June

BULLETIN

2021

Renewable Electricity

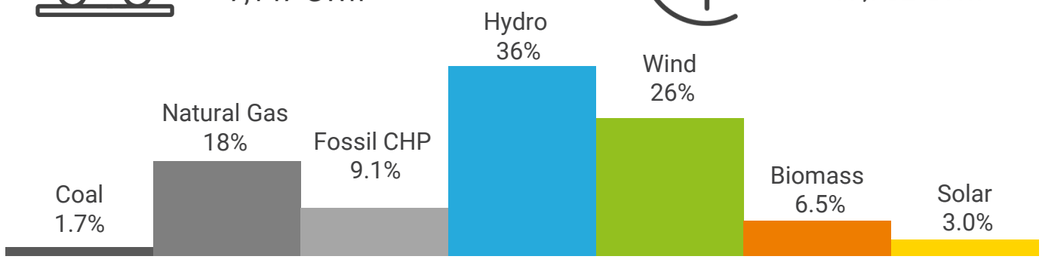
APREN Associação de Energias Renováveis

Executive summary

Accumulated June 2021 (Jan-Jun)

Fossil
28.7%
7,147 GWh

Renewables
71.3%
17,762 GWh

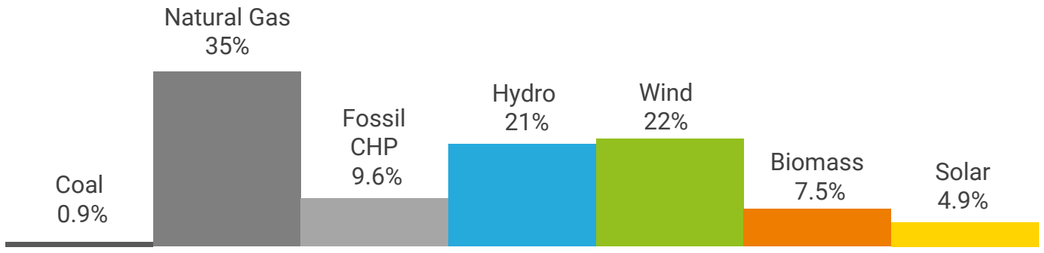


Source: REN, Analysis APREN

June 2021

Fossil
45.5%
1,655 GWh

Renewables
54.5%
1,979 GWh



Source: REN, Analysis APREN

Electricity sector indicators
(accumulated Jan-Jun)

24,909 GWh
Generation

€43.7/tCO$_2$
CO$_2$ Price

€58.3/MWh
Price MIBEL PT

2.8 MtCO$_2$eq
CO$_2$ Emissions

758 GWh
Import balance

112 gCO$_2$eq/kWh
CO$_2$ Specific emissions

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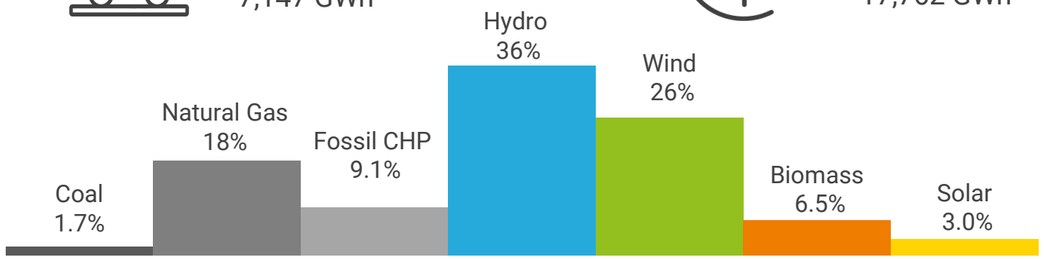
Electricity Generation: Mainland Portugal

Accumulated June 2021 (Jan-Jun)

