

September

# BULLETIN

2021

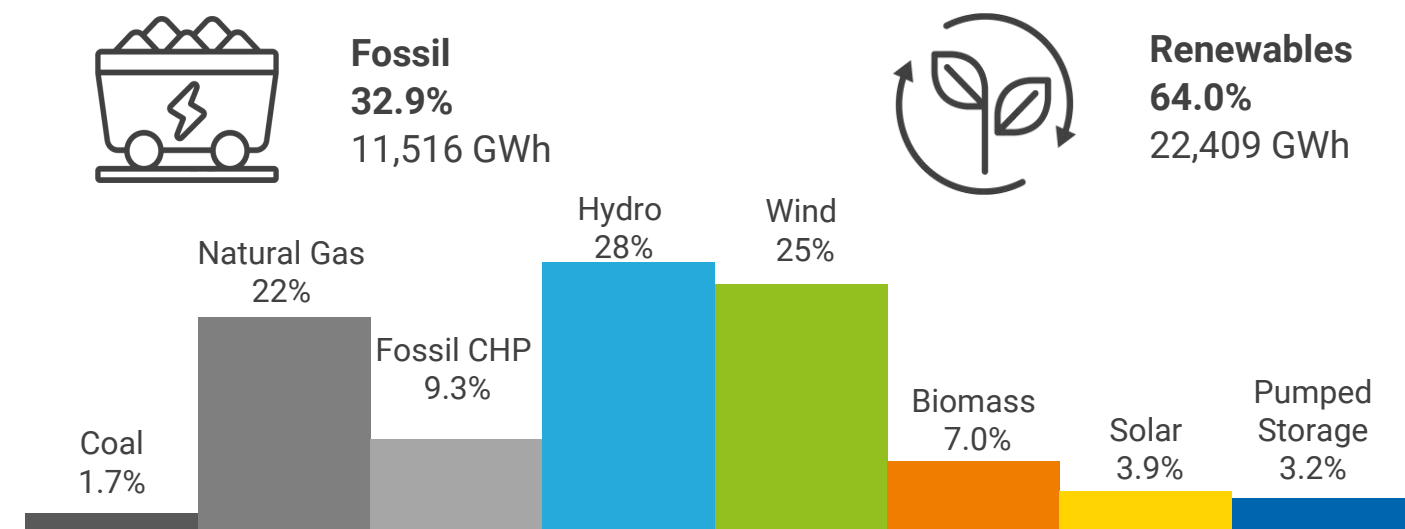
Renewable Electricity



APREN Associação de Energias Renováveis

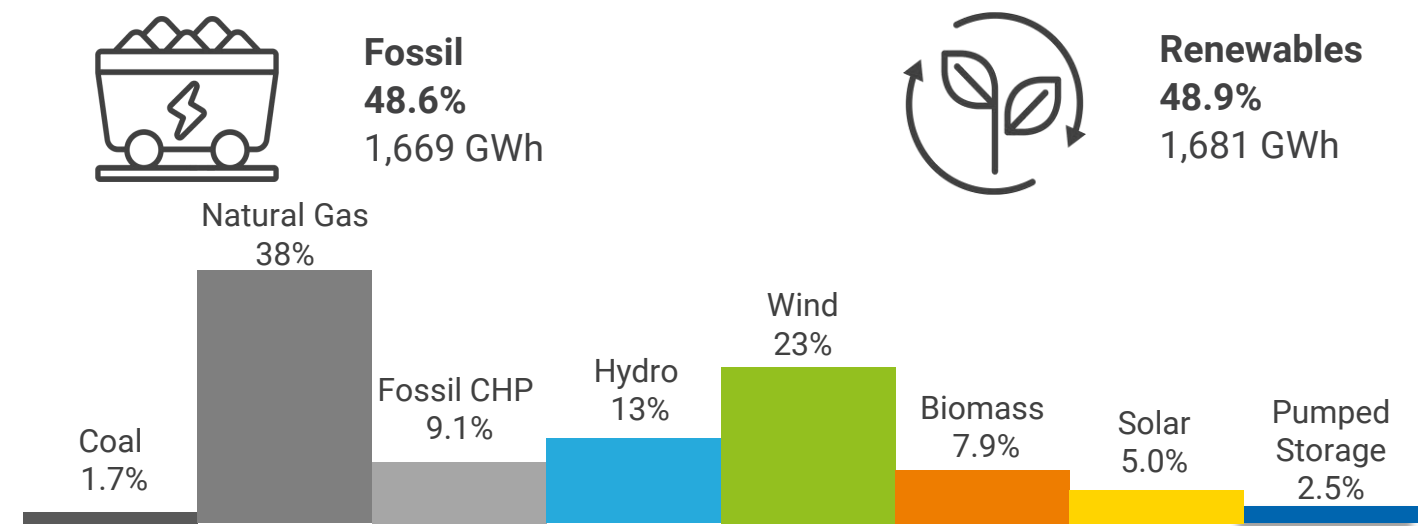
# Executive Summary

## Accumulated Generation - September 2021 (Jan-Sep)



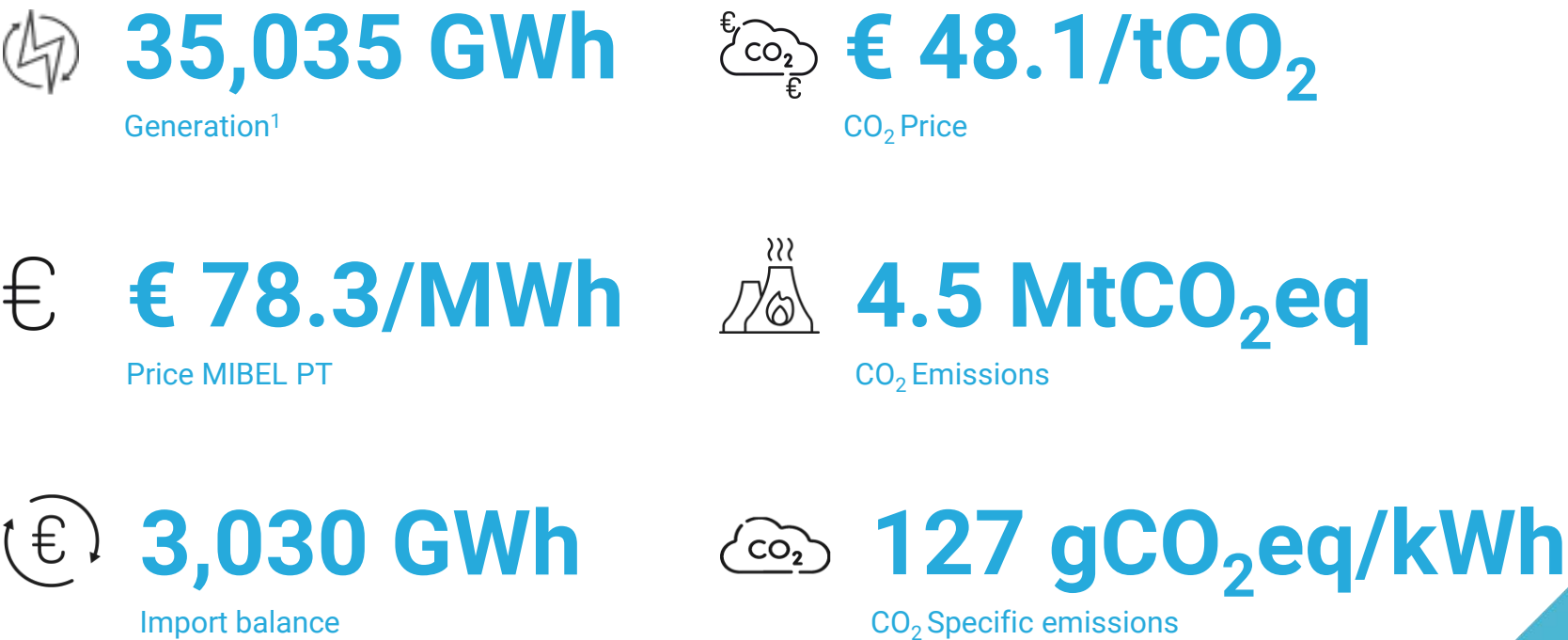
Source: REN, Analysis APREN

## Generation - September 2021



Source: REN, Analysis APREN

