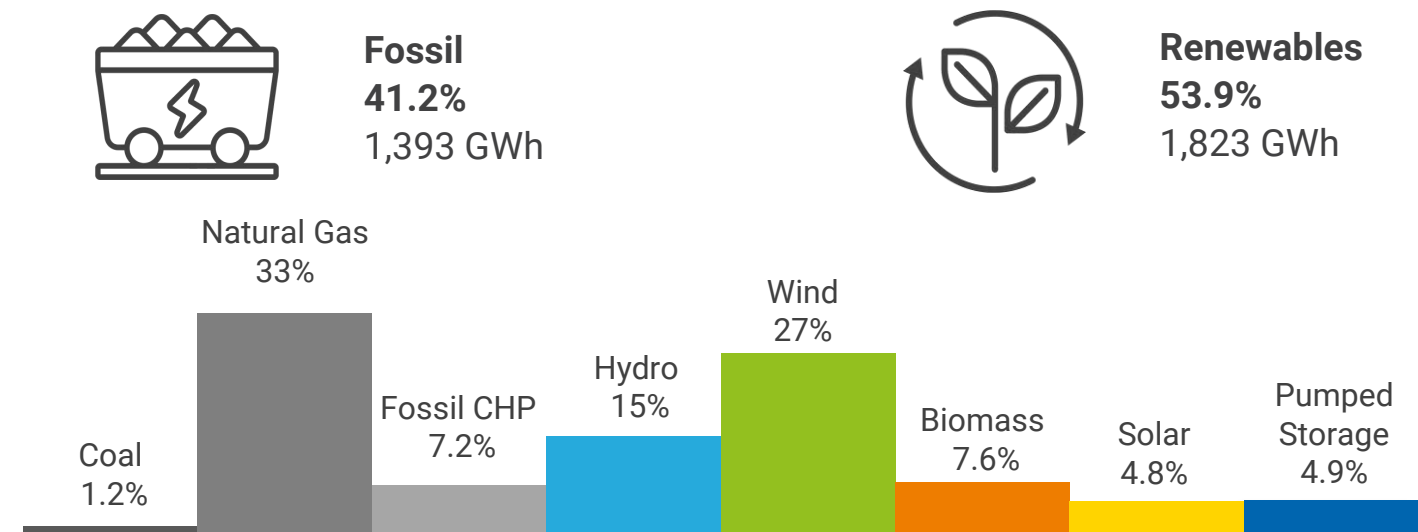
Executive Summary

Accumulated Generation – October 2021 (Jan-Oct)



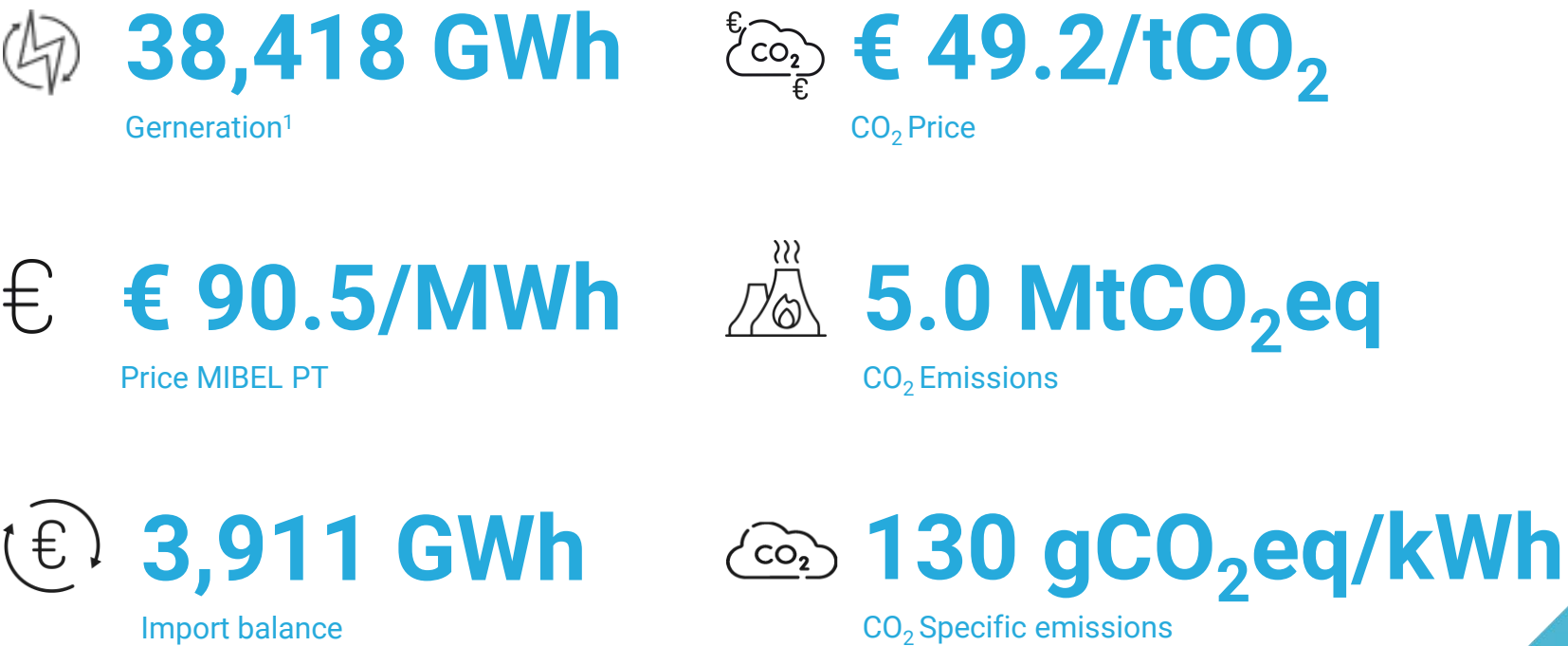
Source: REN, Analysis APREN

Generation – October 2021



Source: REN, Analysis APREN

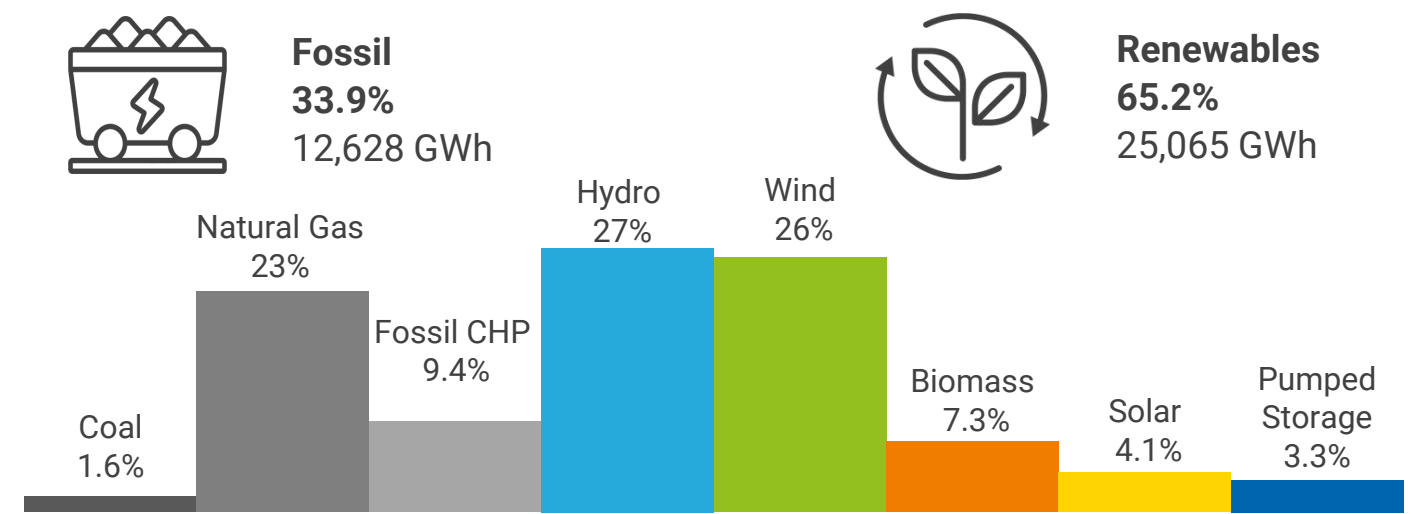
Electricity sector indicators (accumulated Jan-Oct)