Fossil
28.7%
7,147 GWh

Renewables
71.3%
17,762 GWh

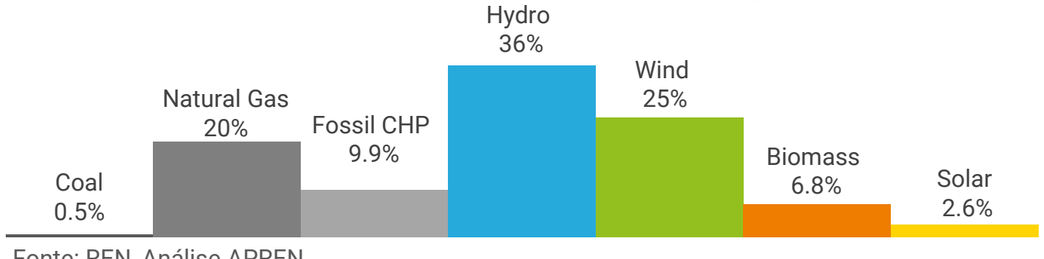


Source: REN, Analysis APREN

Accumulated June 2020 (Jan-Jun)

Fossil
30.2%
7,037 GWh

Renewables
69.8%
16,285 GWh



Fonte: REN, Análise APREN

Main indicators

24,909 GWh
Total generation

6.4 %
compared to June 2020

0.97
Wind Index

71.3 %
Renewable incorporation

1.5 %
compared to June 2020

1.11
Hydro Index

25,667 GWh
Consumption[1]

3.3 %
compared to June 2020

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

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International Trade

Between January 1 and June 30, 2021, the electricity system of Mainland Portugal registered electricity imports equivalent to 3,643 GWh and exports of 2,885 GWh, with Portugal being an importer with a balance of 758 GWh.