## Electricity sector indicators (accumulated Jan-Sep)

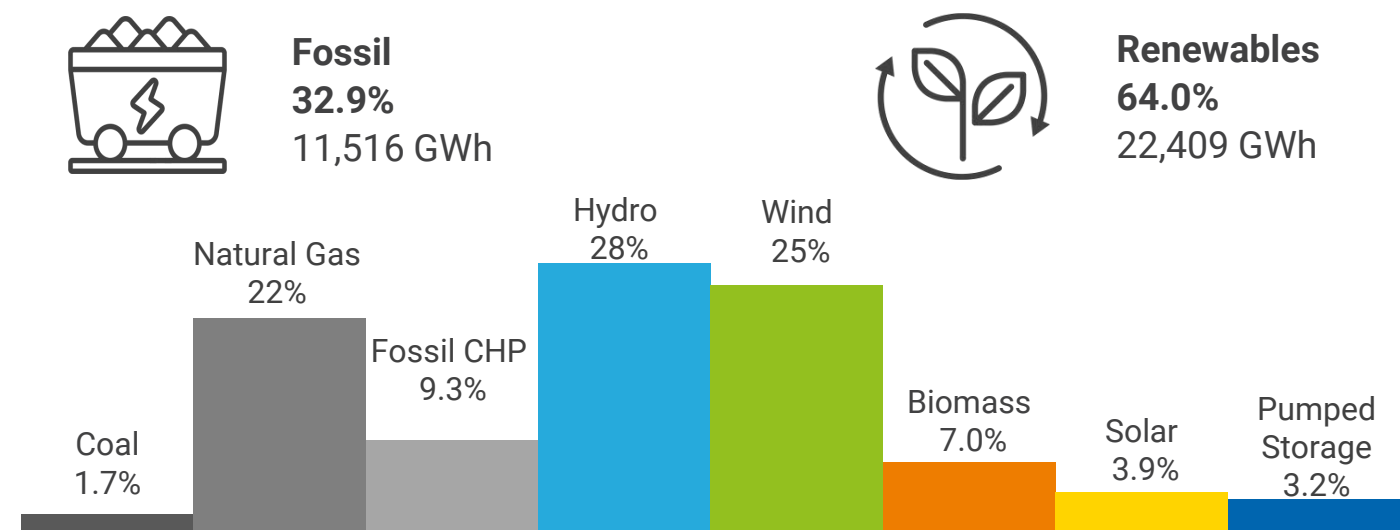


<sup>1</sup>Generation refers to the net production of power plants, considering the production through pumped storage recently released by REN. Pumped storage is not included in the percentage of production from renewable energy sources.  
Source: REN, Analysis APREN



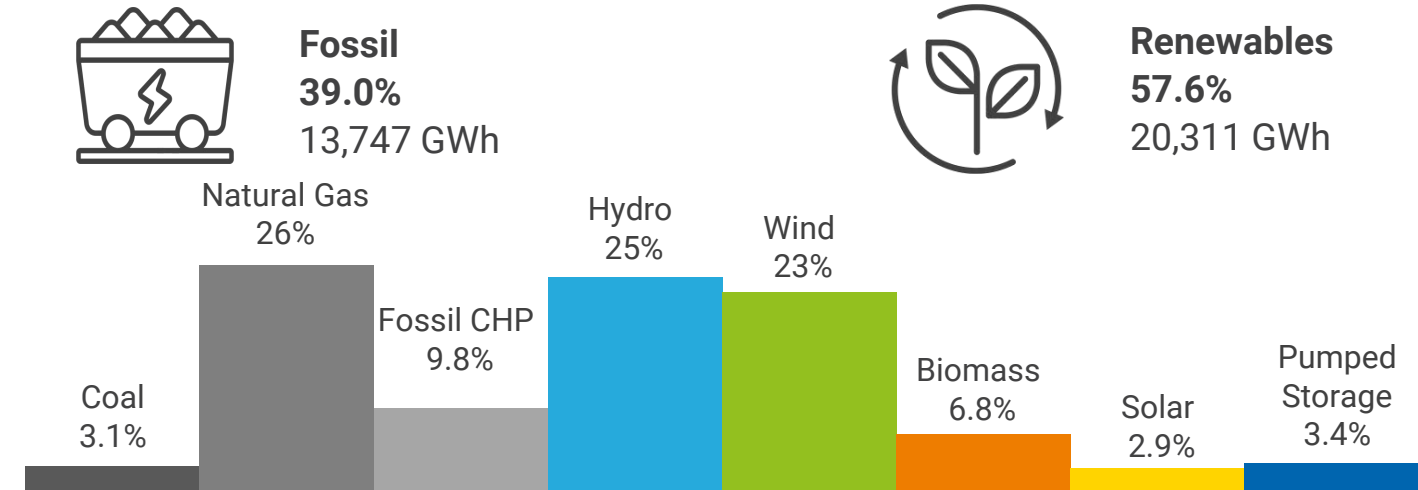
# Electricity Generation: Mainland Portugal