¹ Generation refers to the net production of power plants, considering the production through pumped storage recently released by REN. Pumped storage is not included in the percentage of production from renewable energy sources.
Source: REN, Analysis APREN

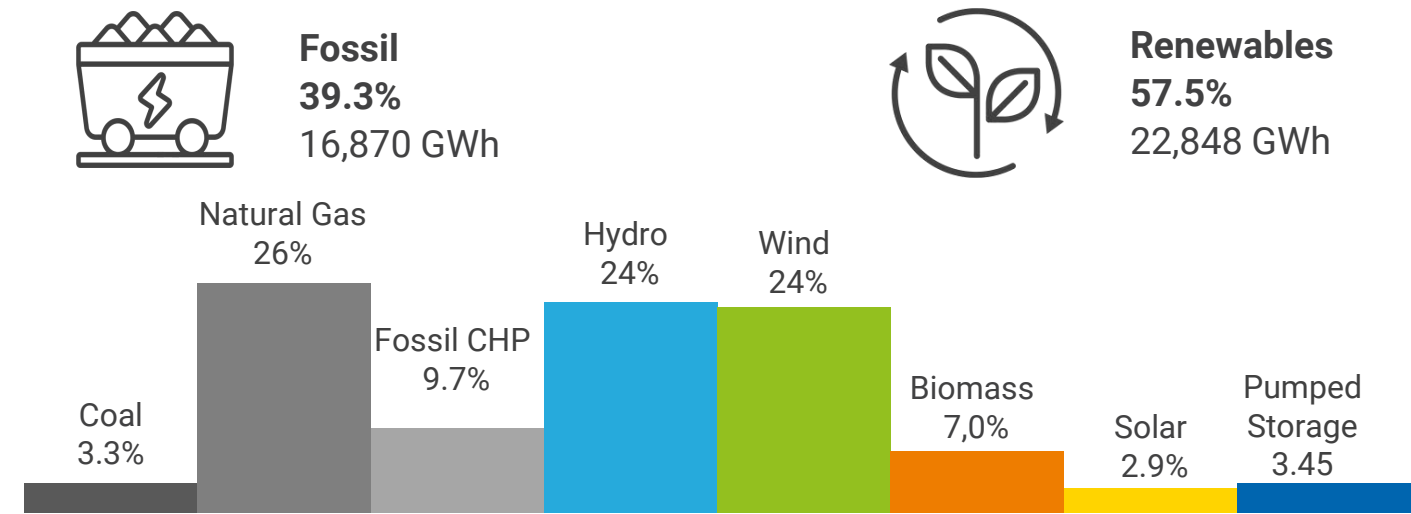
Electricity Generation: Mainland Portugal

Accumulated October 2021 (Jan-Oct)



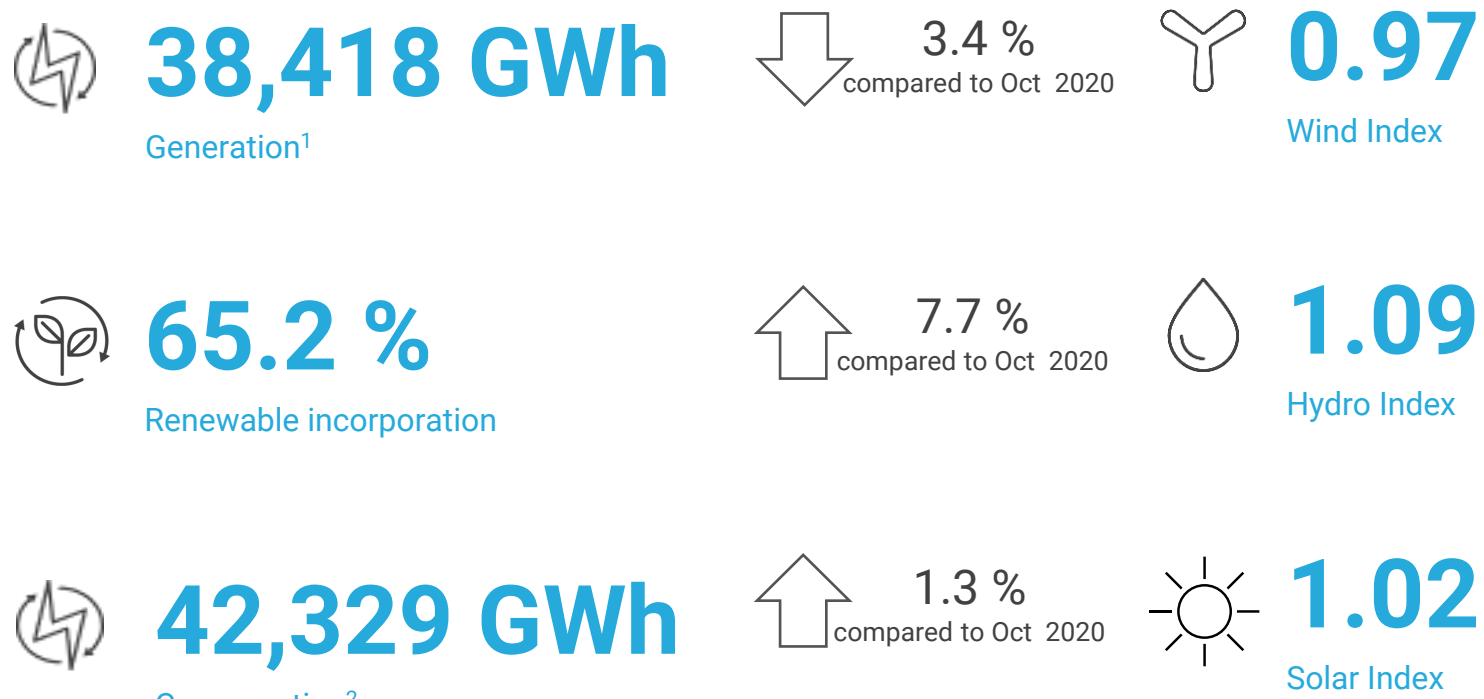
Source: REN, Analysis APREN

Accumulated October 2021 (Jan-Oct)