Source: REN, Analysis APREN

Main interconnection indicators PT-ES

17.6%
Usage
PT-ES

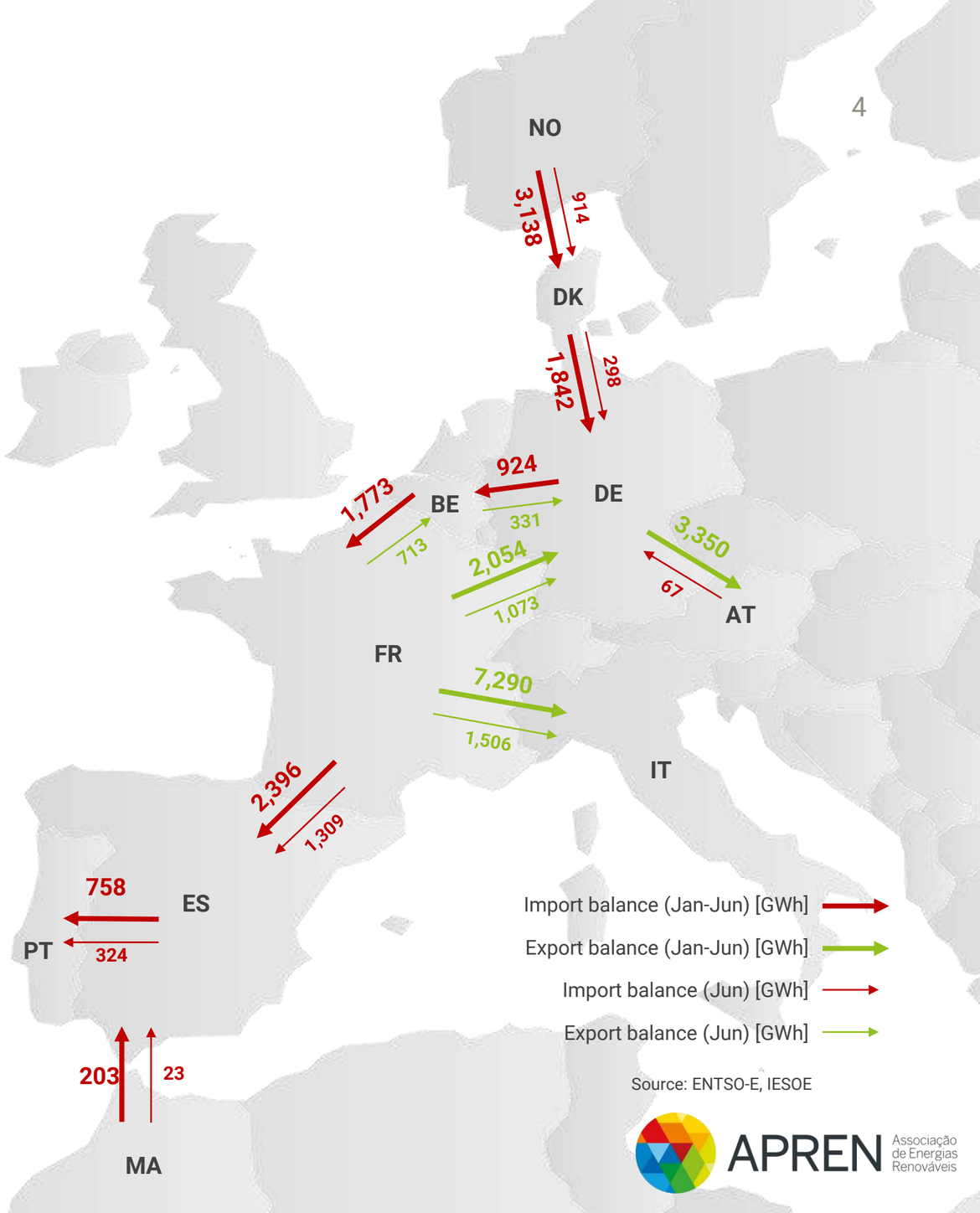
2.3%
Congestion
PT-ES

6.1%
Market split
PT-ES

19.7%
Usage
ES-PT

1.8%
Congestion
ES-PT

60.6%
Market split
MIBEL-FR



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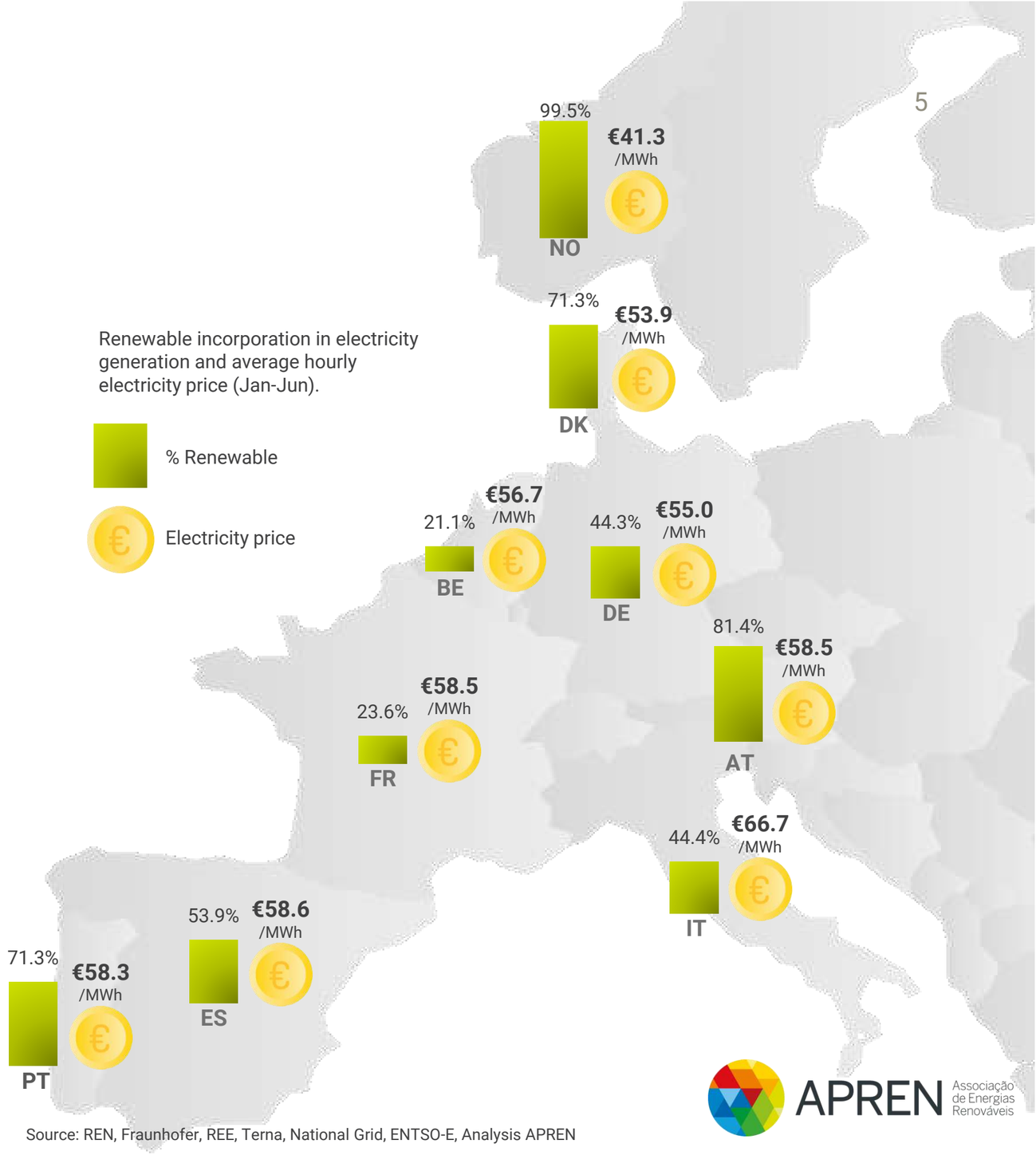
Accumulated Electricity Market - Europe

