

May

# BULLETIN

2021

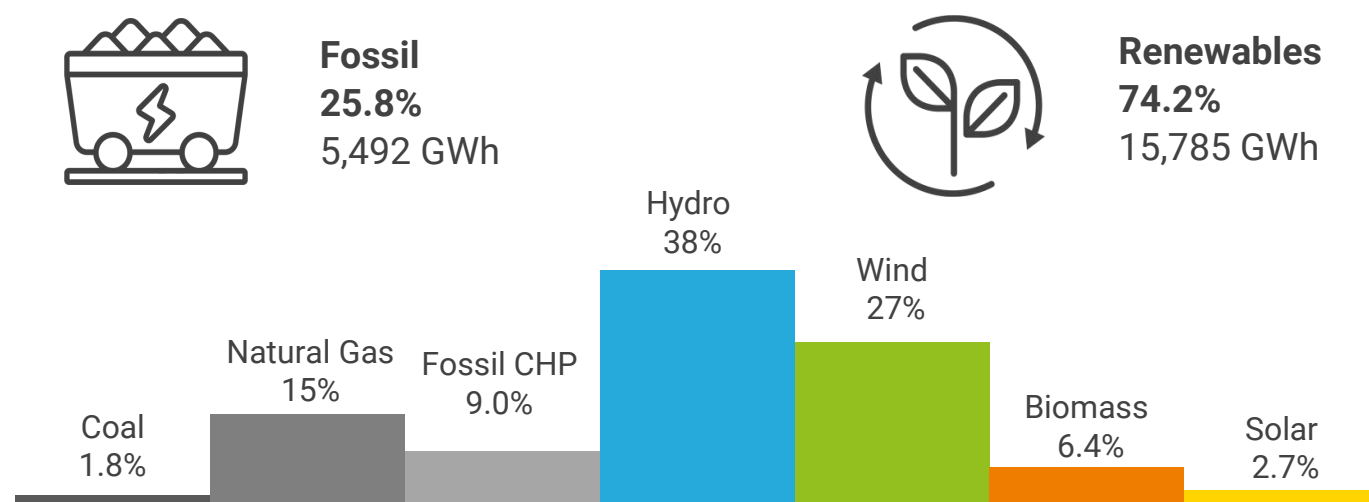
Renewable Electricity



APREN Associação de Energias Renováveis

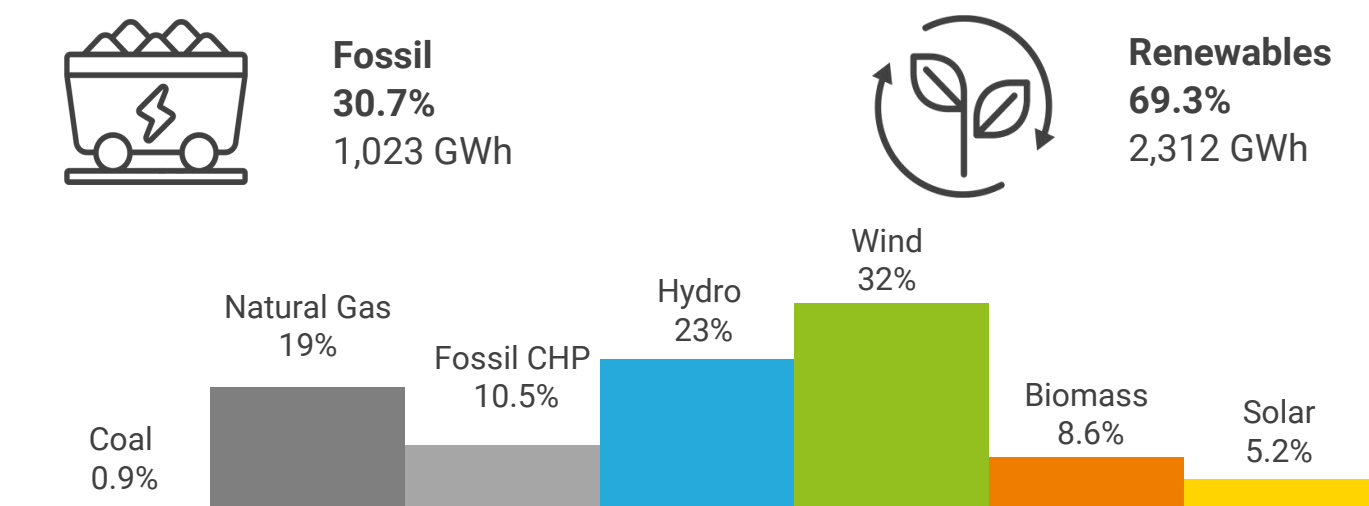
# Executive summary

## Accumulated May 2021 (Jan-May)



Source: REN, Analysis APREN

## May 2021



Source: REN, Analysis APREN

## Electricity sector indicators (accumulated Jan-May)

**21,277 GWh**  
Generation

**€41.9/tCO<sub>2</sub>**  
CO<sub>2</sub> Price

**€53.3/MWh**  
Price MIBEL PT

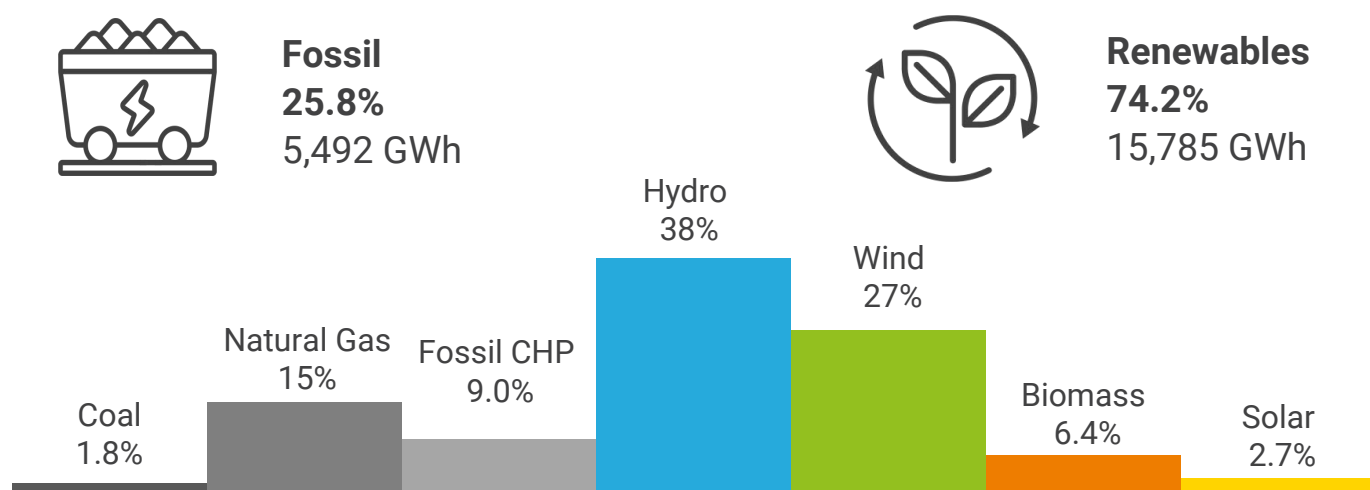
**2.2 MtCO<sub>2</sub>eq**  
CO<sub>2</sub> Emissions

**434 GWh**  
Import balance

**102 gCO<sub>2</sub>eq/kWh**  
CO<sub>2</sub> Specific emissions

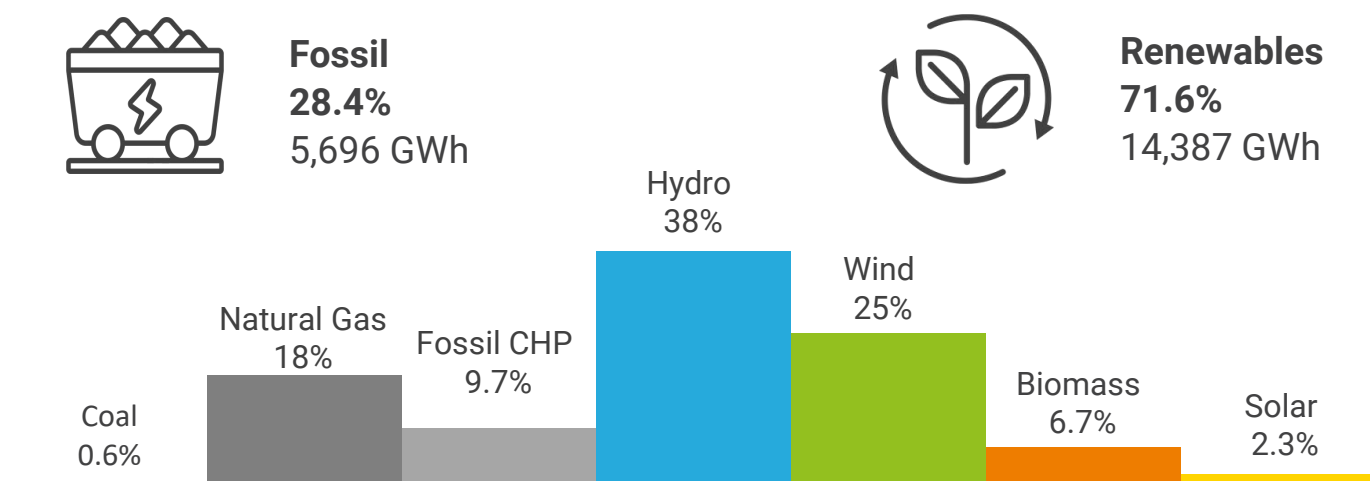
# Electricity Generation: Mainland Portugal