## Accumulated September 2021 (Jan-Sep)



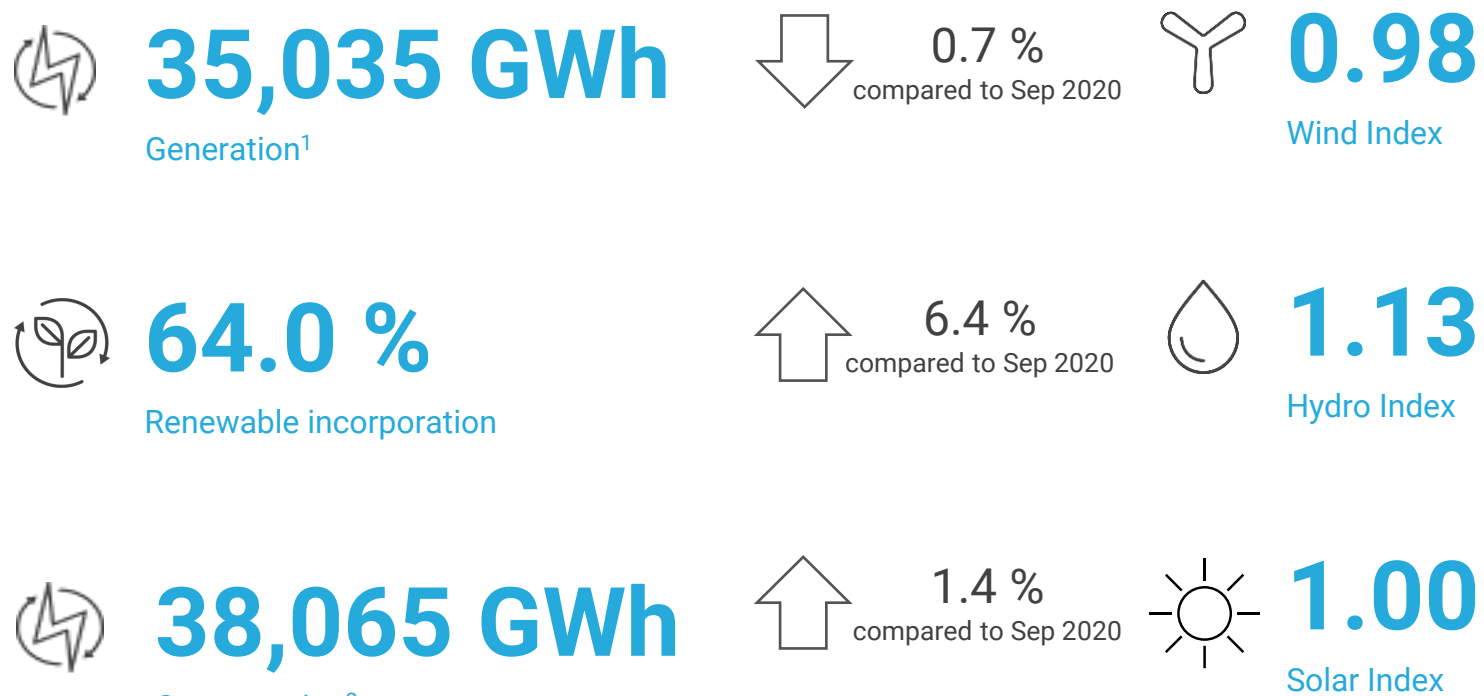
Source: REN, Analysis APREN

## Accumulated September 2020 (Jan-Sep)



Source: REN, Analysis APREN

## Main indicators



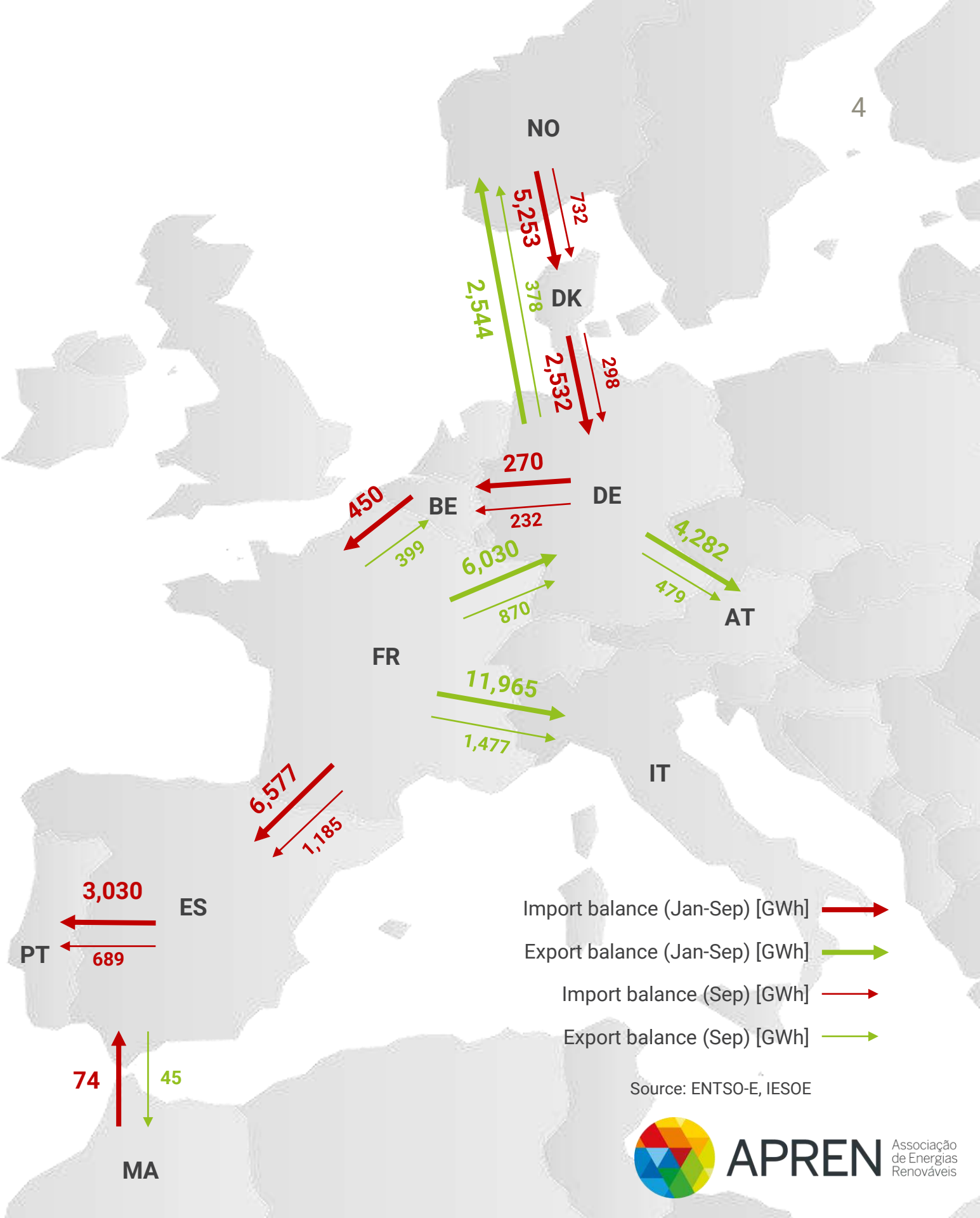
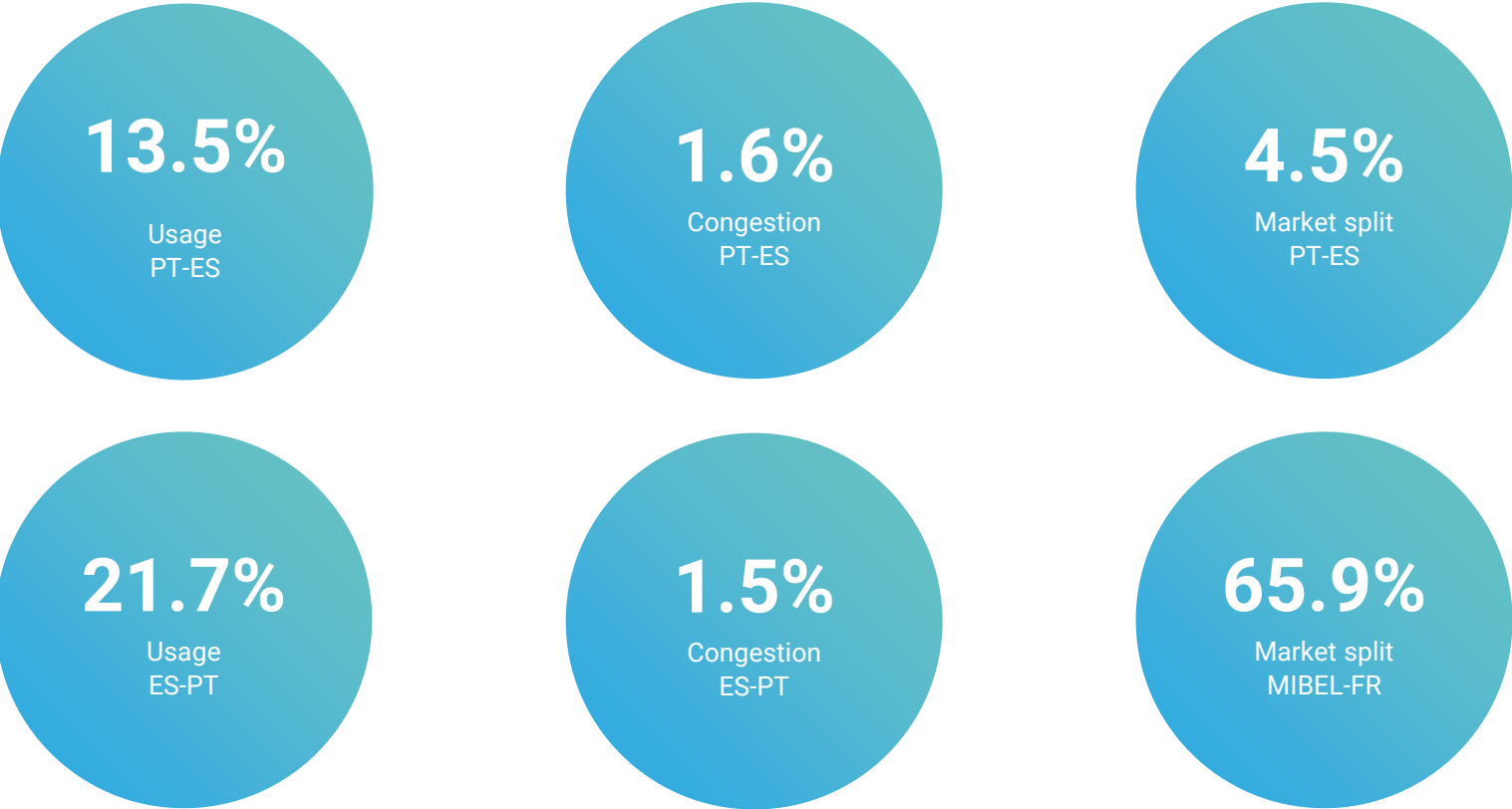
<sup>2</sup>Consumption refers to the net production of power plants, bearing in mind the import-export balance.  
Source: REN, Analysis APREN

# International Trade

Between January 1 and September 30, 2021, the electricity system of Mainland Portugal registered electricity imports equivalent to 6,401 GWh and exports of 3,371 GWh, with Portugal being an importer with a balance of 3,030 GWh.