Between January 1 and June 30, 2021, there was an hourly average price on the Iberian Electricity Market (MIBEL) in Portugal of €58.28/MWh[2]. Despite the high renewable incorporation in Portugal, the market price has been on the rise, as a result of the growing trend in the market for CO_2 allowances and of the rise in the price of natural gas. However, Portugal had the fourth lowest price, compared to the other countries shown on the right. Portugal was the third country with the highest renewable incorporation in electricity generation, behind Norway and Austria, which obtained 99.5 % and 81.4 % respectively, from RES.

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

[2]Arithmetic average of hourly prices

Source: ENTSO-E, OMIE, Analysis APREN



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

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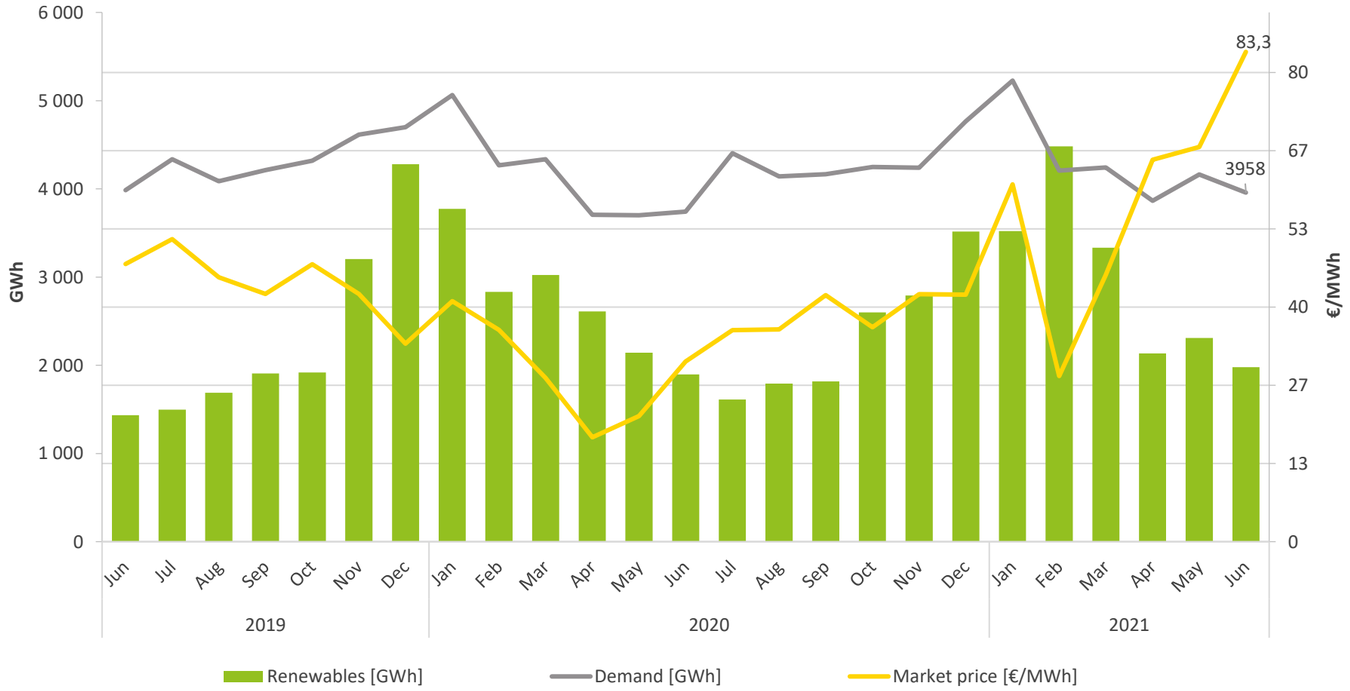
Accumulated Electricity Market - Portugal

Between 1 January and 30 June 2021, the average hourly price recorded on the MIBEL in Portugal (€58.28/MWh[2]). It represents an increase of to the double compared to the same period of last year.