## Accumulated May 2021 (Jan-May)



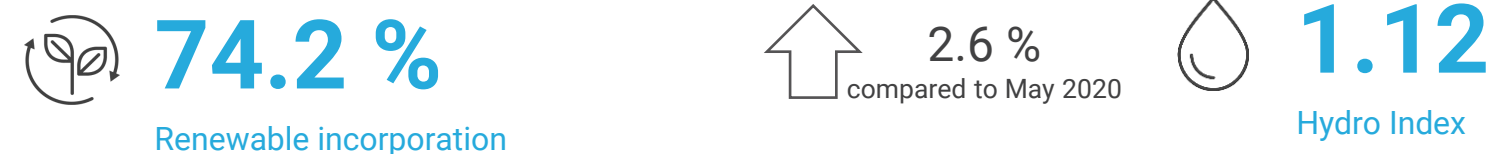
Source: REN, Analysis APREN

## Accumulated May 2020 (Jan-May)



Source: REN, Analysis APREN

## Main indicators



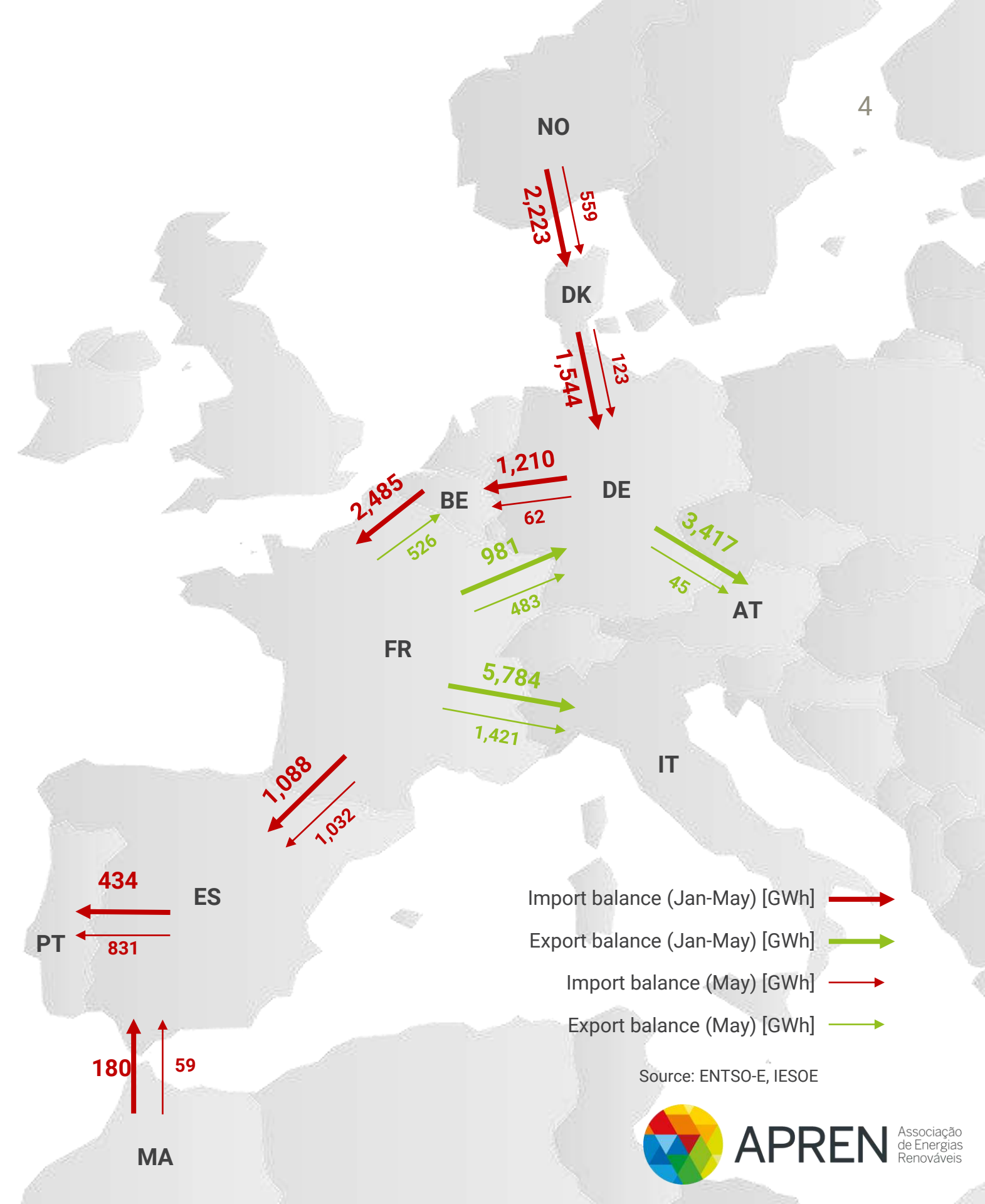
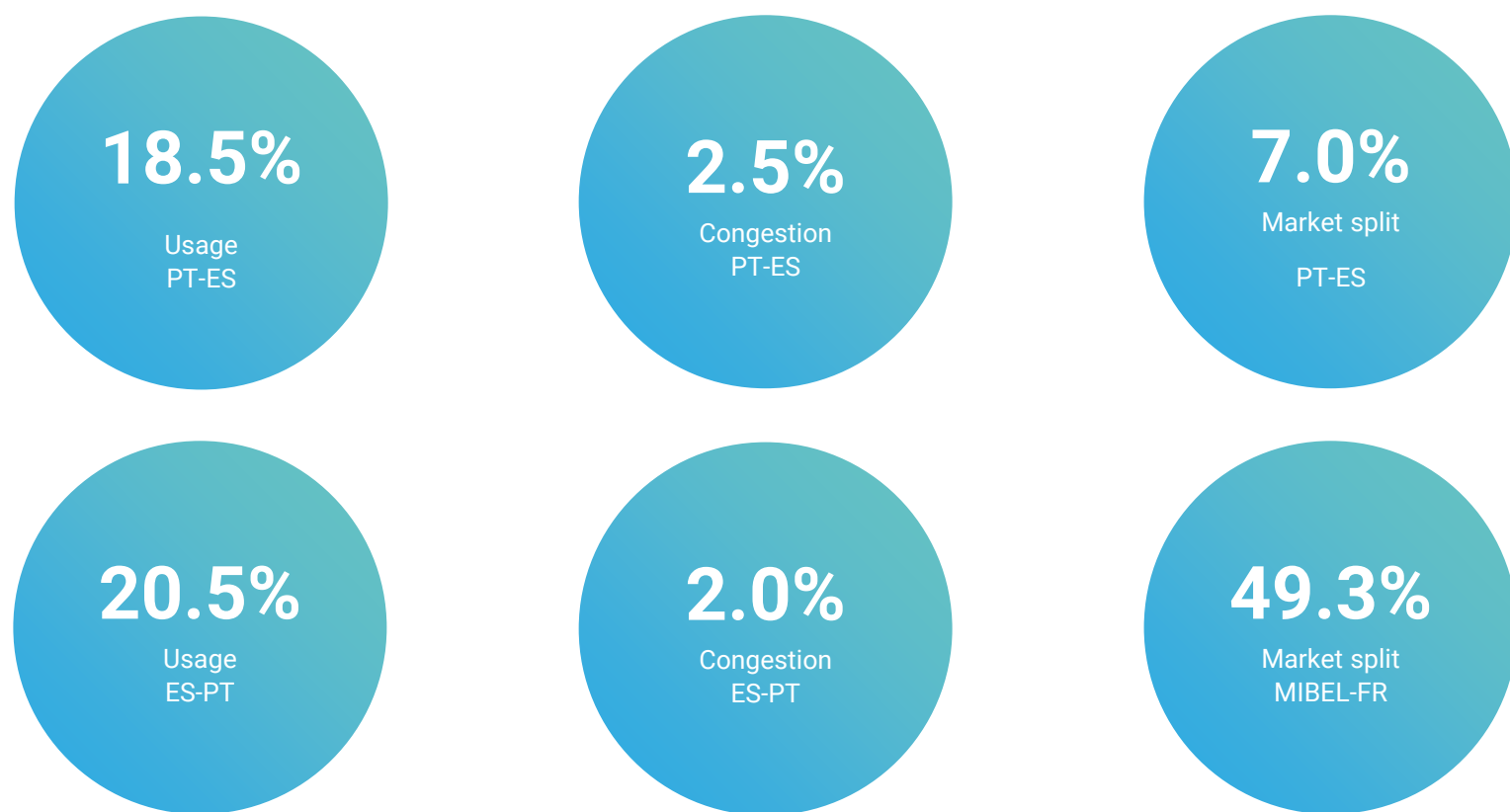
<sup>1</sup>Consumption refers to the net power generation of energy from power plants, bearing in mind the import-export balance.  
Source: REN, Analysis APREN