Source: REN, Analysis APREN

Main indicators



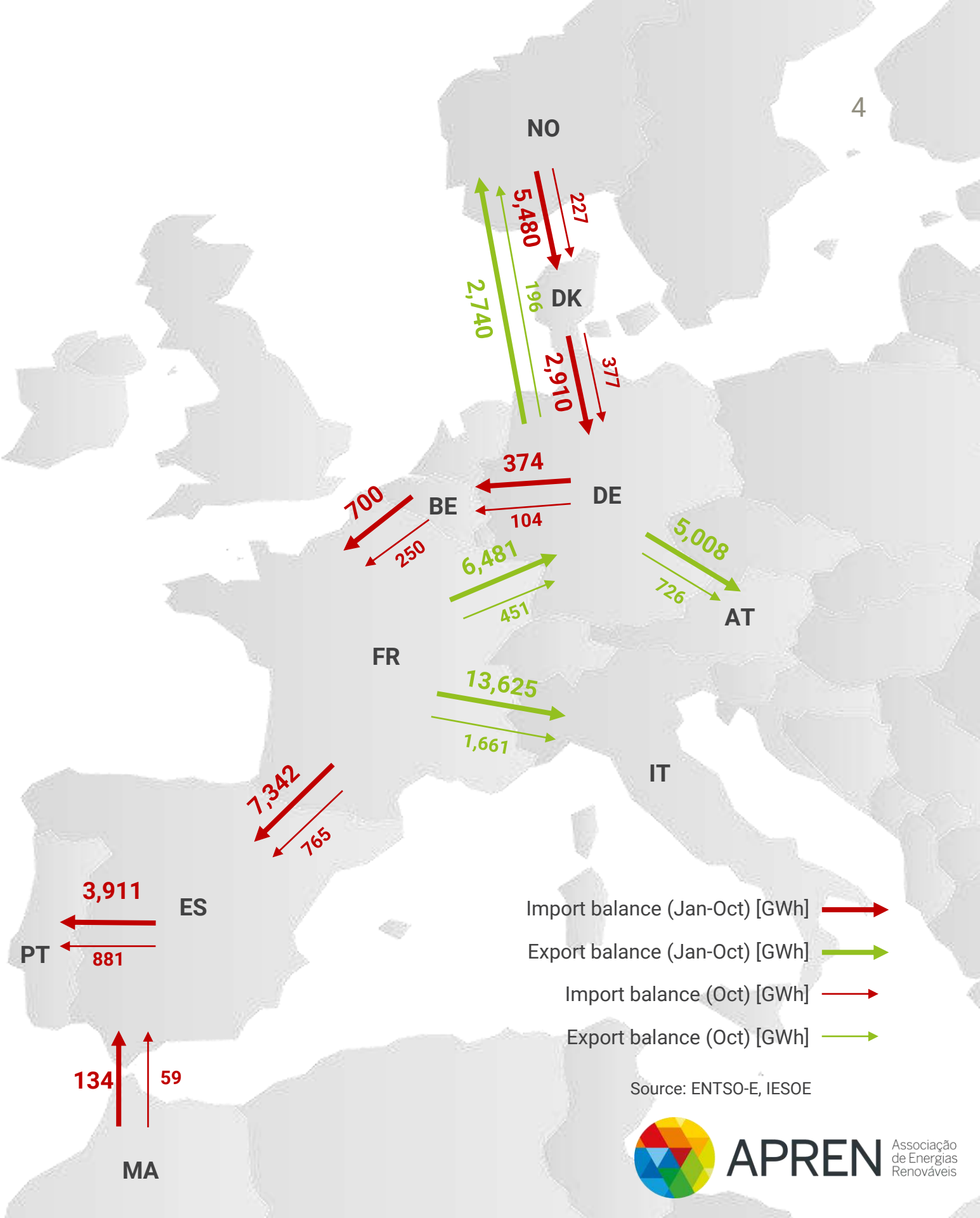
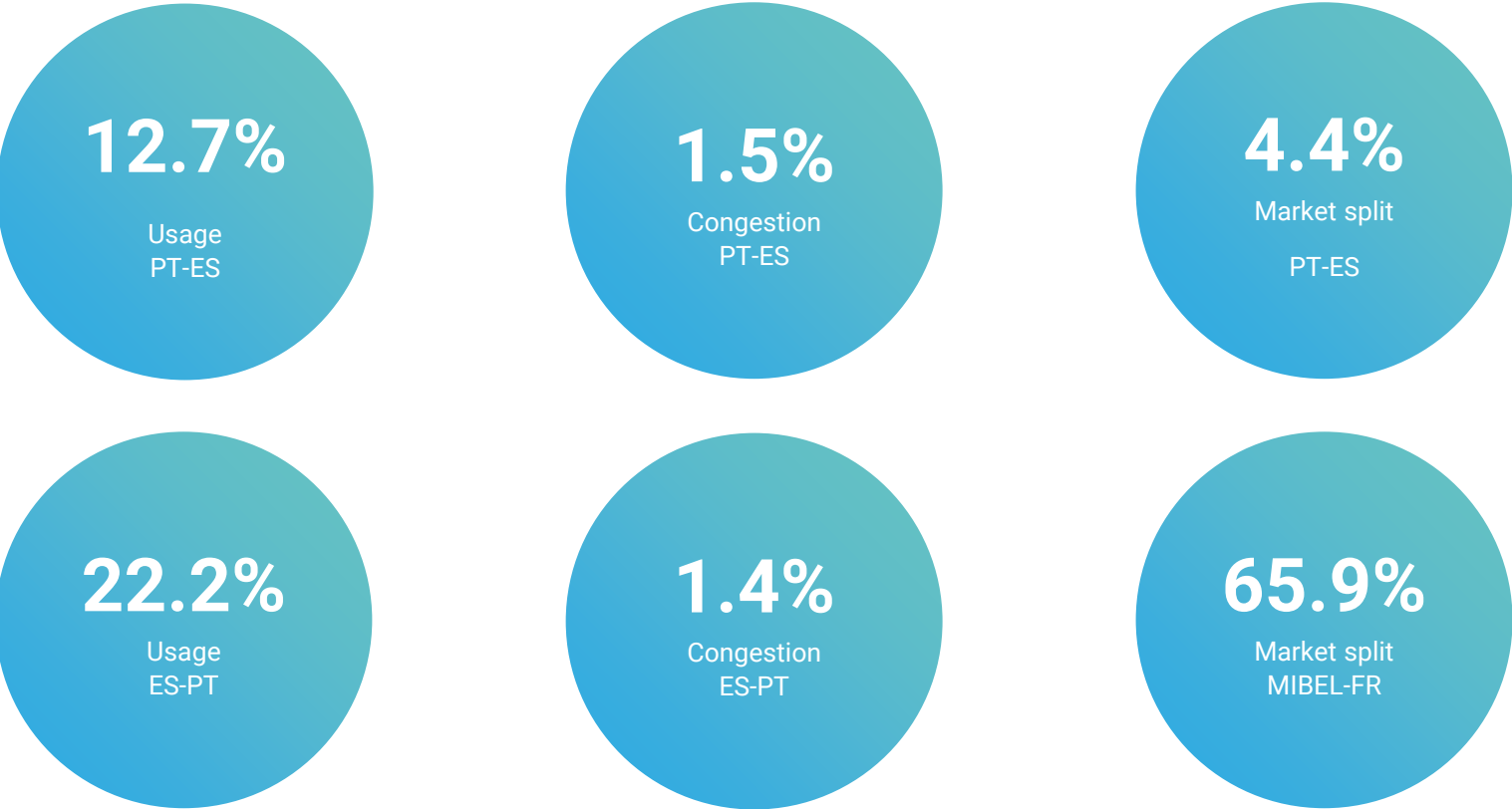
²Consumption refers to the net production of power plants, bearing in mind the import-export balance.
Source: REN, Analysis APREN

International Trade

Between January 1 and October 31, 2021, the electricity system of Mainland Portugal recorded electricity imports equivalent to 7,476 GWh and exports of 3,565 GWh, with Portugal being an importer with a balance of 3,911 GWh.