Source: REN, Analysis APREN

## Main interconnection indicators PT-ES

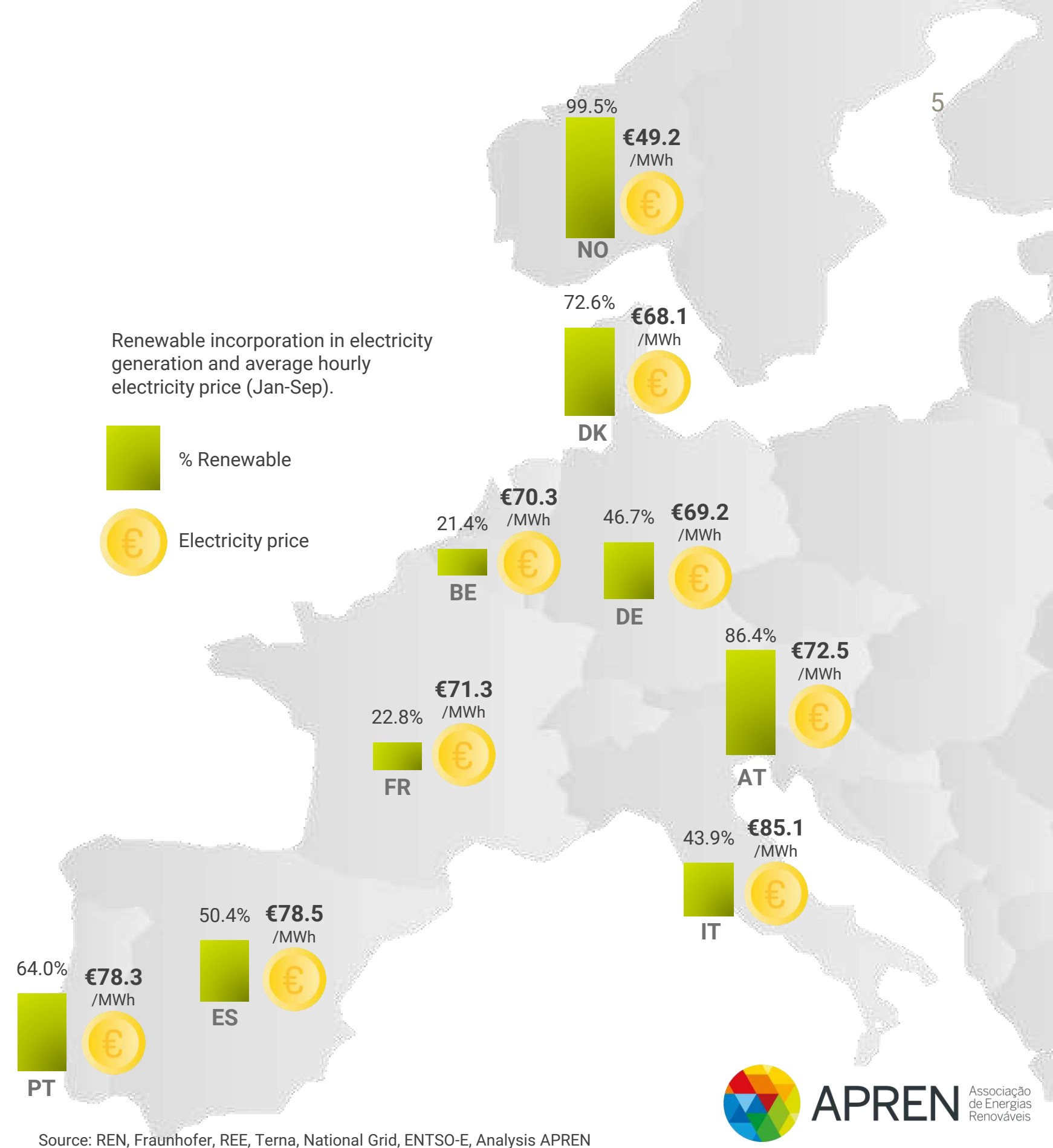


# Accumulated Electricity Market - Europe

Between January 1 and September 30, 2021, there was an hourly average price on the Iberian Electricity Market (MIBEL) in Portugal of € 78.31/MWh<sup>3</sup>. 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 CO<sub>2</sub> 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 %, 86.4 % e 72.6 %, respectively, from RES.

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

<sup>3</sup>Arithmetic average of hourly prices  
Source: ENTSO-E, OMIE, Analysis APREN



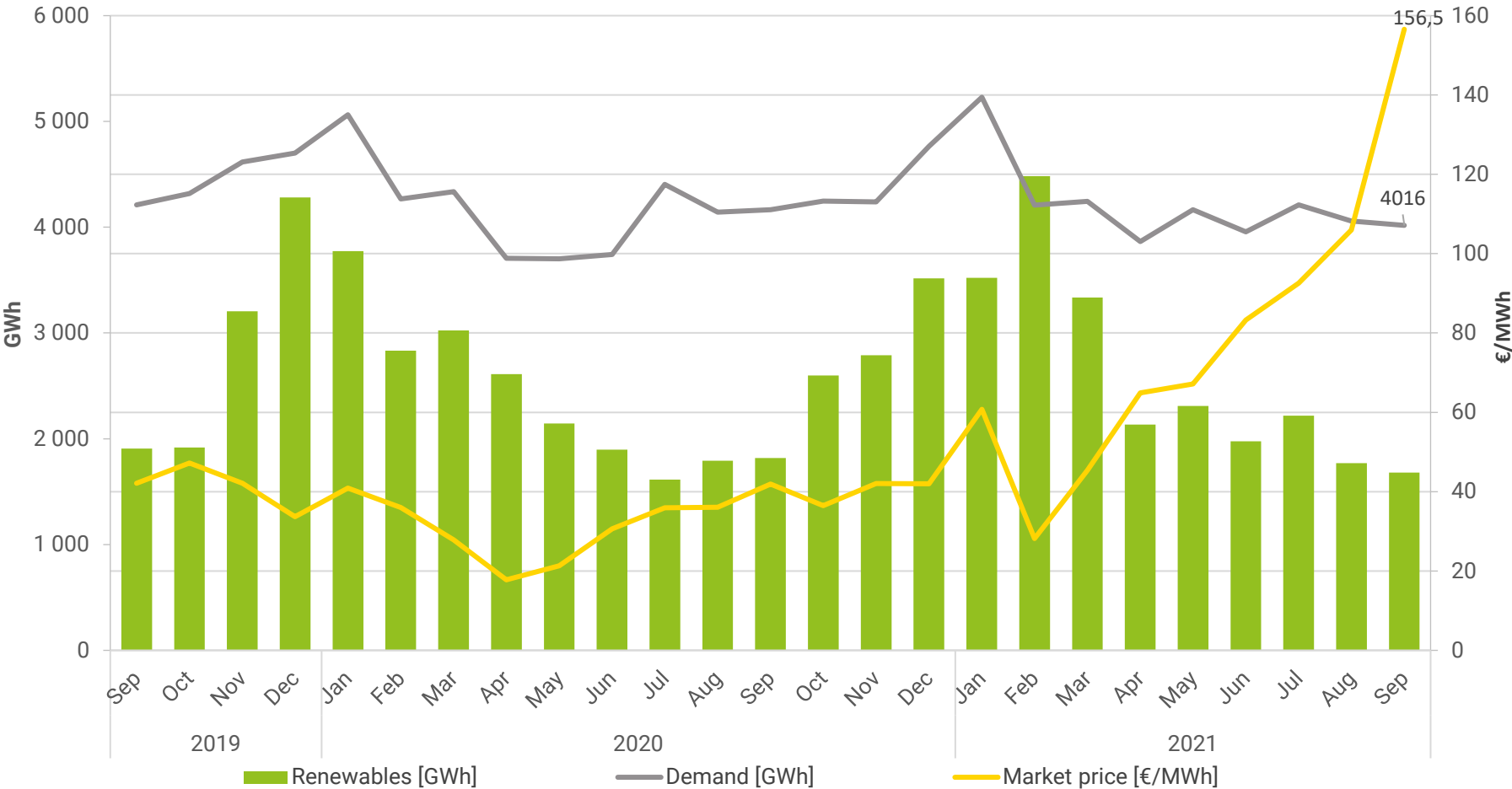


# Accumulated Electricity Market - Portugal

Between January 1 and September 30, 2021, the average hourly price registered in the MIBEL in Portugal (€ 78.31/MWh<sup>3</sup>) represents an increase of more than double compared to the same period last year.