In the same period, 1,004 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 €35.17/MWh.

[2] Arithmetic average of hourly prices
Source: OMIE, Analysis APREN



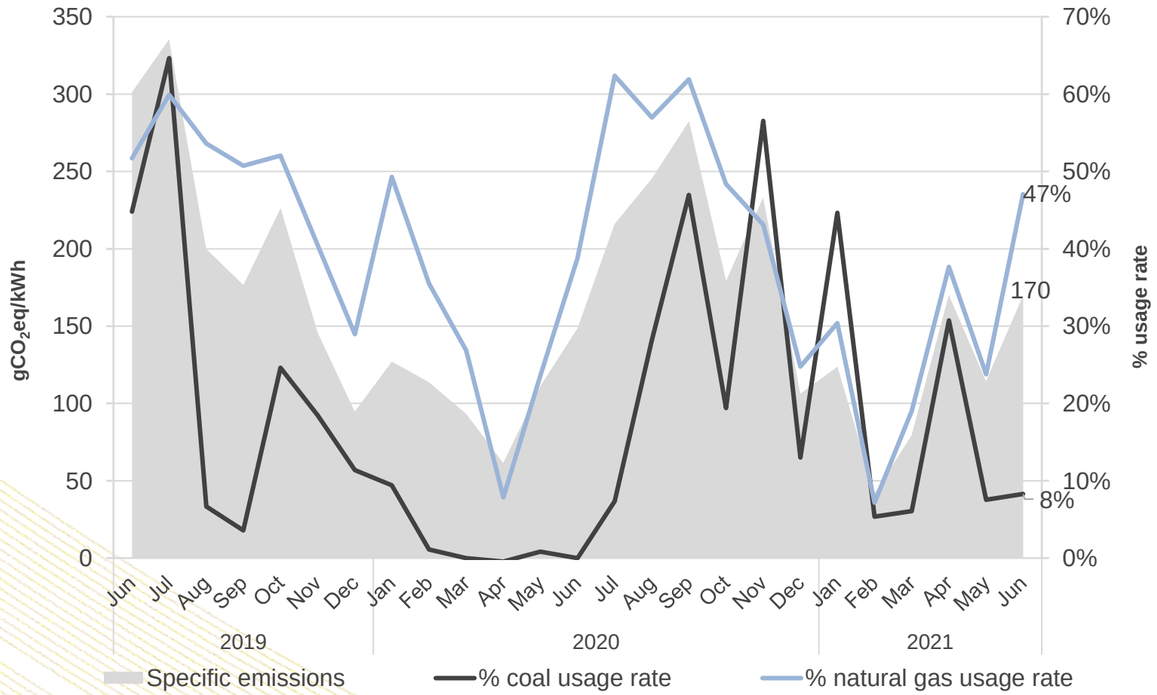
Market price, electricity demand and renewable generation (June-2019 to June-2021).
Source: OMIE, REN, Analysis APREN

Power Sector Emissions

Between January 1 and June 30, 2021, specific emissions reached a total of 112 gCO_2eq/kWh, while total emissions from the electricity generation sector reached 2.8 $MtCO_2eq$, of which 0.6 $MtCO_2eq$ correspond to the month of June.

Since the beginning of the year, the European Emissions Trading System (EU-ETS) has recorded an average price of €43.7/tCO_2 which represents an increase of 99 % compared to the same period of 2020. This month was registered the highest average price ever (€52.78/tCO_2), being more than double the price verified in June 2020.