# International Trade

Between January 1 and May 31, 2021, the electricity system of Mainland Portugal registered electricity imports equivalent to 3,028 GWh and exports of 2,594 GWh, with Portugal being an importer with a balance of 434 GWh.

Source: REN, Analysis APREN

## Main interconnection indicators PT-ES



Source: ENTSO-E, IESOE

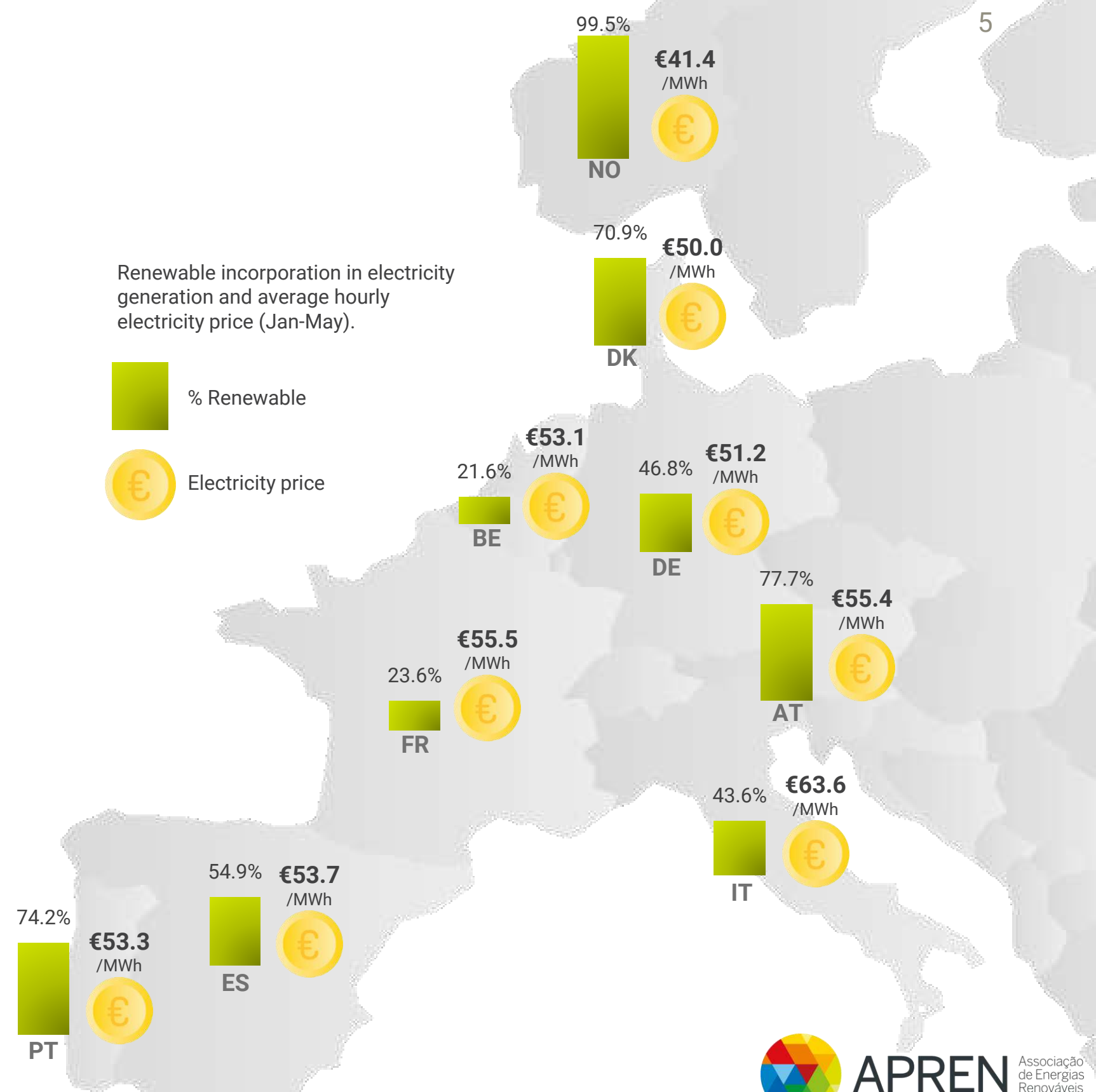
# Accumulated Electricity Market - Europe

Between January 1 and May 31, 2021, there was an hourly average price on the Iberian Electricity Market (MIBEL) in Portugal of €53.28/MWh<sup>2</sup>, as a result of the high renewable incorporation, being the fourth lowest price, comparatively to the other countries shown on the right. Portugal was the second country with the largest renewable incorporation in electricity generation, behind Norway which obtained 99.5% from RES.

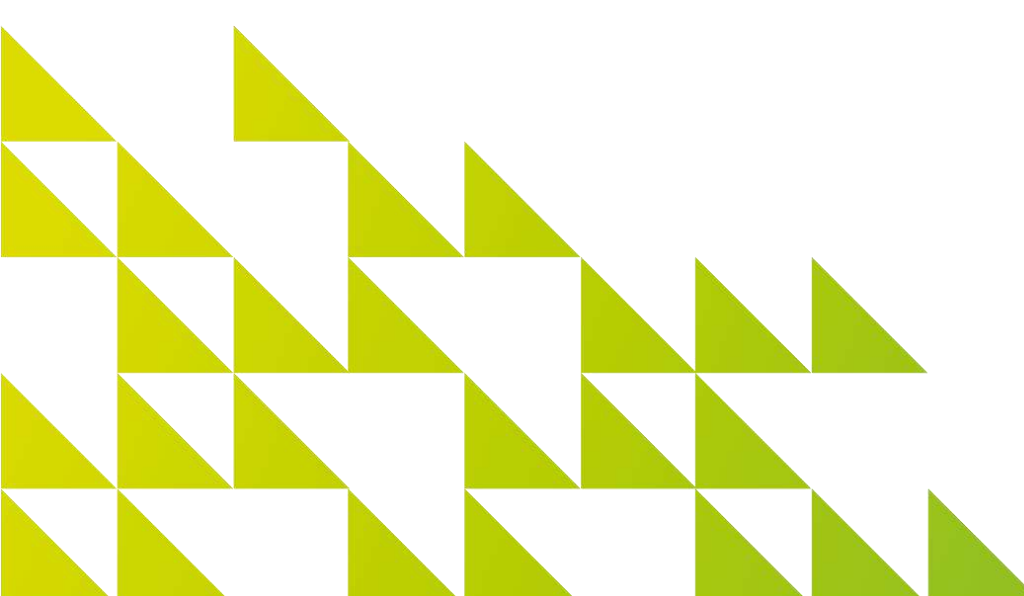
This analysis only took into account the main European markets, in order to have a representative panorama of comparison.