In the same period, 1,024 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 € 36.71/MWh.

<sup>3</sup>Arithmetic average of hourly prices  
Source: OMIE, Analysis APREN



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

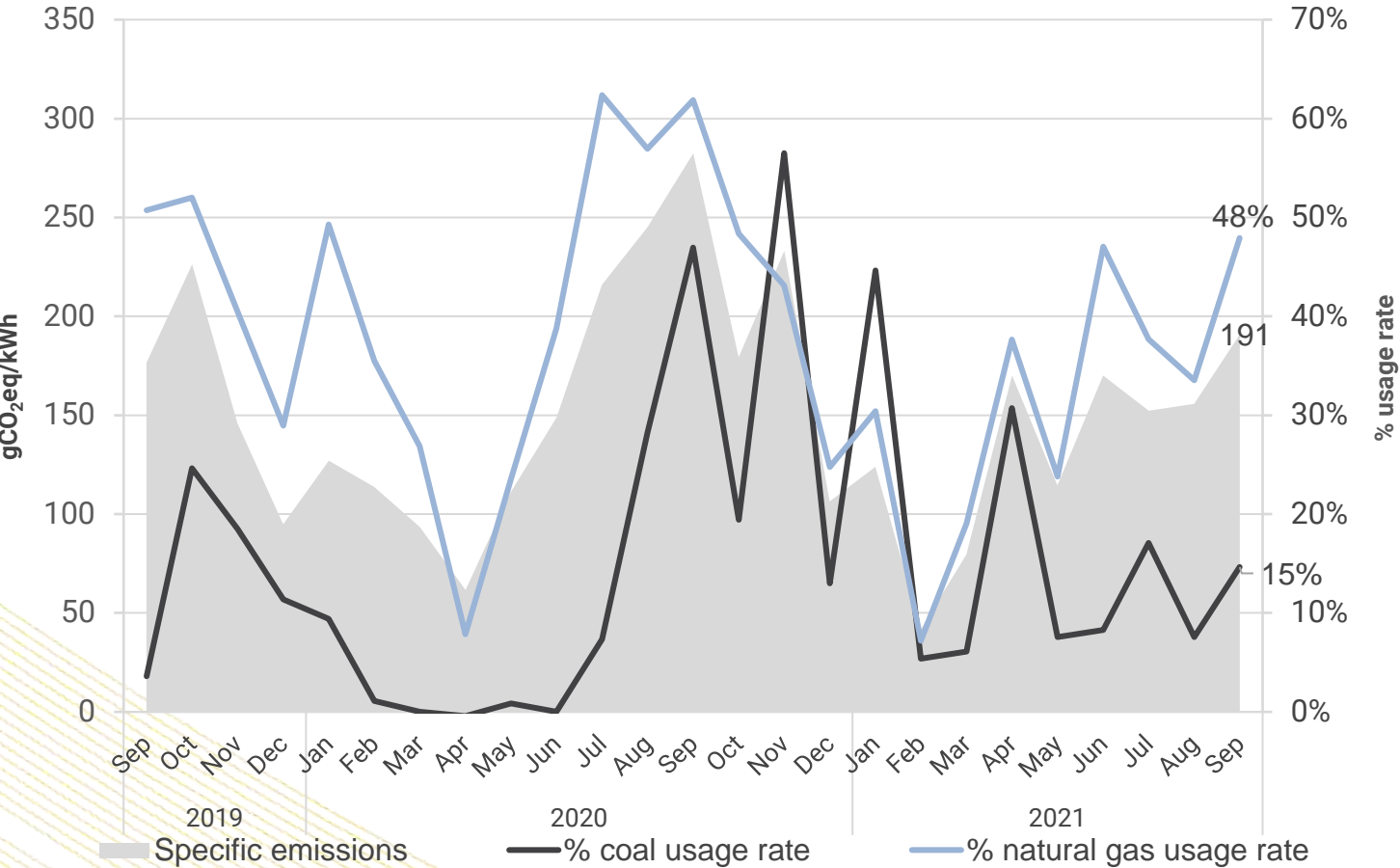


# Power Sector Emissions

Between January 1 and September 30, 2021, specific emissions reached a total of 127 gCO<sub>2</sub>eq/kWh, while the total emissions from the electricity-producing sector reached 4.5 MtCO<sub>2</sub>eq, of which 0.6 MtCO<sub>2</sub>eq correspond to the month of September.

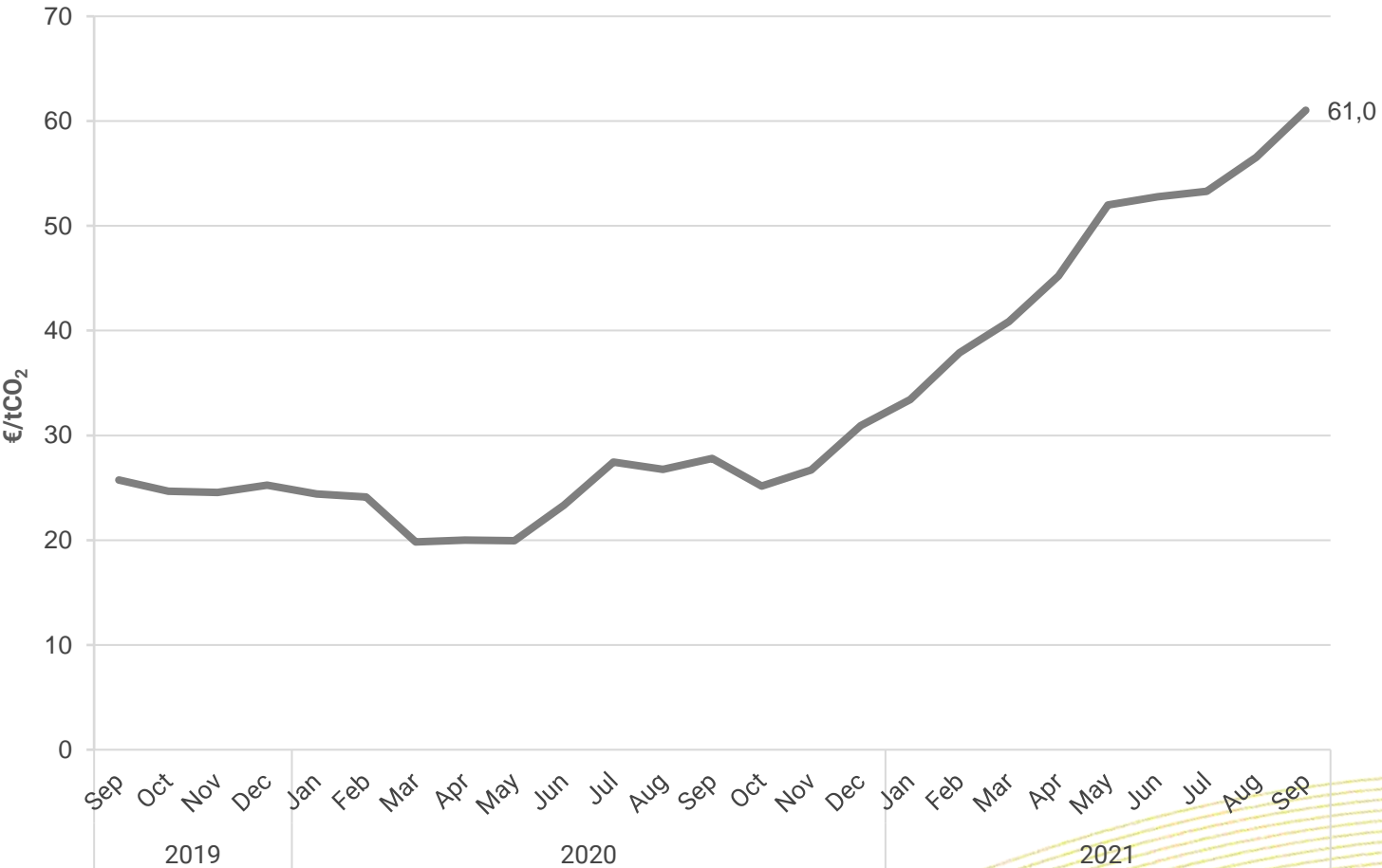
Since the beginning of the year, the European Emissions Trading System (EU-ETS) has recorded an average price of € 48.1/tCO<sub>2</sub>, which doubles the price recorded represents an increase of more than 100 % compared to the same period of 2020. This month was registered the highest average price ever (€ 61.0/tCO<sub>2</sub>).