Source: REN, Analysis APREN

Main interconnection indicators PT-ES



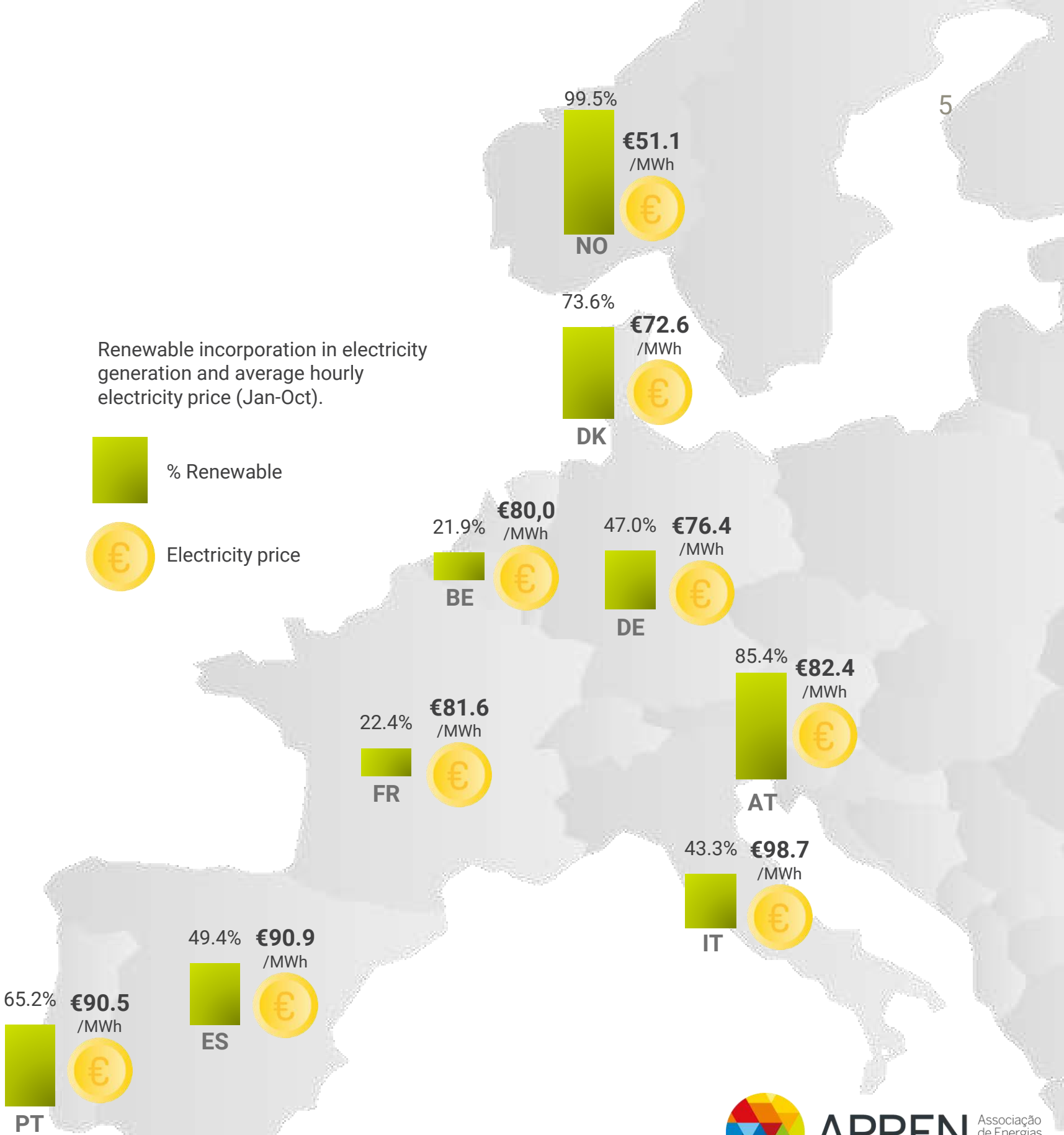
Source: ENTSO-E, IESOE

Accumulated Electricity Market - Europe

Between January 1 and October 31, 2021, there was an hourly average price on the Iberian Electricity Market (MIBEL) in Portugal of € 90.49/MWh³. Despite the high renewable incorporation in Portugal, the price of electricity in the Iberian spot market has been on the rise, as a result of the upward trend in the price of emission allowances in the European CO₂ allowances market and the rise in gas prices. It is in this scenario that Portugal registered the third highest average electricity price, compared to the other countries shown on the right. Portugal was the fourth country with the largest renewable incorporation in electricity generation, behind Norway, Austria and Denmark, which obtained 99.5 %, 85.4 % and 73.6 %, respectively, from RES.

This analysis only took into account the main European markets, in order to have a representative panorama of comparison

³ Arithmetic average of hourly prices
Source: ENTSO-E, OMIE, Analysis APREN

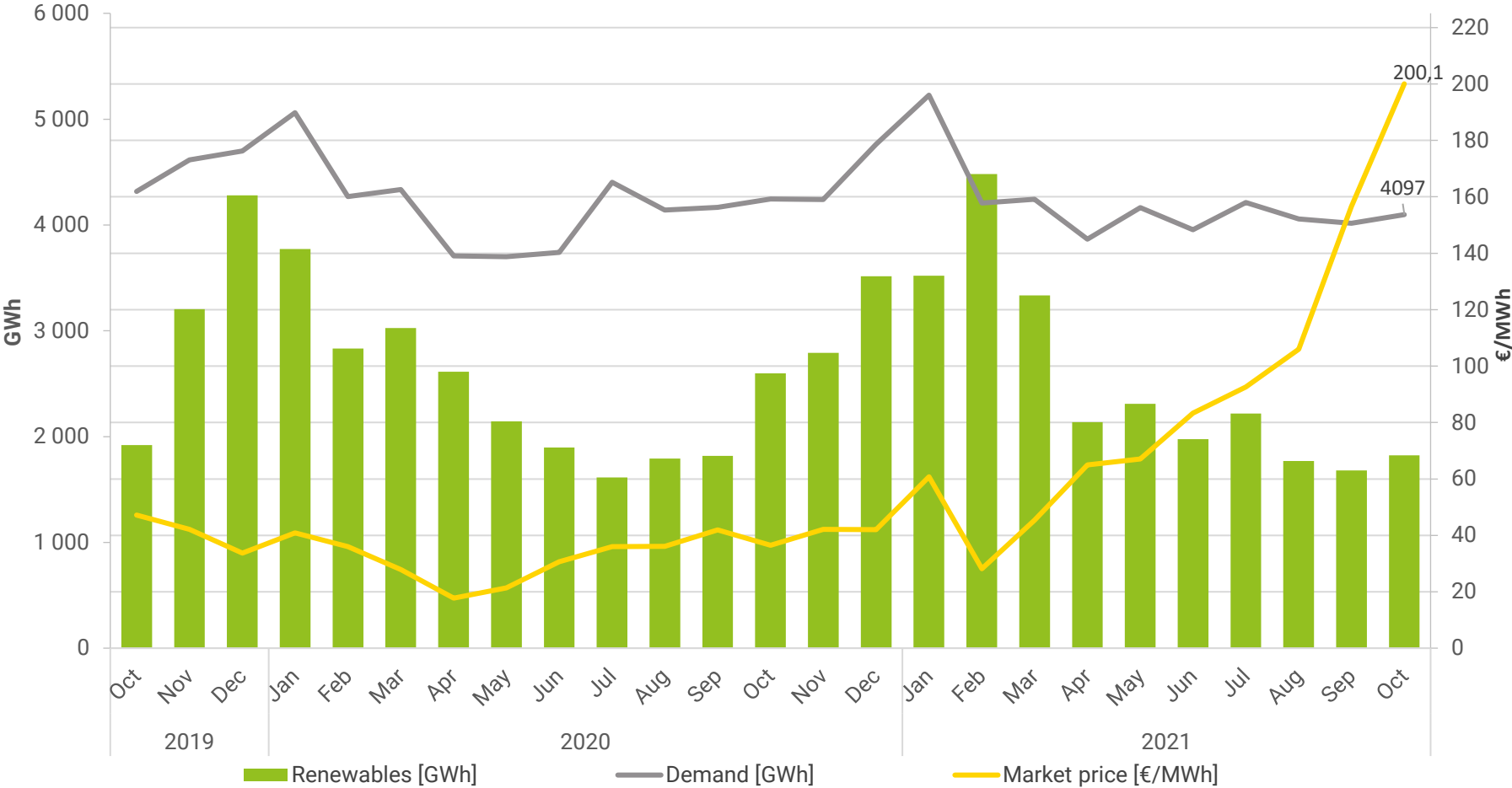


Accumulated Electricity Market - Portugal

Between January 1 and October 31, 2021, the average hourly price registered in the MIBEL in Portugal (€ 90.49/MWh³) represents an increase of more than double compared to the same period last year.

In the same period, 1,059 non-consecutive hours were recorded, in which renewable generation was sufficient to supply the electricity demand of Mainland Portugal, with an average hourly price on MIBEL of € 36.47/MWh.