<sup>2</sup>Arithmetic average of hourly prices

Source: ENTSO-E, OMIE, Analysis APREN



Source: REN, Fraunhofer, REE, Terna, National Grid, ENTSO-E, Analysis APREN

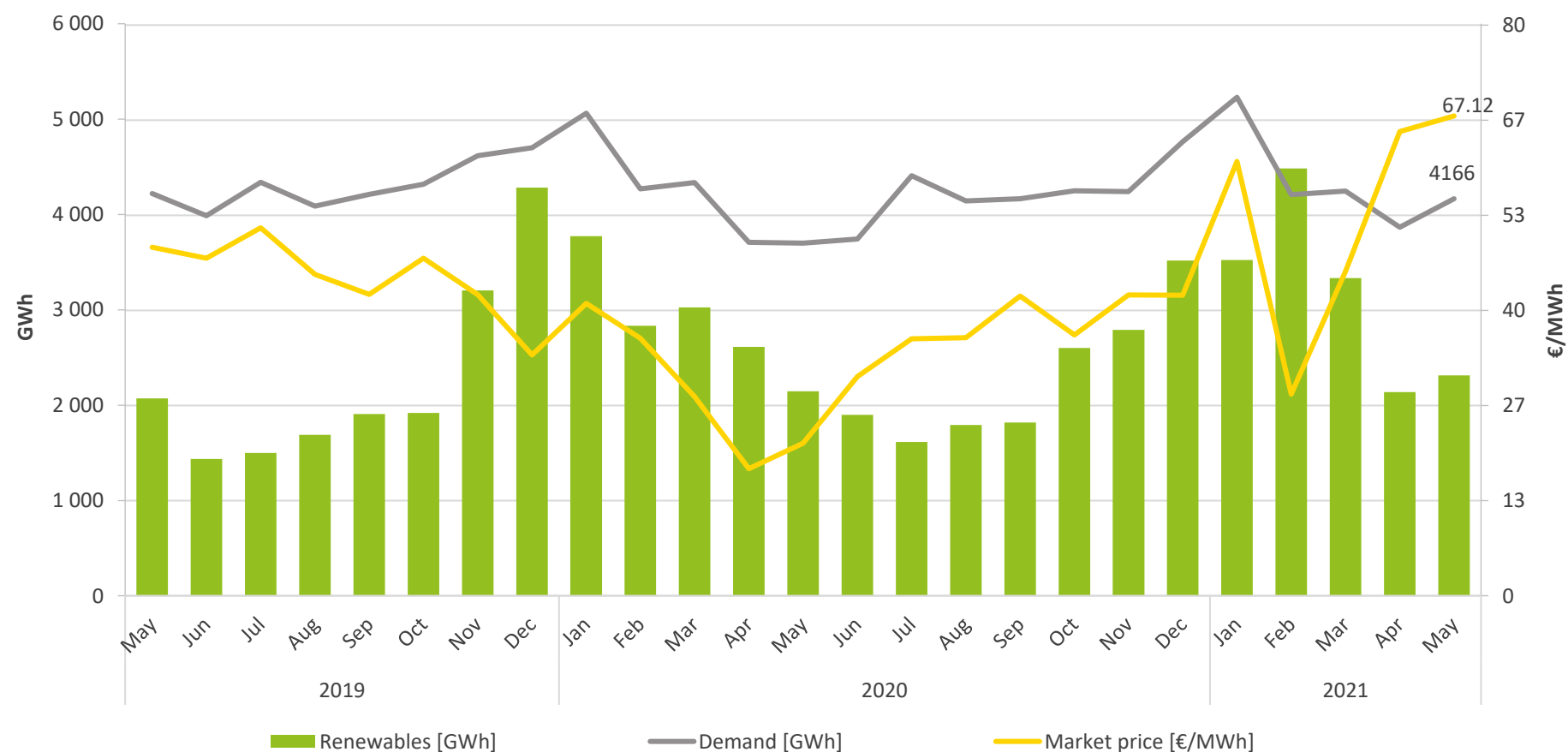


# Accumulated Electricity Market - Portugal

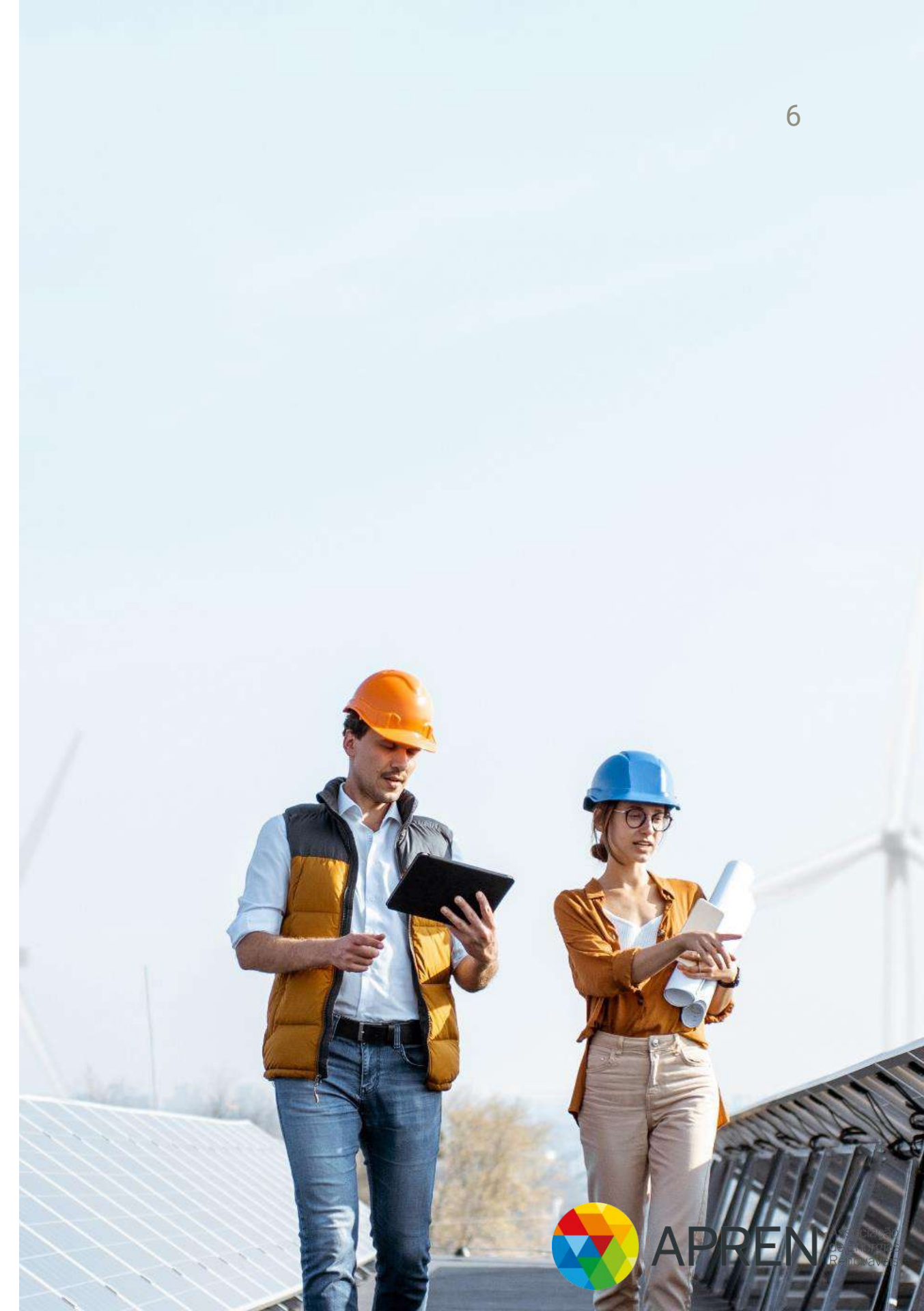
Between 1 January and 31 May 2021, the average hourly price recorded on the MIBEL in Portugal (€53.28/MWh<sup>2</sup>) represents an increase of 85.1 % compared to the same period last year.

In the same period, 996 non-consecutive hours were recorded in which renewable generation was sufficient to supply the electricity consumption of Mainland Portugal, with an average hourly price on MIBEL of €34.74/MWh.