Source: SendeCO2



Specific emissions from the electricity sector in mainland Portugal, % use of coal and natural gas power plants from Sep-2019 to Sep-2021.

Source: REN, DGEG, ERSE, Analysis APREN



CO<sub>2</sub> allowances price from Sep-2019 to Sep-2021.  
Source: SendeCO2.

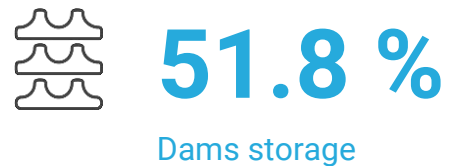
# Monthly analysis in Portugal: September

In September, the generation of renewable electricity represented 48.9 % of the total electricity generated in Mainland Portugal (3,437 GWh).

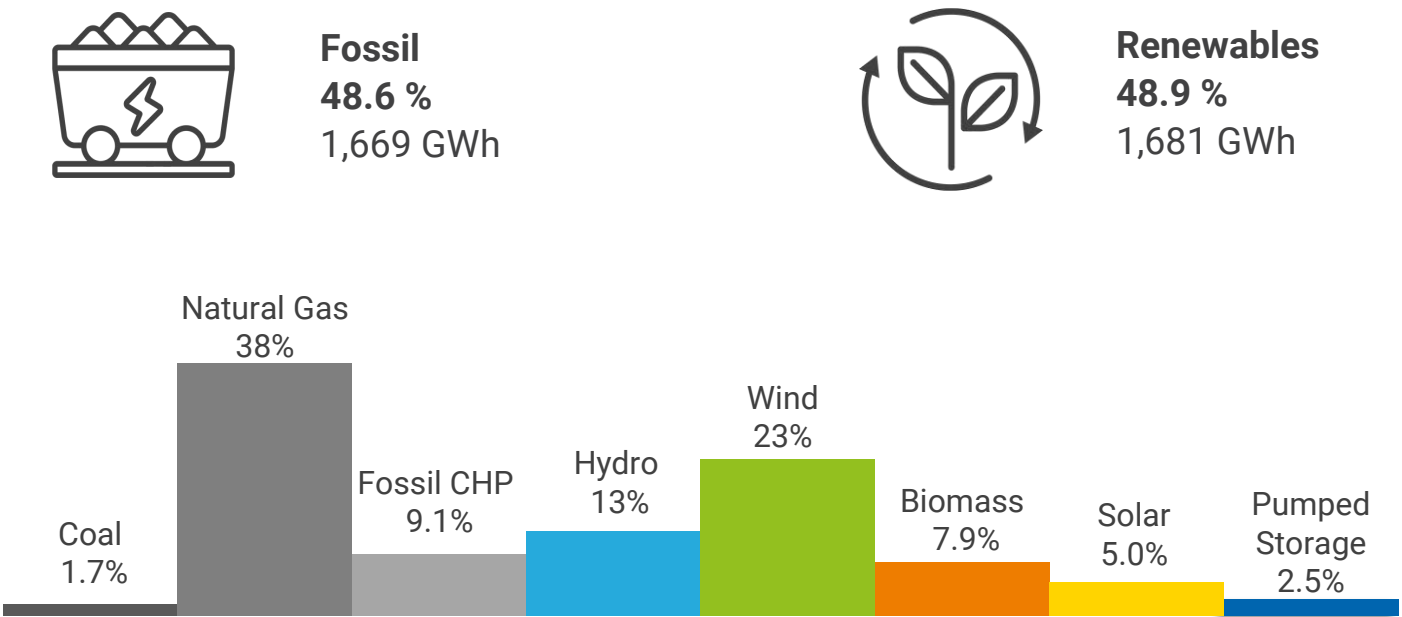
Regarding international trade in September, it should be noted that Mainland Portugal was an importer, registering a balance of 689 GWh, having reversed the export behavior verified in September 2020 (162 GWh).