³Arithmetic average of hourly prices
Source: OMIE, Analysis APREN



Market price, electricity consumption and renewable generation (Oct-2019 to Oct-2021).
Source: OMIE, REN, Analysis APREN

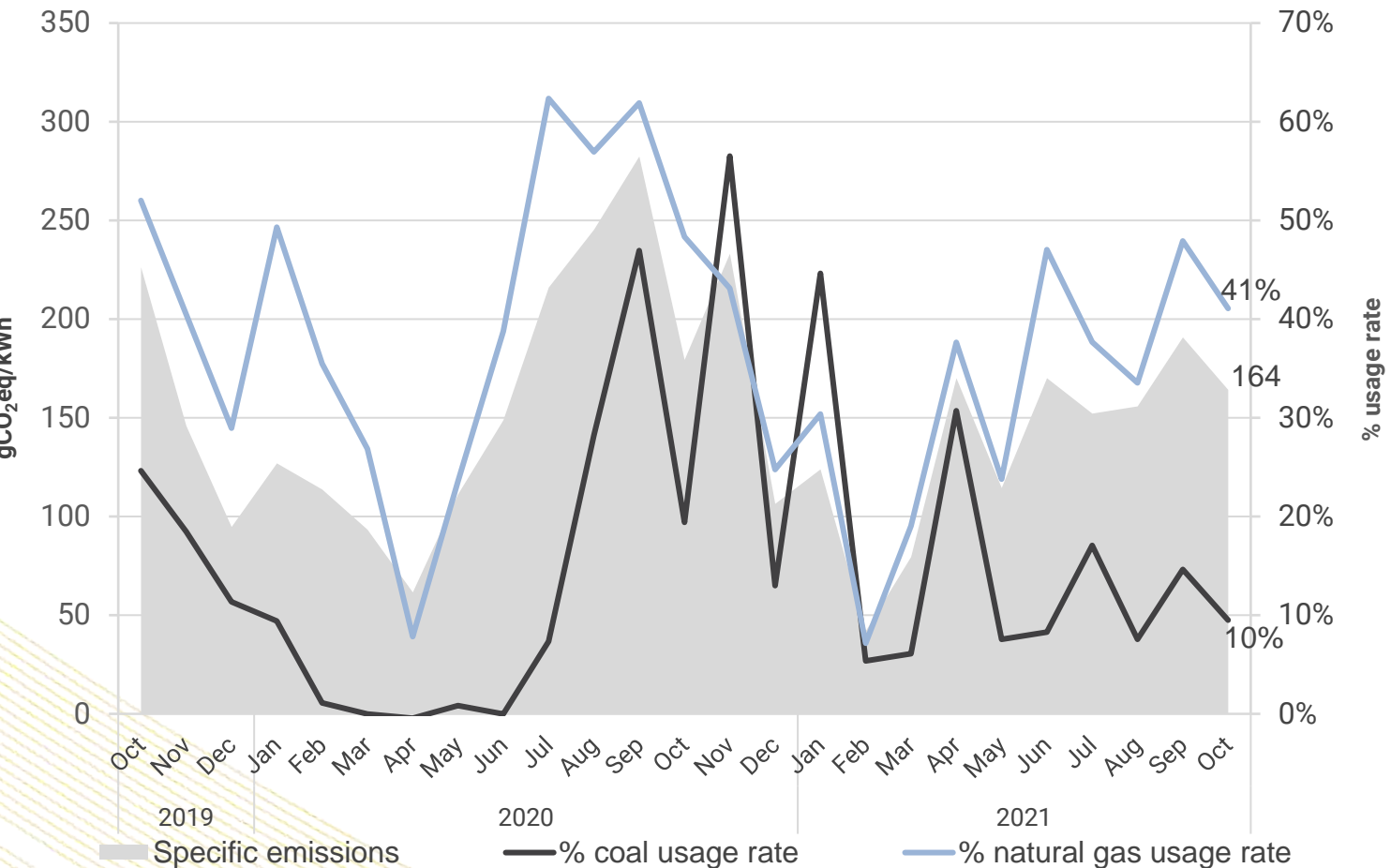


Power Sector Emissions

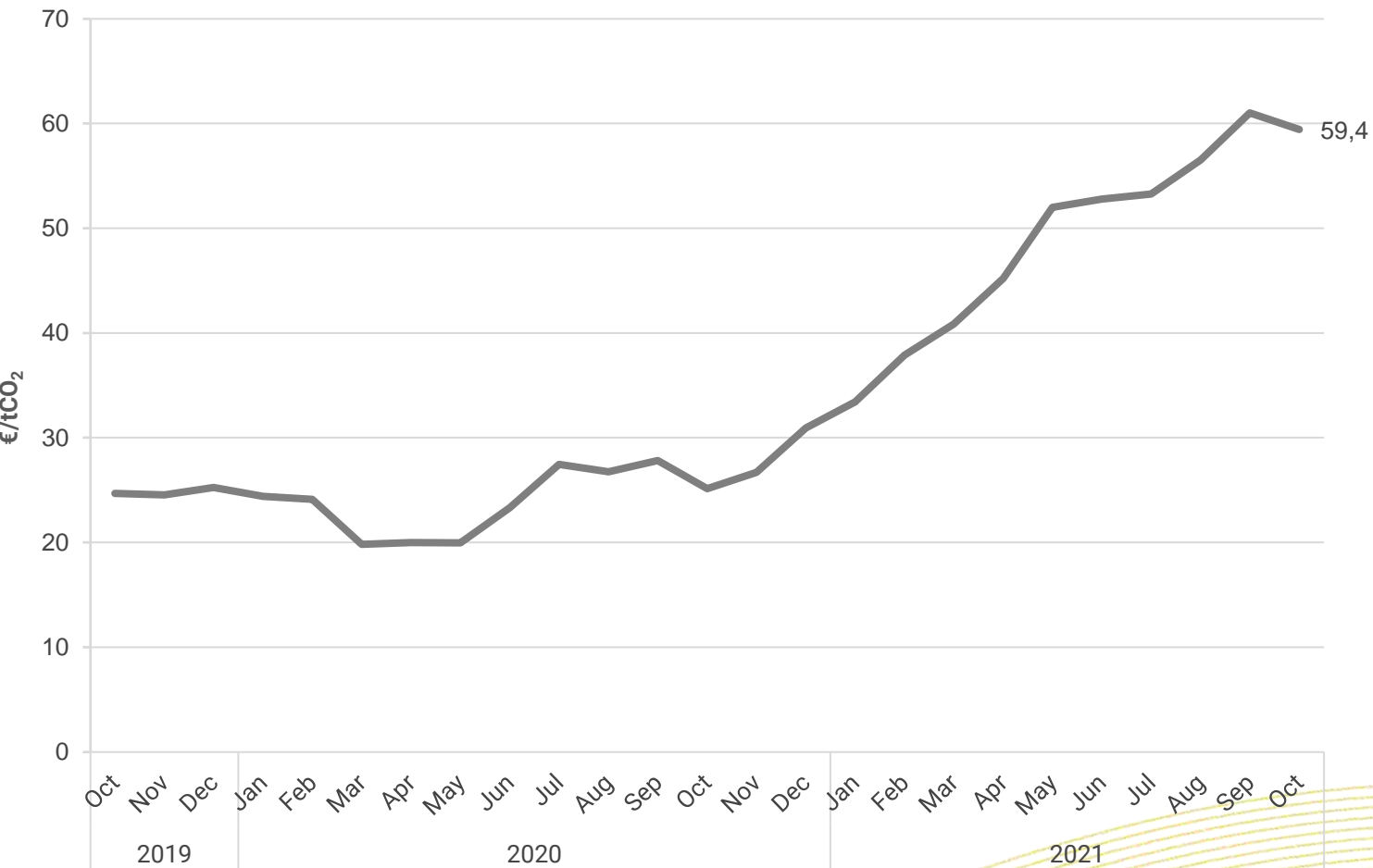
Between January 1 and October 31, 2021, specific emissions reached a total of 130 gCO₂eq/kWh, while the total emissions from the electricity-producing sector reached 500 MtCO₂eq, of which 0.8 MtCO₂eq correspond to the month of October.

Since the beginning of the year, the European Emissions Trading System (EU-ETS) has recorded an average price of € 49.2/tCO₂, increasing by more than the double compared to the same period in 2020.

Source: SendeCO2



Specific emissions from the electricity sector in mainland Portugal, % use of coal and natural gas power plants from Oct-2019 to Oct-2021.
Source: REN, DGEG, ERSE, Analysis APREN



CO₂ allowances price from Oct-2019 to Oct-2021.
Source: SendeCO2.

Monthly analysis in Portugal: October

In October, renewable electricity generation accounted for 53.9 % of total electricity generated in Mainland Portugal (3,383 GWh).