<sup>2</sup> Arithmetic average of hourly prices  
Source: OMIE, Analysis APREN



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

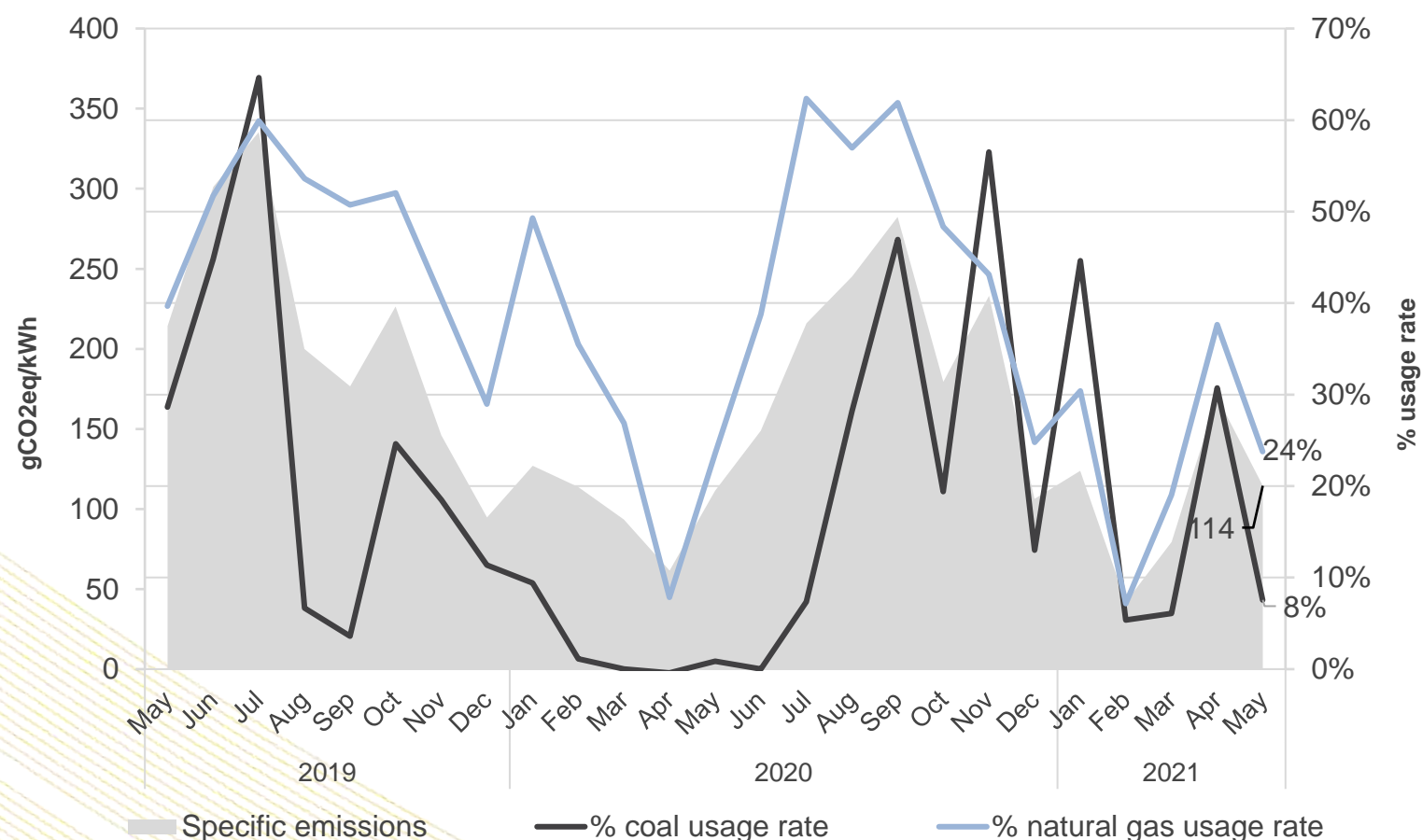


# Power sector emissions

Between January 1 and May 31, 2021, specific emissions reached a total of 102 gCO<sub>2</sub>eq/kWh, while total emissions from the power generation sector reached 2.2 MtCO<sub>2</sub>eq, of which 0.4 MtCO<sub>2</sub>eq correspond to the month of May.

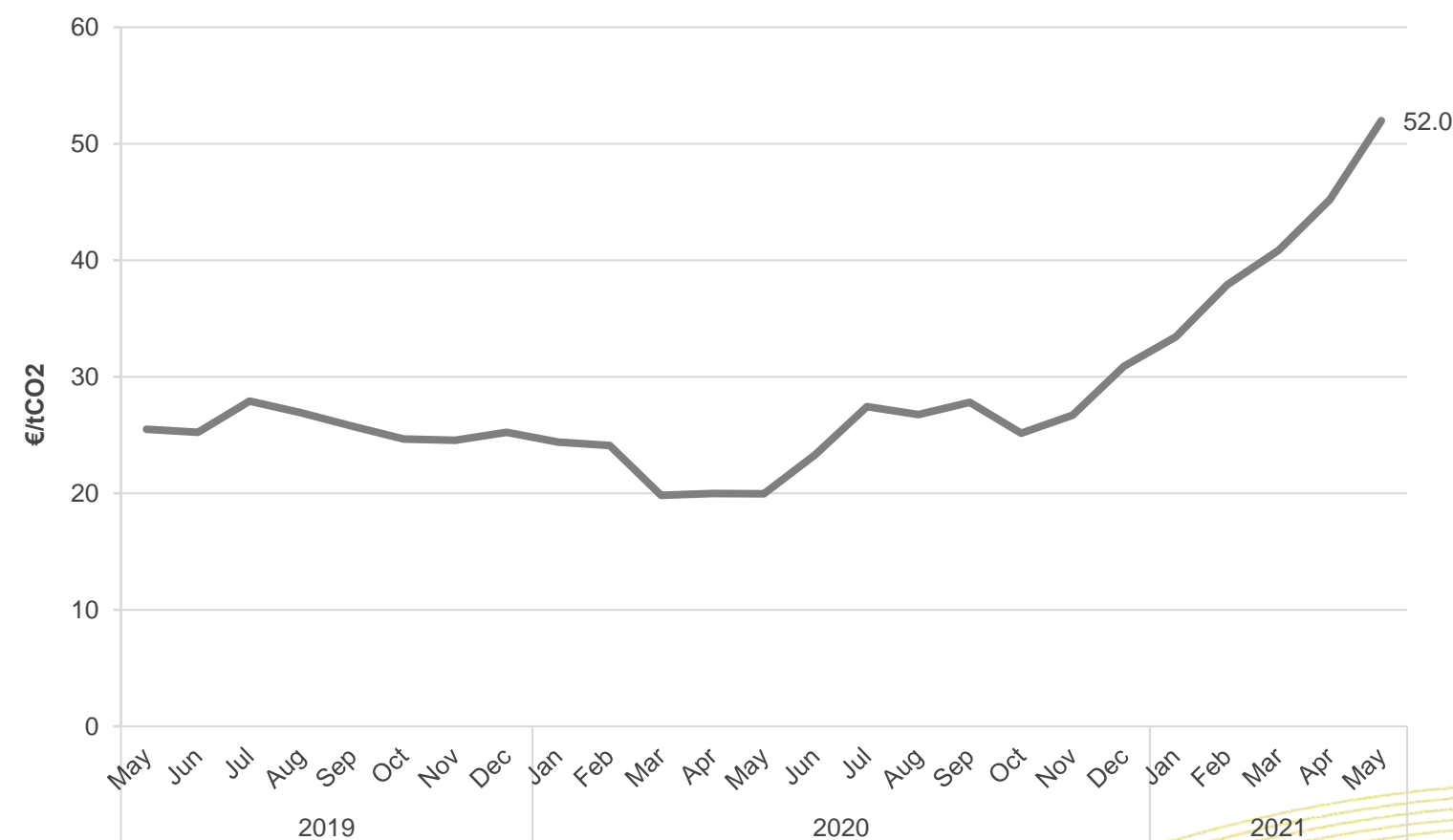
Since the beginning of the year, the European Emissions Trading System (EU-ETS) has recorded an average price of 41.9 €/tCO<sub>2</sub> which represents an increase of 93 % compared to the same period of 2020. This month was registered the highest average price ever (€51.99/tCO<sub>2</sub>), close to triple the price of May 2020.