Source: REN, Analysis APREN

## Electricity sector indicators



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

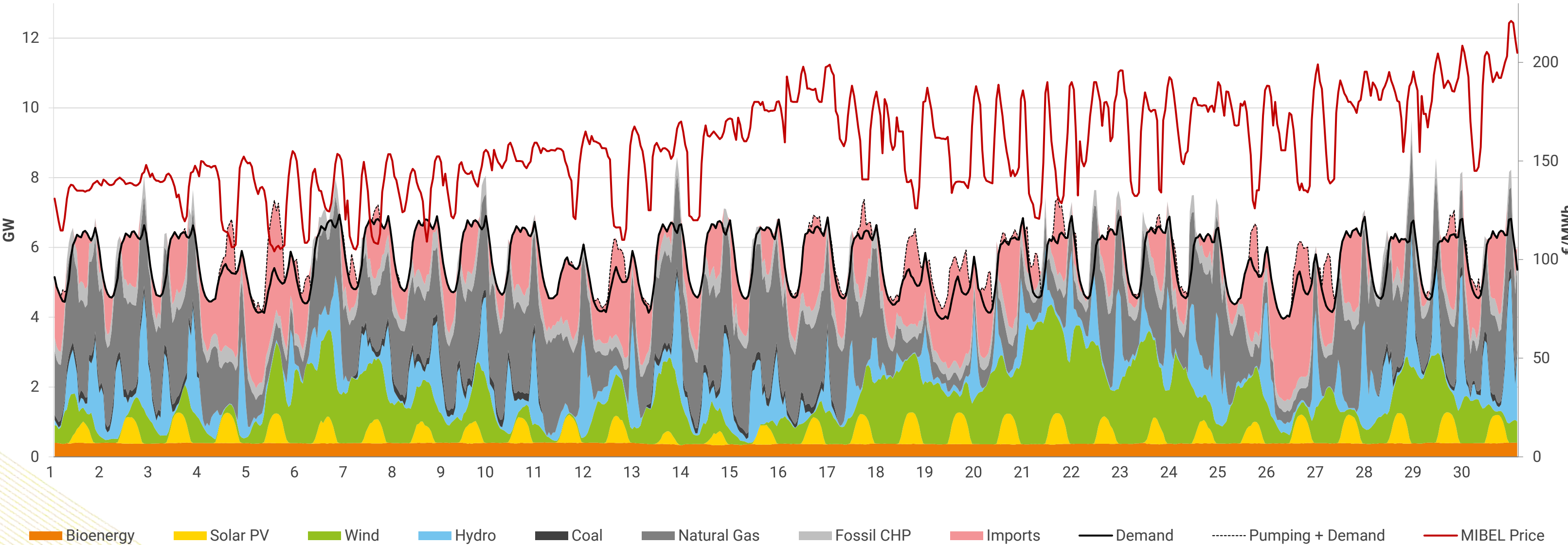


Source: REN, Analysis APREN



# Monthly analysis in Portugal: September

Load diagram from the month of September 2021



Source: REN, Analysis APREN

# Monthly Market Analysis: September

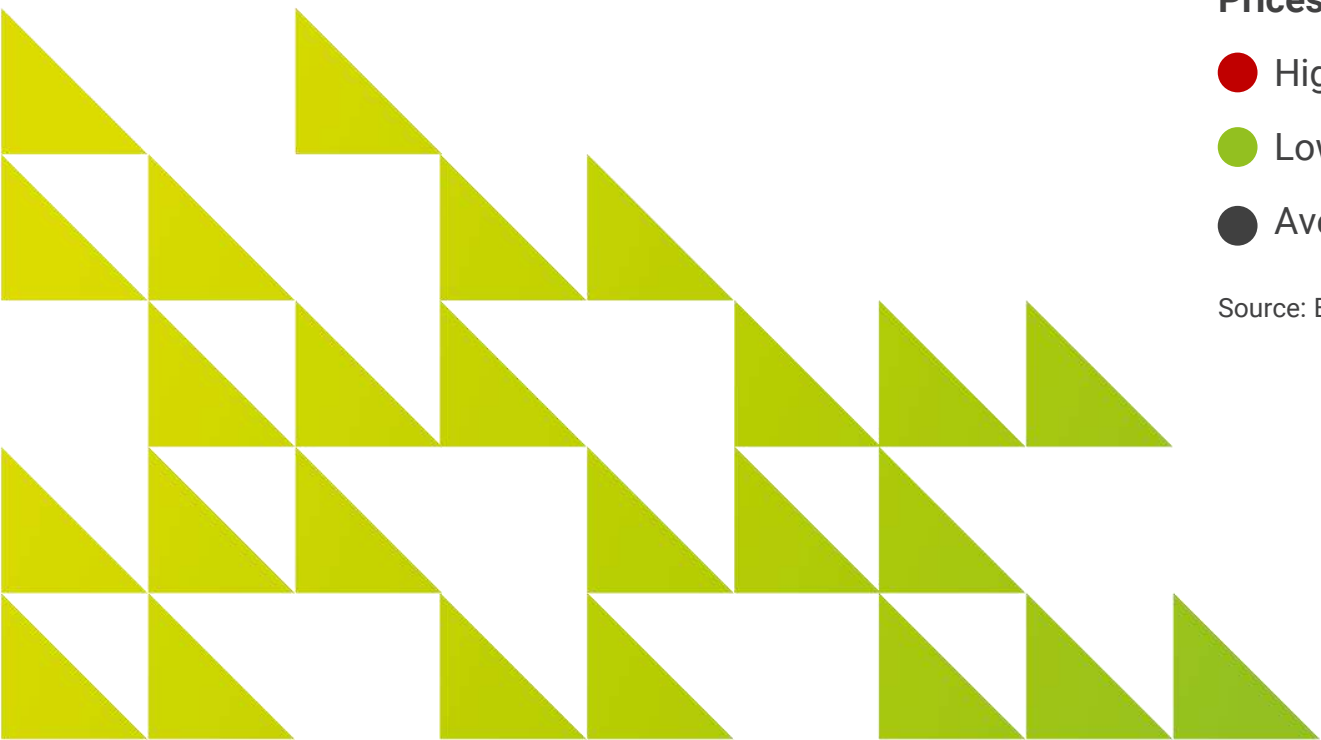
## Electricity market in Europe

During the month of September 2021, there was an hourly average price on MIBEL in Portugal of € 156.53/MWh, which represents more than triple the price verified in September 2020. In Portugal there was a minimum hourly price on the MIBEL of € 104.20/MWh.

Of the countries shown on the right, the lowest price verified was € 0.08/MWh in Germany, in Germany, being the only country with a minimum value below the tens. The highest hourly maximum price was recorded in Italy, reaching € 256.29/MWh.