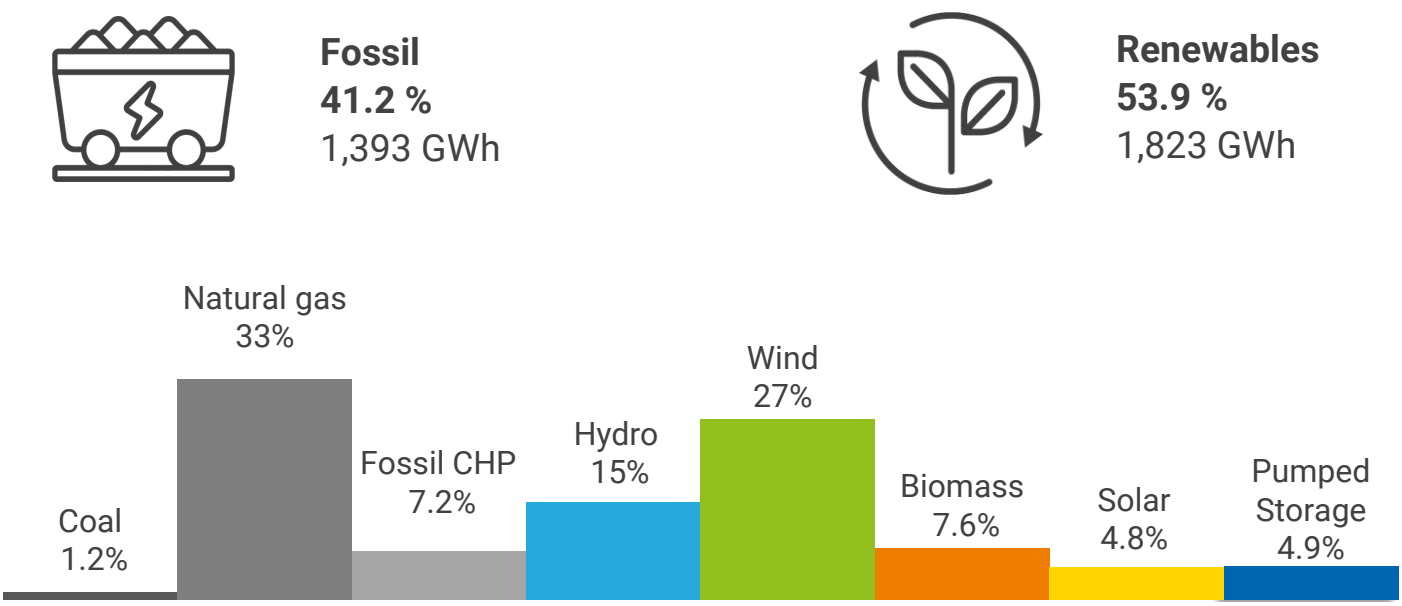
As for the October international trade, Mainland Portugal was an importer, recording a balance of 881 GWh, having reversed the export behaviour observed in October 2020 (212 GWh).

Source: REN, Analysis APREN

Electricity sector indicators



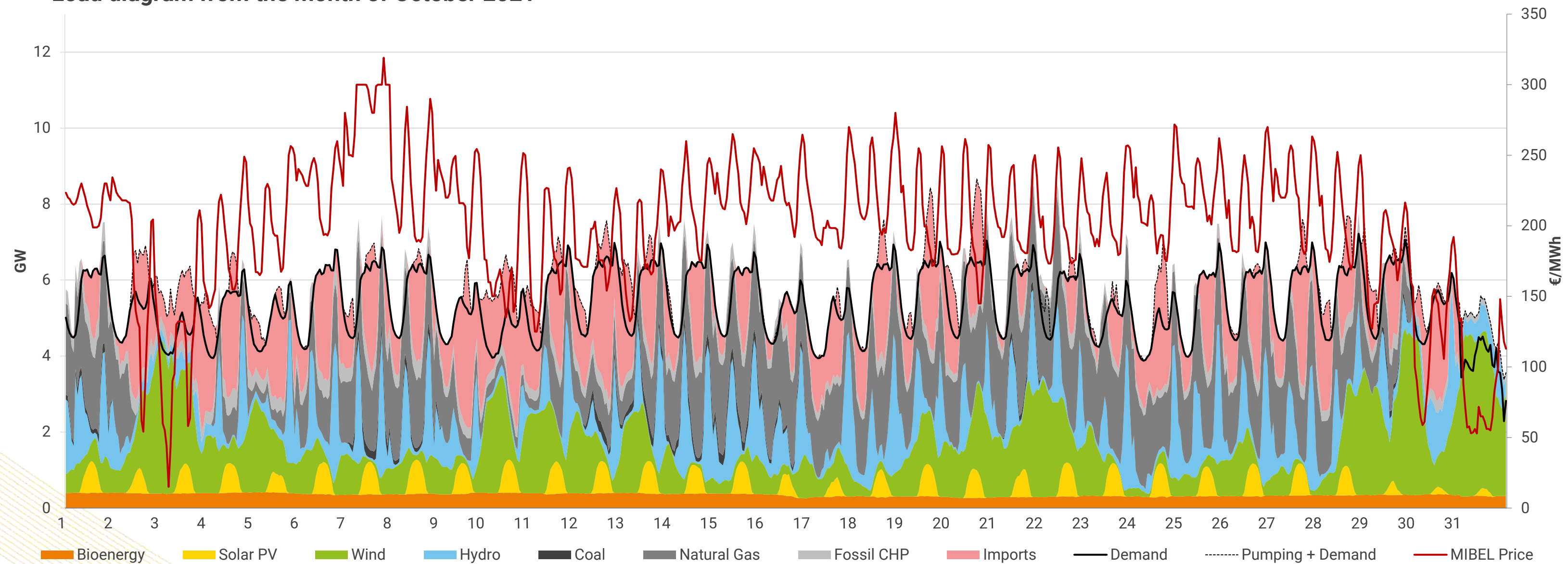
²Consumption refers to the net production of power plants, considering the import-export balance.
Source: REN, Analysis APREN