Source: SendeCO2



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

Source: REN, DGEG, ERSE, Analysis APREN



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

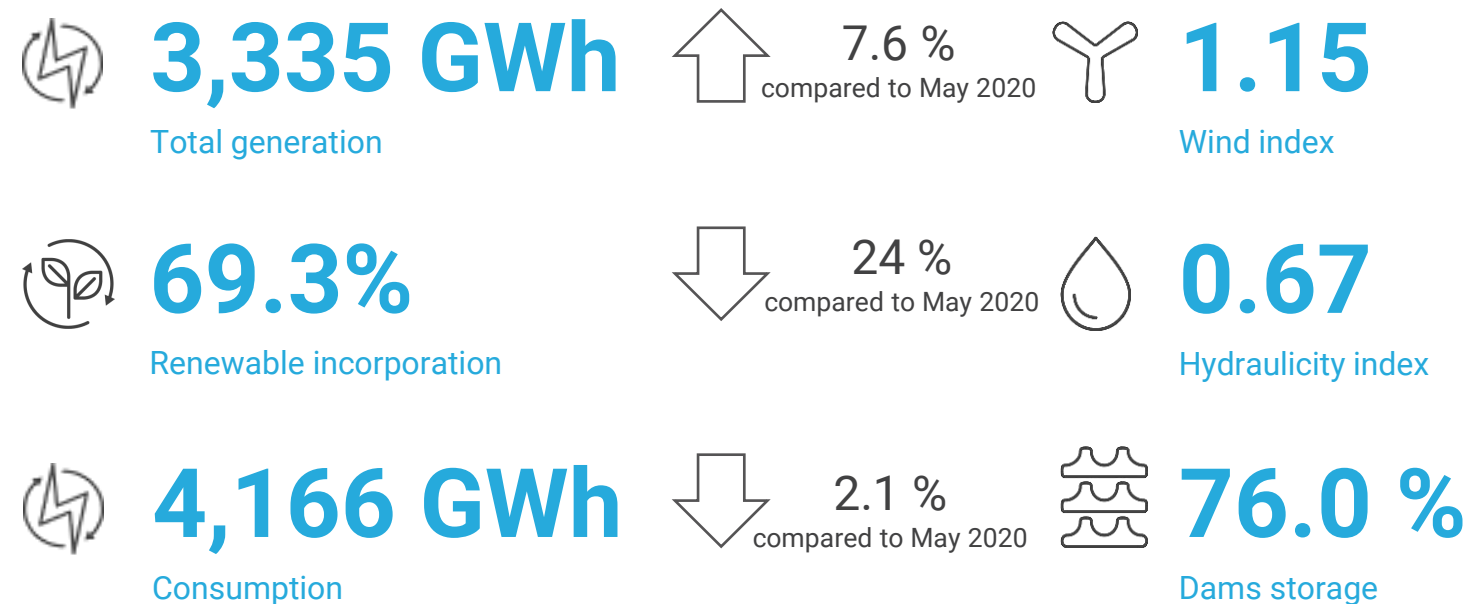
# Monthly analysis in Portugal: May

In May, the generation of renewable electricity represented 69.3% of the total electricity generated in Mainland Portugal (3,335 GWh). May registered a total of 51 non-consecutive hours in which renewable generation was sufficient to supply the electricity consumption of mainland Portugal, with an average hourly price on MIBEL of €64.96/MWh. It should be noted that the production of photovoltaic solar electricity this month reached an all-time high of 172 GWh.

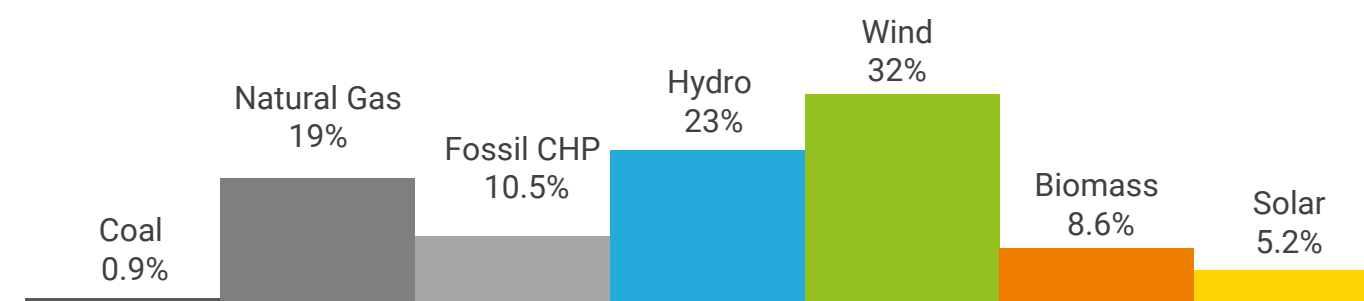
Regarding international trade in May, it should be noted that Mainland Portugal was an importer, registering a balance of 831 GWh, a significant increase compared to the import balance recorded in May 2020 (600 GWh).