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

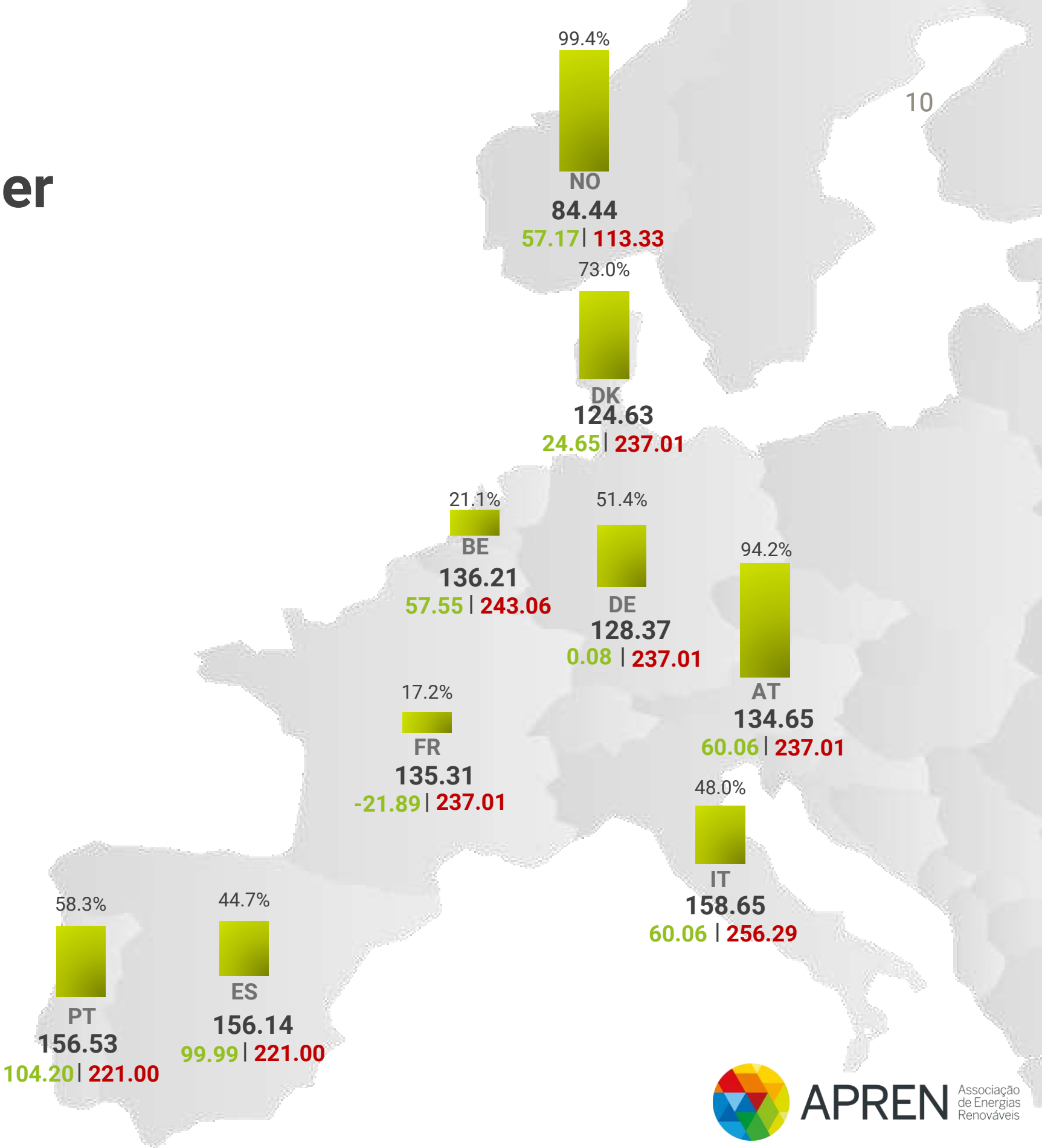
Source: ENTSO-E, IESOE, Analysis APREN



### Prices in €/MWh

- Highest
- Lowest
- Average

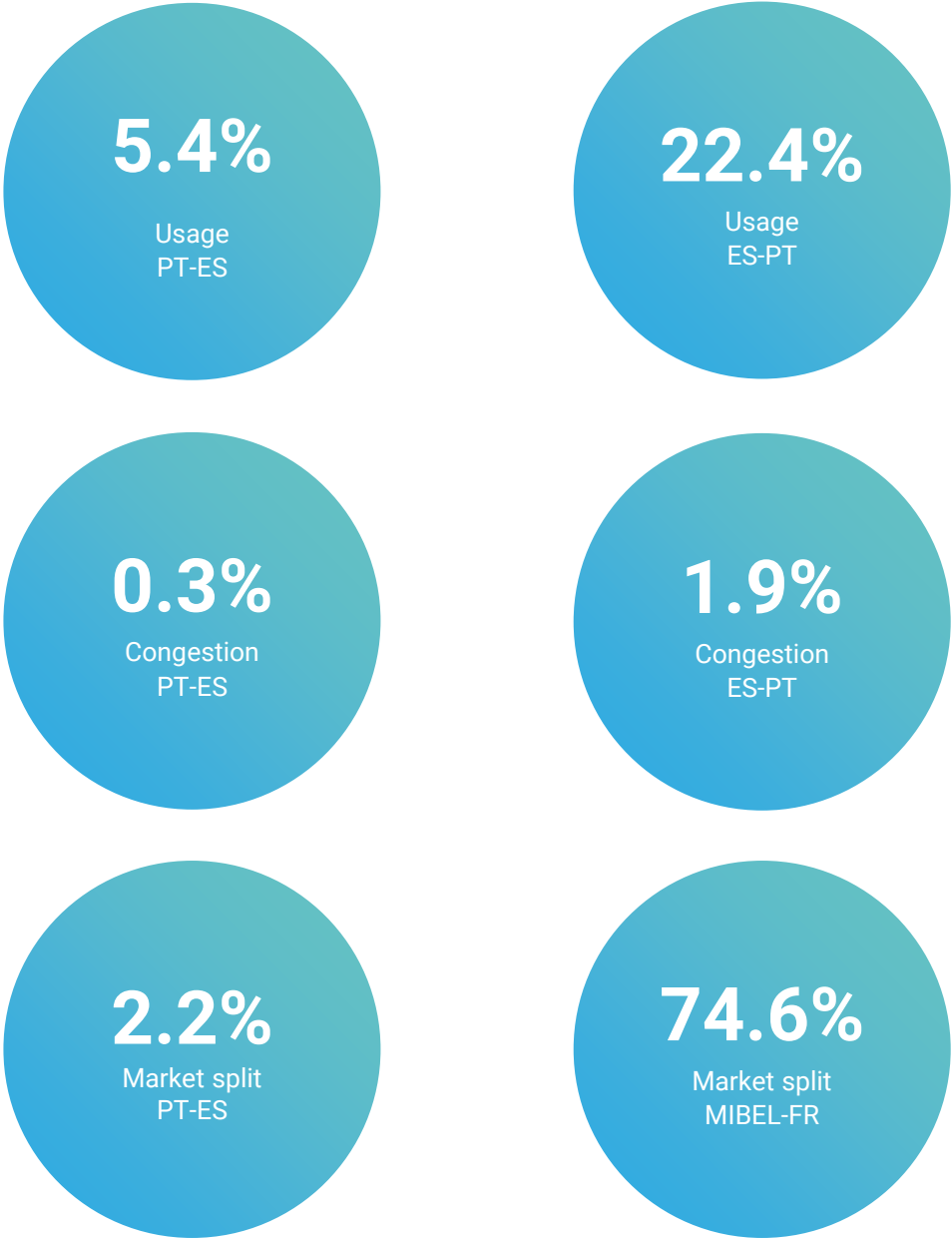
Source: ENTSO-E, IESOE





# Monthly market analysis: September

Electricity market in Portugal





# Environmental Service

The indicators below identify the savings achieved between January 1 and September 30, 2021, in fossil fuels, CO<sub>2</sub> emissions and CO<sub>2</sub> 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 ...

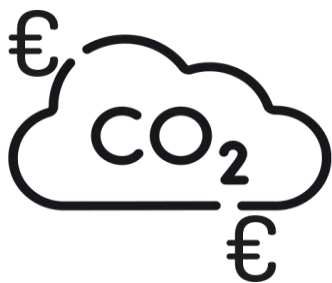


**€1,014 M**

Imported fossil fuels (Jan-Sep)

**€189 M**

Imported fossil fuels (Sep)

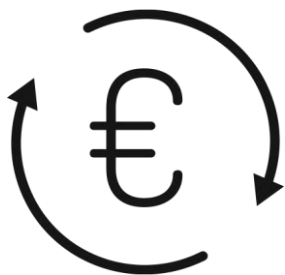


**9.1 MtCO<sub>2</sub>eq**

CO<sub>2</sub> emissions (Jan-Sep)

**0.8 MtCO<sub>2</sub>eq**

CO<sub>2</sub> emissions (Sep)



**€209 M**

Imported electricity (Jan-Sep)

**€0 M**

Imported electricity (Sep)



**€398 M**

CO<sub>2</sub> allowances (Jan-Sep)

**€49 M**

CO<sub>2</sub> allowances (Sep)

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

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

## Clean Energy Infrastructure Projects

On September 7, the European Commission (EC) launched a [call](#) for proposals for the main EU cross-border energy infrastructure projects included in the 4<sup>th</sup> EU list of projects of common interest (IPCEI), to be co-financed through grants worth €785 million.

On September 22, the EC launched a [new call](#) for proposals under the Connecting Europe Facility (CEF) programme for Energy, making available €1 million to support preparatory studies for projects before they are included in the Union list of cross-border renewable energy projects.

## Energy Price Spikes

On September 20, the EU [announced](#) that it will come up with a “toolbox” of measures for EU countries to tackle energy price spikes without breaching energy market rules, and to protect consumers against sharp rises in the electricity bills.

## Energy Efficiency

On September 28, the EC published published a [new recommendation and guidelines](#) on the energy efficiency first principle with a view to converting the concept from a principle into practice.

## TEN-E Regulation

On September 28, lawmakers in the European Parliament [voted](#) to remove support for fossil gas in EU funding rules for cross-border energy infrastructure known as the TEN-E regulation.



# National Policy and Regulation

## Prior registration of SPU

On September 16, the [Dispatch No. 25/DG/2021](#) was published, with amendments to the prior registration of installations producing electricity from renewable energy sources up to 1 MW and intended for the total sale of energy to the grid (small production units - SPU).

## Pego Capacity Auction 2021

It was published, on September 17, the [Dispatch No. 9241-B/2021](#), which determines that REN, as global manager of the national electricity system (NES), will implement a pilot model for the dynamic management of the national electricity transmission network (RNT) at the injection point currently occupied by the Pego coal-fired power plant.

On September 17, the [Dispatch No. 9241-C/2021](#) was also published, which determines the opening of the competitive procedure for allocation of injection capacity reserve in the Public Service Electricity Network (PSEN) of electricity produced exclusively from renewable energy sources in a power plant with or without integrated storage, currently occupied by the Pego coal-fired power plant.

On October 1, a [Clarification](#) was published by the Jury of the Competition Procedure with answers to the questions raised regarding the parts of the Procedure.



# National Policy and Regulation

## Energy Tariff

On the 28<sup>th</sup> of September, the Energy Services Regulatory Entity (ERSE) published the [Directive No. 15/2021](#), which updates the electricity sector's energy tariff, in light of the evolution of the wholesale electricity market.

## EU-ETS

On September 28, the [Ordinance No. 203/2021](#) was published, which establishes an aid measure for indirect costs in favor of installations covered by the European Emissions Trading System (EU-ETS), under the terms of Decree-Law No. 12/2020, of April 6.

## European Barometer



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## National Barometer



### Budget for the Environmental Fund

Dispatch No. 8068/2021 was published, amending Dispatch No. 1897/2021, of 15 February, which approves the budget of the Environmental Fund for the year 2021.



### Pego Capacity Auction 2021

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### Remuneration to wind power plants

Dispatch No. 6304/2021 was published, which regularizes the compensation made between 2013 and 2020 and the remuneration owed to wind power plants covered by Decree-Law No. 35/2013.



### Hybrid plants

Dispatch No. 13/DG/2021 was published by DGEG, which establishes the technical rules for the implementation of hybrid plants associated with photovoltaic solar plants arising from competitive procedures.



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