Source: REN, Analysis APREN

Monthly analysis in Portugal: October

Load diagram from the month of October 2021



Source: REN, Analysis APREN

Monthly Market Analysis: October

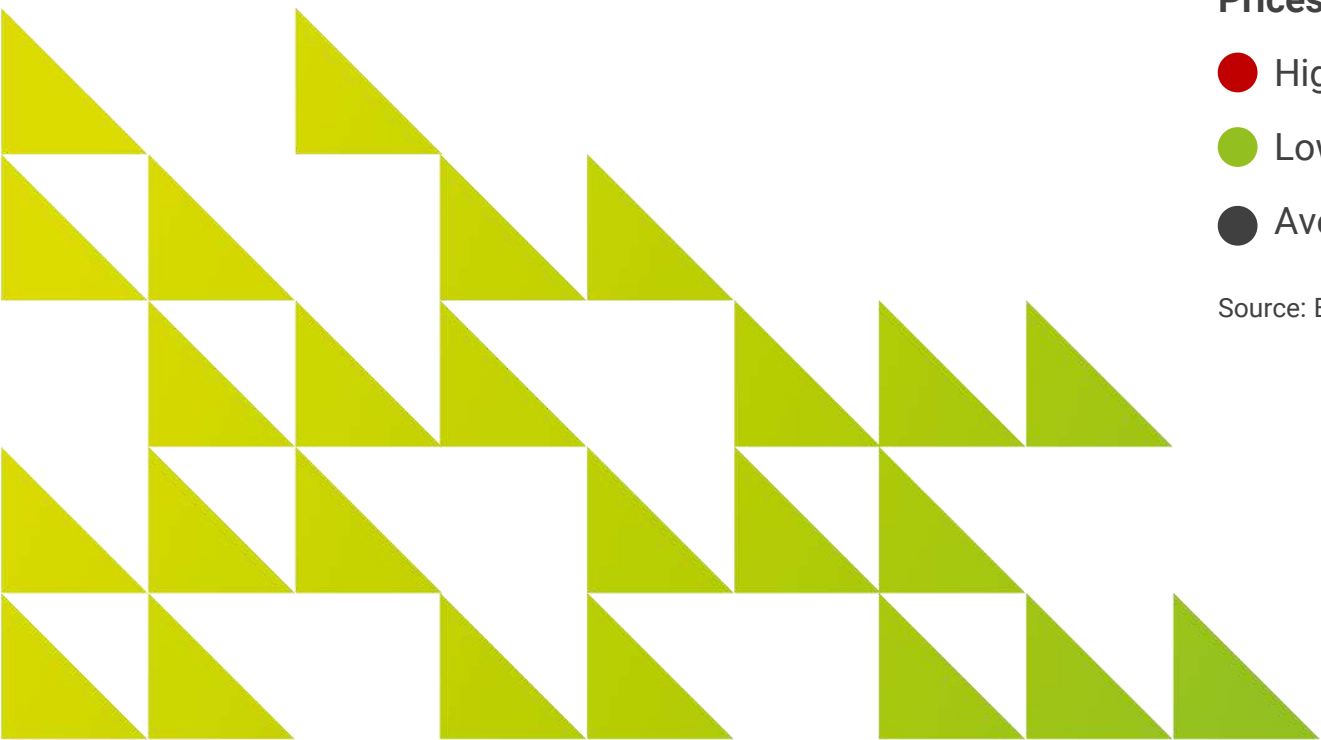
Electricity market in Europe

During the month of October 2021, there was an hourly average price on MIBEL in Portugal of € 200.09/MWh, which represents a five times higher increase in the price registered in October 2020. In Portugal, there was a minimum hourly price on the MIBEL of € 15.00/MWh.

Of the countries shown on the right, the lowest price verified was € -2.02/MWh in Germany, Austria, Denmark and France. The highest hourly maximum price was recorded in Belgium and Denmark, reaching € 442.90/MWh.

This analysis only took into account European countries with influence in the Portuguese market.