Source: REN, Analysis APREN

## Electricity sector indicators



Source: REN, Analysis APREN

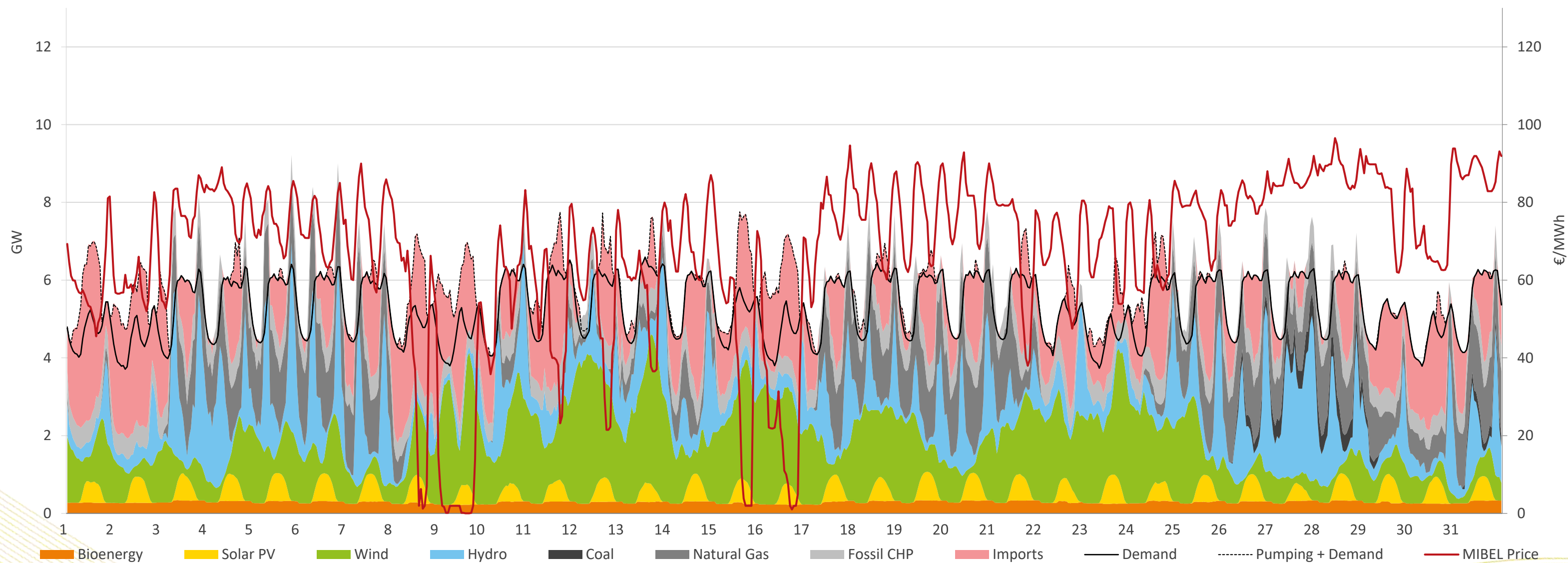


Source: REN, Analysis APREN



# Monthly analysis in Portugal: May

## Load diagram from May 2021



Source: REN, Analysis APREN

# Monthly Market Analysis: May

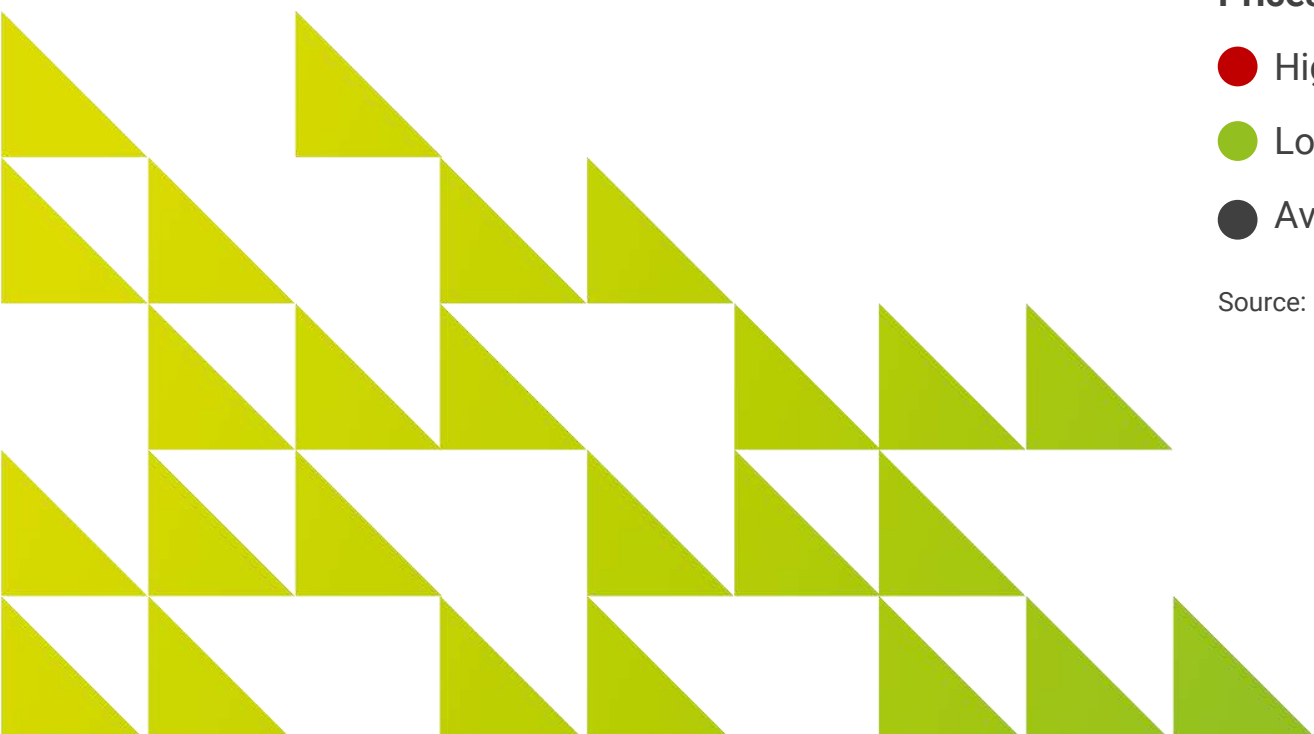
## Electricity market in Europe

During the month of May 2021, there was an hourly average price on MIBEL in Portugal of €67.12/MWh, which represents more than triple the price recorded in May 2020. In Portugal and Spain there was a minimum hourly price on MIBEL of €0.01/MWh.

Of the countries shown on the right, the lowest price registered was €-69.00/MWh in Germany, while Belgium, Austria, Denmark and France also had negative minimum hourly prices. The highest hourly price was recorded in Denmark and Germany, reaching €101.82/MWh.

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

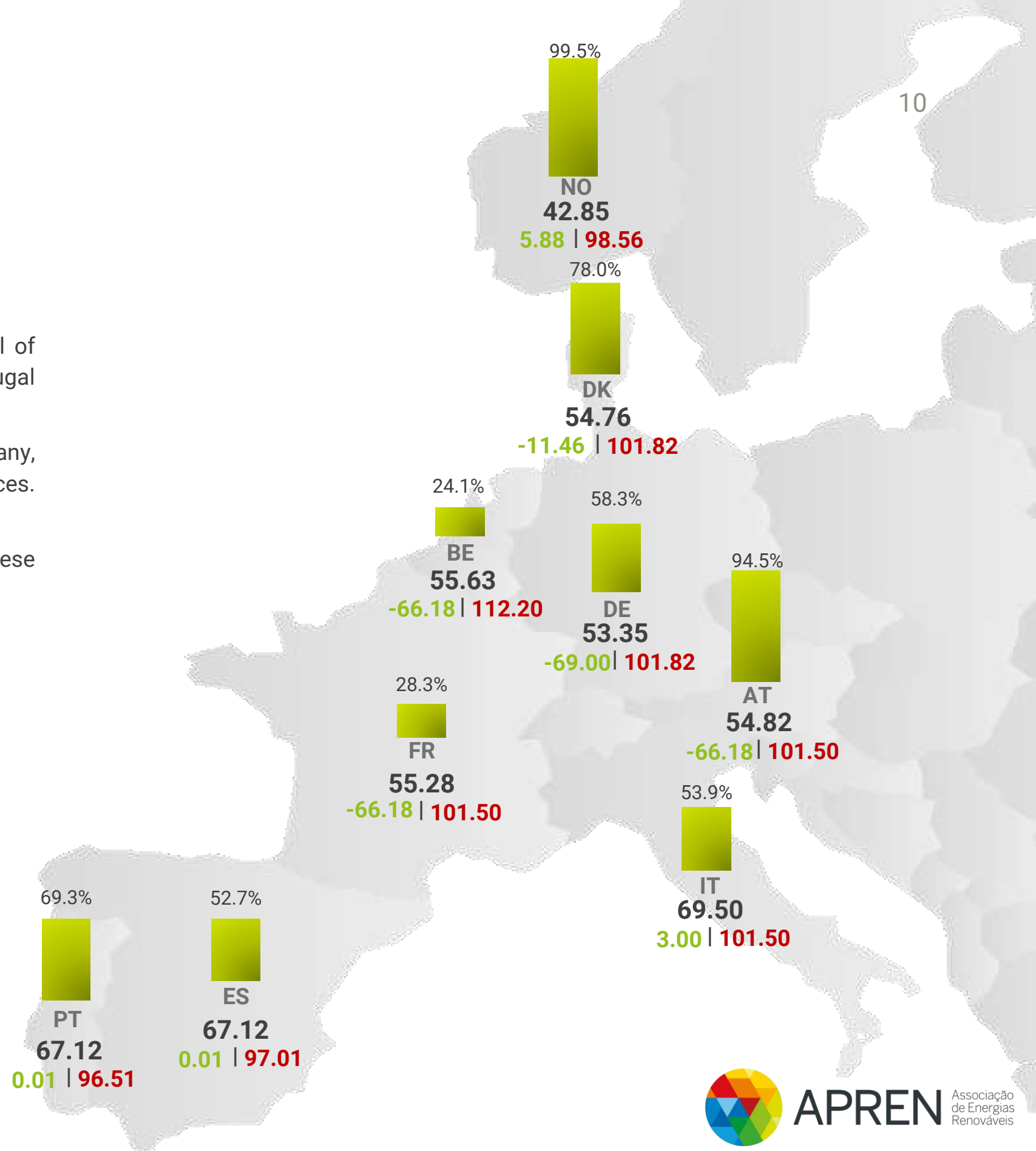
Source: ENTSO-E, IESOE, Analysis APREN



### Prices in €/MWh

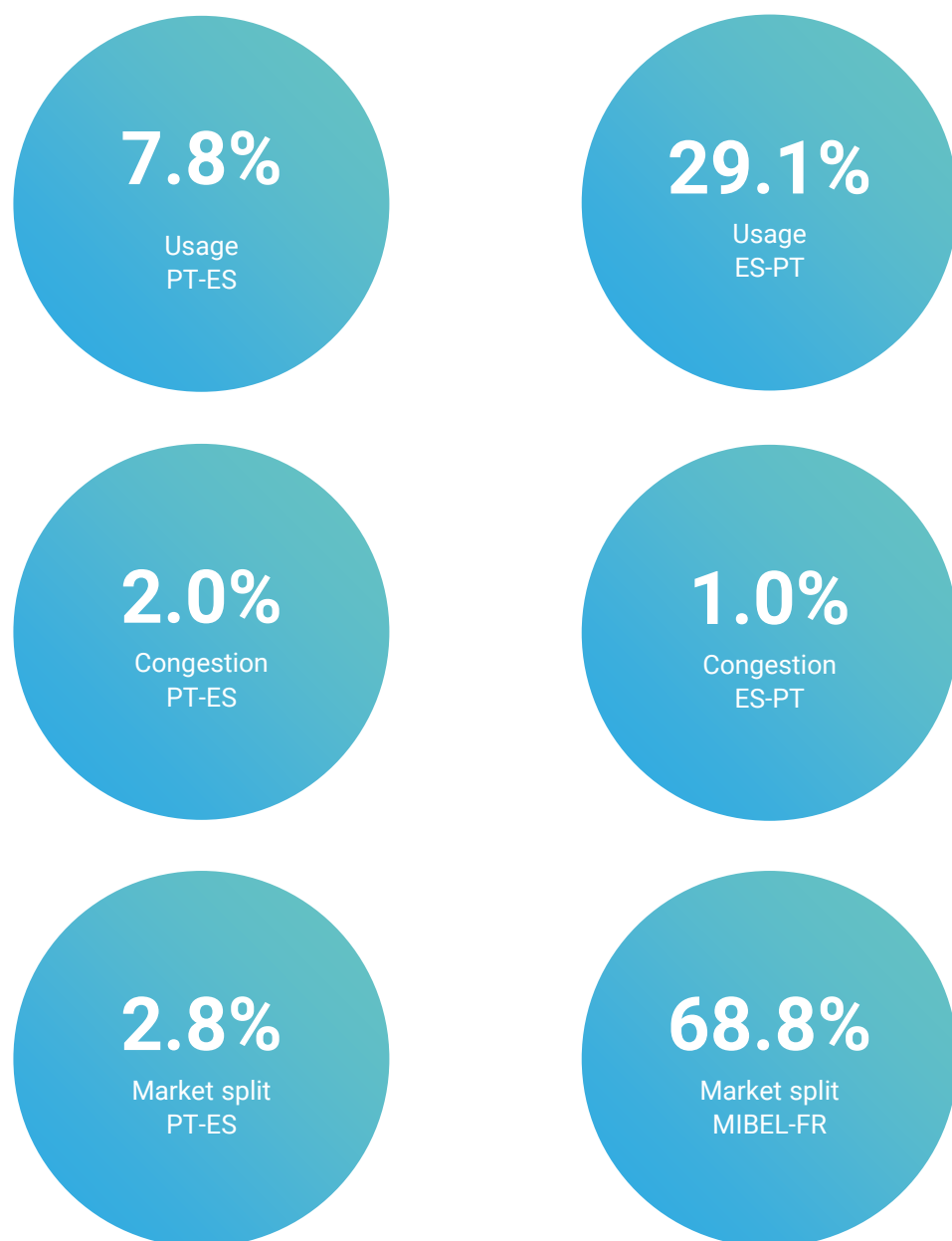
- Highest
- Lowest
- Average

Source: ENTSO-E, IESOE



# Monthly market analysis: May

## Electricity market in Portugal



# Environmental Service

The indicators below identify the savings achieved between January 1 and May 31, 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 ...

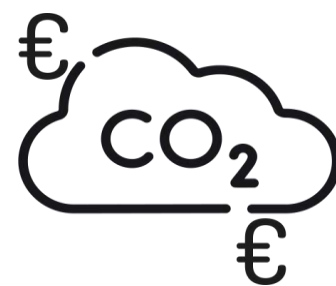


**€444 M**

Imported fossil fuels (Jan-May)

**€110 M**

Imported fossil fuels (May)

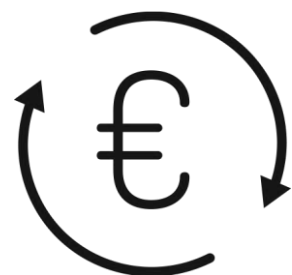


**5.7 MtCO<sub>2</sub>eq**

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

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

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



**€179 M**

Imported electricity (Jan-May)

**€0**

Imported electricity (May)



**€215 M**

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

**€50 M**

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

Source: REN, SendeCO<sub>2</sub>, 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

## New Industrial Strategy

On May 5, the European Commission (EC) published an [update](#) of the European Industrial Strategy, focused on building a Single Market for Europe's economic recovery.

## Carbon neutrality 2050

On 10<sup>th</sup> of May, the Committee on the Environment, Public Health and Food Safety (ENVI) reached an [agreement](#) with the Council on EU climate legislation, which entails an obligation for Europe to achieve carbon neutrality by 2050. Final adoption by the Plenary is scheduled for 23<sup>rd</sup>-24<sup>th</sup> of June.

## Action Plan Towards Zero Pollution for Air, Water and Soil

On May 12, the EC adopted the [EU Action Plan Towards Zero Pollution for Air, Water and Soil](#), one of the fundamental acts resulting from the Green Deal. Targets for 2030 were set in order to accelerate the reduction of pollution from various sources, with the objective of reaching zero pollution in 2050.

## Business Taxation

EC has published a [Communication](#), on May 18, on business taxation for the 21<sup>st</sup> century, which sets out a long- and short-term vision to support Europe's post-pandemic recovery and ensure adequate public revenues for years to come.

## Just Transition Fund (JTF)

During the May 19 plenary session, the European Parliament voted in favor of the proposed [Regulation](#) establishing the Just Transition Fund.

# National Policy and Regulation

## Recovery and Resilience Plan (PRR)

On May 4, the [Decree-Law No. 29-B/2021](#) was published, which establishes the governance model for European funds allocated to Portugal through the PRR.

Also on May 4, the [Resolution of the Council of Ministers No. 46-B/2021](#) was published, which creates the Mission Structure “Recover Portugal”, under the Decree-Law No. 29-B/2021, where an entity responsible for the technical coordination and management of the PRR is foreseen.

## Self-consumption

On May 5 ERSE published the [Regulation No. 373/2021](#), which approves the Regulation on Self-Consumption of Electric Energy and cancels Regulation No. 266/2020.

## Renewable Gases

On May 12, ERSE published the [Directive No. 9/2021](#), which approves the Manual of Procedures for the Global Technical Management of the National Gas System and revokes Directives No. 18/2016 and No. 20/2016 and Annex II of Directive No. 14/2020, which includes the exercise of activity of production of renewable or low carbon gases in the definition of producer.

Also on May 12, ERSE published the [Regulation No. 407/2021](#), which approves the Regulation on Access to Grids, Infrastructures and Interconnections in the Gas Sector and revokes Regulation No. 435/2016. ERSE published as well the [Regulation No. 406/2021](#), which approves the Regulation of Quality of Service in the Electric and Gas Sectors, canceling Regulation No. 629/2017, and establishes the measures of action concerning production facilities, for example of renewable gases, which disturb the network during the injection of gas in the network.

# National Policy and Regulation

## Energy poverty

On May 18, the [Resolution of the Assembly of the Republic No. 143/2021](#) was published, which recommends to the Government the adoption and reinforcement of measures to combat energy poverty.

## Promoter's Guide – “Legislation and Regulation for the Hydrogen Economy”

On May 19, the Directorate General for Energy and Geology (DGEG) and the Portuguese Environment Agency (APA) published the [Promoter's Guide](#) "Legislation and Regulation for the Hydrogen Economy".

## Long Term Strategy for Building Renovation (ELPRE)

On May 21 [Dispatch No. 5172/2021](#) was published, which creates the Coordination Group for the Long-Term Strategy for the Renovation of Buildings (ELPRE).

## Valorization of Energy in Experimental Regime

On May 24, DGEG published a [Clarification](#) referring to the Valorization of Energy in the Experimental Regime, applicable to all installations with fixed tariff.

## Access to electric mobility networks

On May 28 [Dispatch No. 5380/2021](#) was published, concerning financial support for tariffs for access to electric mobility networks.

## European Barometer



### European Climate Law

The European Parliament and Council have reached a provisional agreement on the European Climate Law, which introduces the goal of climate neutrality for 2050.



### Delegated Act on EU Taxonomy Rules for Sustainable Activities

On April 21, the EC published the first delegated act on sustainable activities for the objectives of climate mitigation and adaptation, accompanied by the communication "EU Taxonomy, corporate sustainability reporting, sustainability preferences and fiduciary duties: Directing finance towards the European Green Deal".



### New Industrial Strategy

On May 5, the EC published the update of the European Industrial Strategy, focused on building a Single Market for Europe's economic recovery.



### Action Plan Towards Zero Pollution for Air, Water and Soil

On May 12, EC adopted the Action Plan Towards Zero Pollution for air, water and soil, one of the fundamental acts arising from the Green Deal. With the objective of reaching zero pollution in 2050, targets were set for 2030 in order to accelerate the reduction of pollution from various sources.

## National Barometer



### Transition rules for alternative remuneration provided for in Decree-Law No. 35/2013

DGEG published Order No. 5/DGEG/2021, on the transition rules for the alternative remuneration provided for in Decree-Law No. 35/2013, of February 28, when it respects only part of the energy total produced in a wind farm with entry into operation staggered in time under successive permits.



### Self-consumption

On May 5, Regulation No. 373/2021 of the Regulatory Authority for Energy Services (ERSE) was published, which approves the Regulation on Self-Consumption of Electric Energy and revokes Regulation No. 266/2020.



### Promoter's Guide – "Legislation and Regulation for the Hydrogen Economy"

On May 19, DGEG and APA published the Promoter's Guide "Legislation and Regulation for the Hydrogen Economy".



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