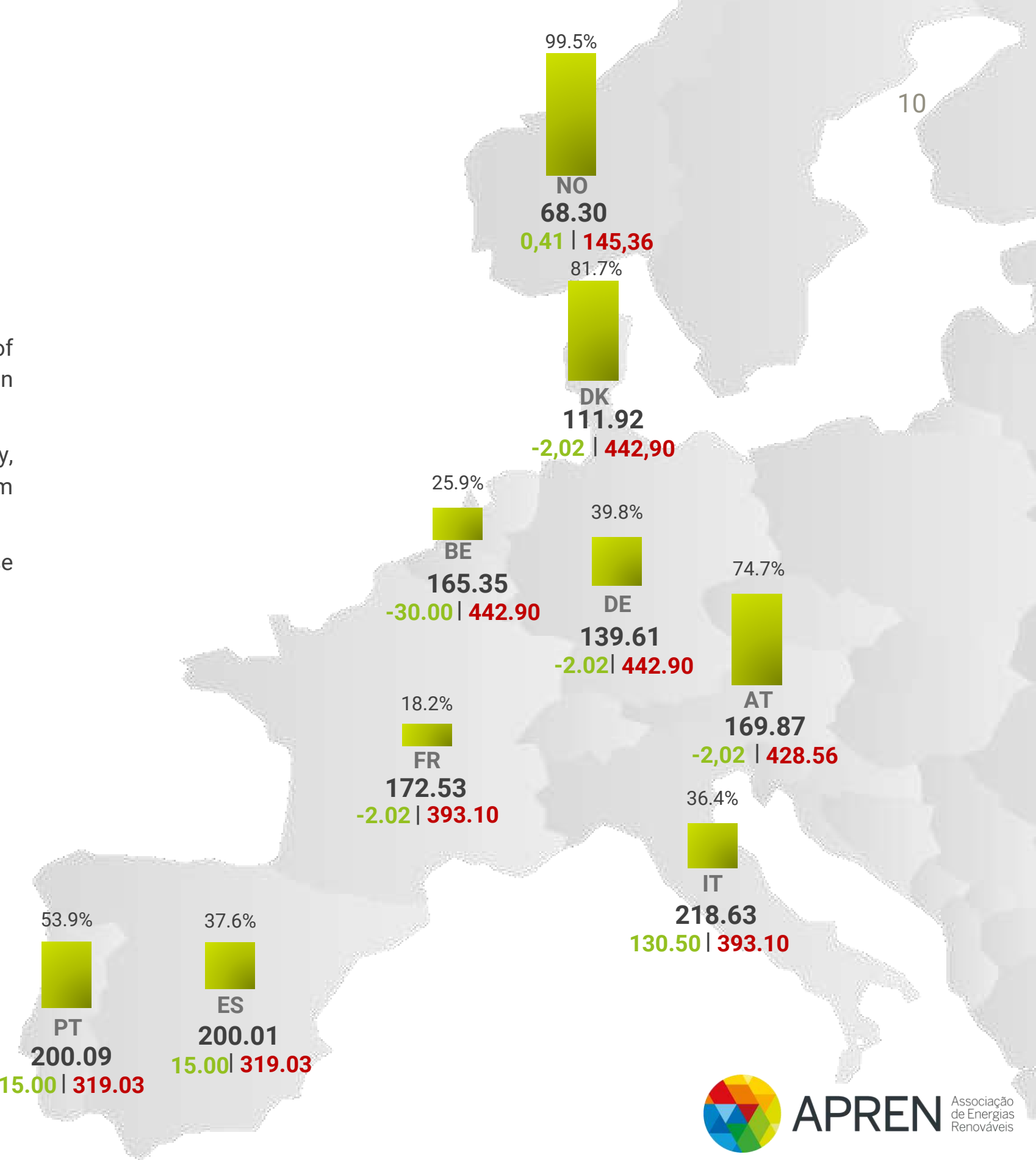
Source: ENTSO-E, IESOE, Analysis APREN



Prices in €/MWh

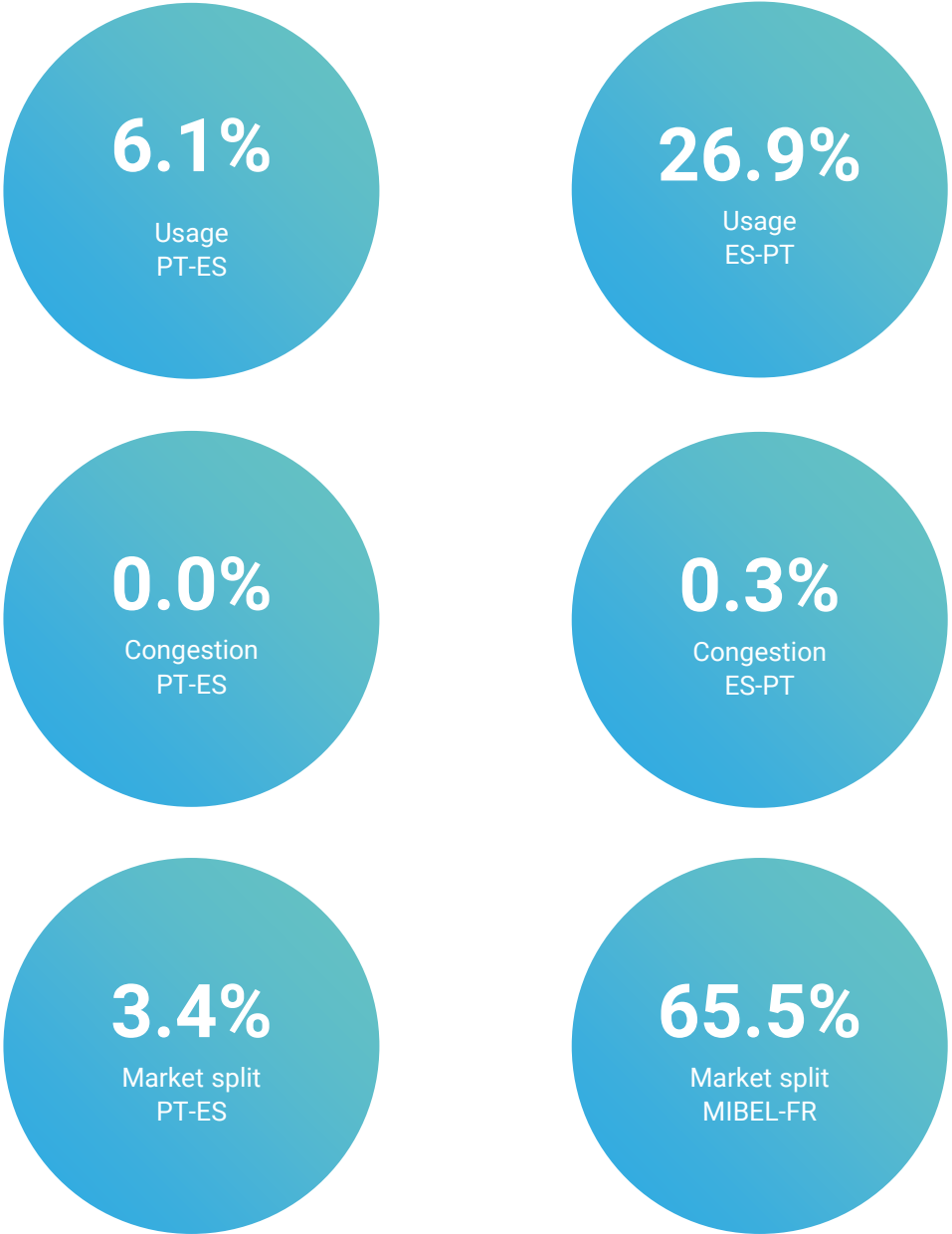
- Highest
- Lowest
- Average

Source: ENTSO-E, IESOE



Monthly market analysis: October

Electricity market in Portugal



Environmental Service

The indicators below identify the savings achieved between January 1 and October 31, 2021, in fossil fuels, CO₂ emissions and CO₂ emission allowances, resulting from the incorporation of renewable electricity generation.

This analysis is based on the assumption that, in the absence of renewables, production would be ensured firstly by natural gas, followed by coal and finally the use of imports.

Renewables have avoided...

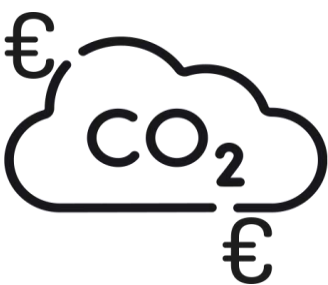


€1,319 M

Imported fossil fuels (Jan- Oct)

€ 305 M

Imported fossil fuels (Oct)

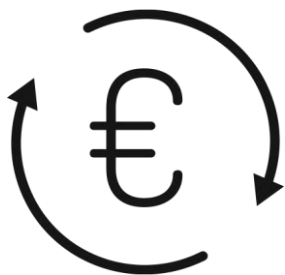


9.9 MtCO₂eq

CO₂ emissions (Jan-Oct)

0.8 MtCO₂eq

CO₂ emissions (Oct)



€ 209 M

Imported electricity (Jan-Oct)

€ 0

Imported electricity (Oct)



€ 444 M

CO₂ allowances (Jan-Oct)

€ 46 M

CO₂ allowances (Oct)

Source: REN, SendeCO2, WorldBank, DGEG, ERSE, Analysis APREN.

Note1: To estimate savings on imported fossil fuels, coal prices until November 2019 were considered, due to unavailability of data.

Note2: For the estimate of savings in imported electricity, the average price in the MIBEL market was considered.

European Policy and Regulation

Digitalisation of the energy system

On October 5, the European Commission (EC) launched a [public consultation](#) on digitalising the energy sector, as part of the preparation of a Commission Action Plan for digitalisation of the energy system, with publication scheduled for the first half of 2022. In line with the European Union (EU) better regulation principles, the consultation will run until January 24, 2022.

Energy Transition

On the 6th of October, the EU launched a [call](#) to present the proposals under the LIFE initiative for the energy transition, for which a total of € 95 million has been made available. This initiative includes 18 different themes. The projects can be submitted by January 12, 2022.

Rising energy prices

On 13th of October the EC published a [Communication on Energy Prices](#) to tackle the exceptional rise in global energy prices, which is projected to last through the winter, and help Europe's people and businesses. The Communication includes a "toolbox" that the EU and its Member States can use to address the immediate impact of current prices increases, and further strengthen resilience against future shocks.

On October 25, nine European countries rejected the French and Spanish proposal to reform Europe's wholesale energy markets as prices skyrocket.

National Policy and Regulation

Legal regime of EIA

On October 7, the Portuguese Environment Agency (APA) together with the Directorate General for Energy and Geology (DGEG) published a [Dispatch](#) on the applicability of the EIA legal regime to power plants having solar energy as its primary source and located in areas artificialized.

RMSA

On October 7, the Deputy Secretary of State and Energy approved the "National Electricity System Supply Security Monitoring Report for the period of 2022-2040 ([RMSA-E 2021](#))".

Agreements with the Distribution System Operator

On October 13, DGEG published the [list](#) with the final classification of the agreements with the Distribution System Operator (DSO).

Compensations

On October 14, the [Dispatch No. 9974/2021](#) was published, which determines the final compensation to be applied for the year 2020 per unit of energy injected into the public service electricity grid.

Clawback

On October 14, the [Dispatch No. 9975/2021](#) was published, setting out the parameter corresponding to the impact of out-of-market measures and events recorded within the European Union on the formation of average electricity prices on the wholesale market in Portugal, to be applied between 1st of October and 31st of December 2021.

National Policy and Regulation

Permitting of Production Units for Self-Consumption (PUSC)

On 17th of October, DGEG published the [Dispatch No. 27/DG/2021](#), authorising the issue of operating certificates on a provisional basis for the initiation of operation and connection to the PSEN of electro-producing centres up to 1 MW of installed power.

It was also published by DGEG on October 21, the [Dispatch No. 29/DG/2021](#), which authorizes the inspectors of electrical installations recognized by DGEG with experience and competence in the area of private service electrical installations of type C, to inspect UPAC installations connected to private low voltage networks belonging to type B consumption installations.

Increase in energy prices

On 15th of October, the Energy Services Regulatory Entity (ERSE) [approved](#) a package of extraordinary measures for the electricity and natural gas sectors ([Regulation No. 11/2021](#)) to mitigate the impact of wholesale prices on the energy market.

Meetering equipment

On the 21st of October, DGEG published the [Dispatch No. 28/DGEG/2021](#), extending the period provided for in Dispatch No. 5/DGEG/2021 for the installation of counting, measurement and control equipment in each subpark, as defined in Decree-Law No. 35/2013 of February 28.

Exemption of General Economic Interest Costs

On the 22nd of October, the [Dispatch No. 10376/2021](#) was published, extending the period laid down in paragraph 1 of Dispatch No. 6453/2020 on the conditions for exemption from charges corresponding to costs of general economic interest on network access tariffs determined by ERSE.

European Barometer

Energy Transition



The EU has launched a call for proposals under the LIFE energy transition initiative, for which € 95 million has been made available. This initiative includes 18 different themes whose projects can submit their application by 12 January 2022.

Increasing energy prices



The EC has published a Communication on energy prices in order to tackle the exceptional increase in global energy prices, which is expected to last during the winter, and to help Europe's citizens and businesses.

Regulation TEN-E



The European Parliament has voted to remove fossil natural gas support from EU funding rules for cross-border energy infrastructure, known as the TEN-E Regulation.

National Barometer

Legal regime of AIA



A joint dispatch was published by the APA and DGEG on the applicability of the Legal Regime of AIA to electro-producing centers with solar energy as its primary source and located in artificialized areas.

Agreements with the Distribution System Operator



The list with the final classification of the Agreements with the DSO was published.

Clawback



The Dispatch No. 9975/2021 was published, setting out the parameter corresponding to the impact of the measures and out-of-market events recorded under the EU on the formation of average electricity prices on the wholesale market in Portugal, to be applied between 1st of October and 31st of December 2021.

Permitting for PUSC



The Dispatch No. 27/DG/2021 has been published, authorising the issue of operating certificates on a provisional basis for the initiation of operation and connection to the PSEN of electro-producing centres up to 1 MW of installed power.

Exemption of General Economic Interest Costs



The Dispatch No. 10376/2021 on the conditions for exemption from charges corresponding to costs of general economic interest on access tariffs to networks determined by ERSE has been published.

APREN | Technical and Communication Department

Av. Sidónio Pais, nº 18 R/C Esq.
1050-215 Lisboa, Portugal

(+351) 213 151 621
www.apren.pt