Source: SendeCO2



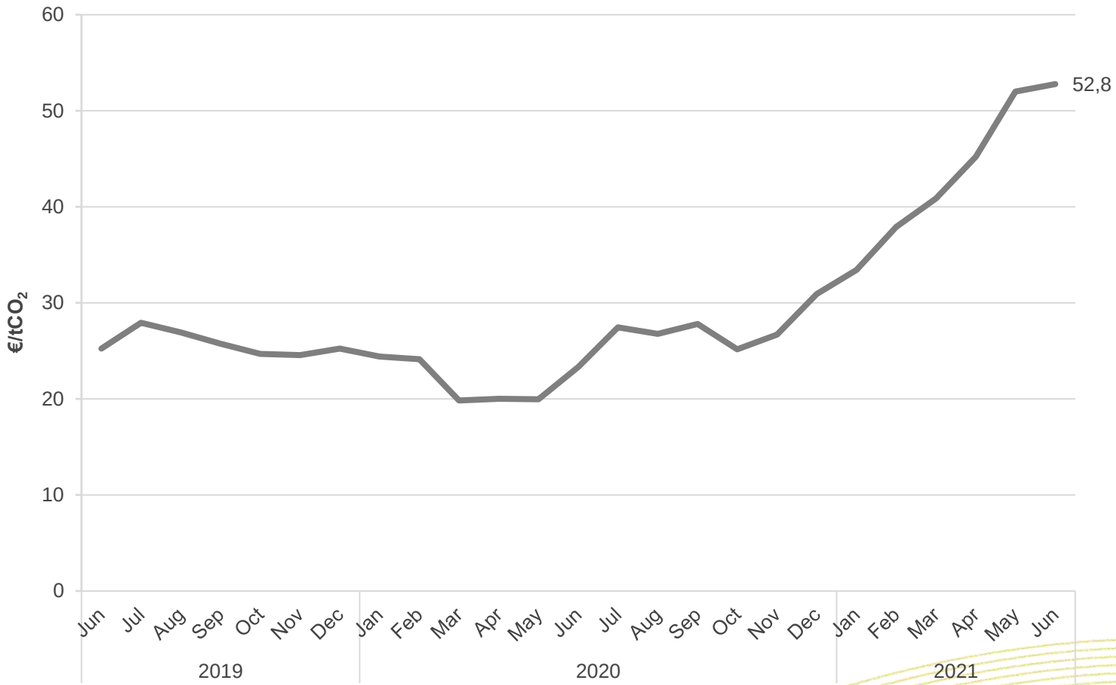
Specific emissions from the electricity sector in mainland Portugal, % use of coal and natural gas power plants from June-2019 to June-2021.
Source: REN, DGEG, ERSE, Analysis APREN

Sector emissions
2.8
$MtCO_2eq$

8.0 %
compared to June 2020

Average allowances price
€43.7
/tCO_2

99 %
compared to June 2020



CO_2 allowances price from June-2019 to June-2021.
Source: SendeCO2.

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Monthly analysis in Portugal: June

In June, the generation of renewable electricity represented 54.5 % of the total electricity generated in Mainland Portugal (3,634 GWh). June registered a total of 9 non-consecutive hours in which renewable generation was sufficient to supply the electricity demand of Mainland Portugal, with an average hourly price on MIBEL of €84.25/MWh. It should be noted that the production of photovoltaic solar electricity this month reached an all-time high of 177 GWh.

Regarding international trade in June, it should be noted that Mainland Portugal was an importer, registering a balance of 324 GWh, a significant decrease compared to the import balance recorded in June 2020 (503 GWh).

Source: REN, Analysis APREN

Electricity sector indicators

3,634 GWh Total generation — 12.2 % compared to June 2020 — **0.99** Wind index

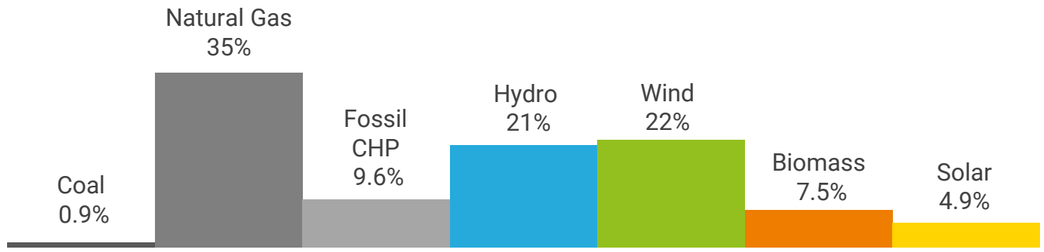
54.5% Renewable incorporation — 4.1 % compared to June 2020 — **0.96** Hydraulicity index

3,958 GWh Consumption — 5.8 % compared to June 2020 — **71.0 %** Dams storage

Source: REN, Analysis APREN

Fossil
45.5%
1,655 GWh

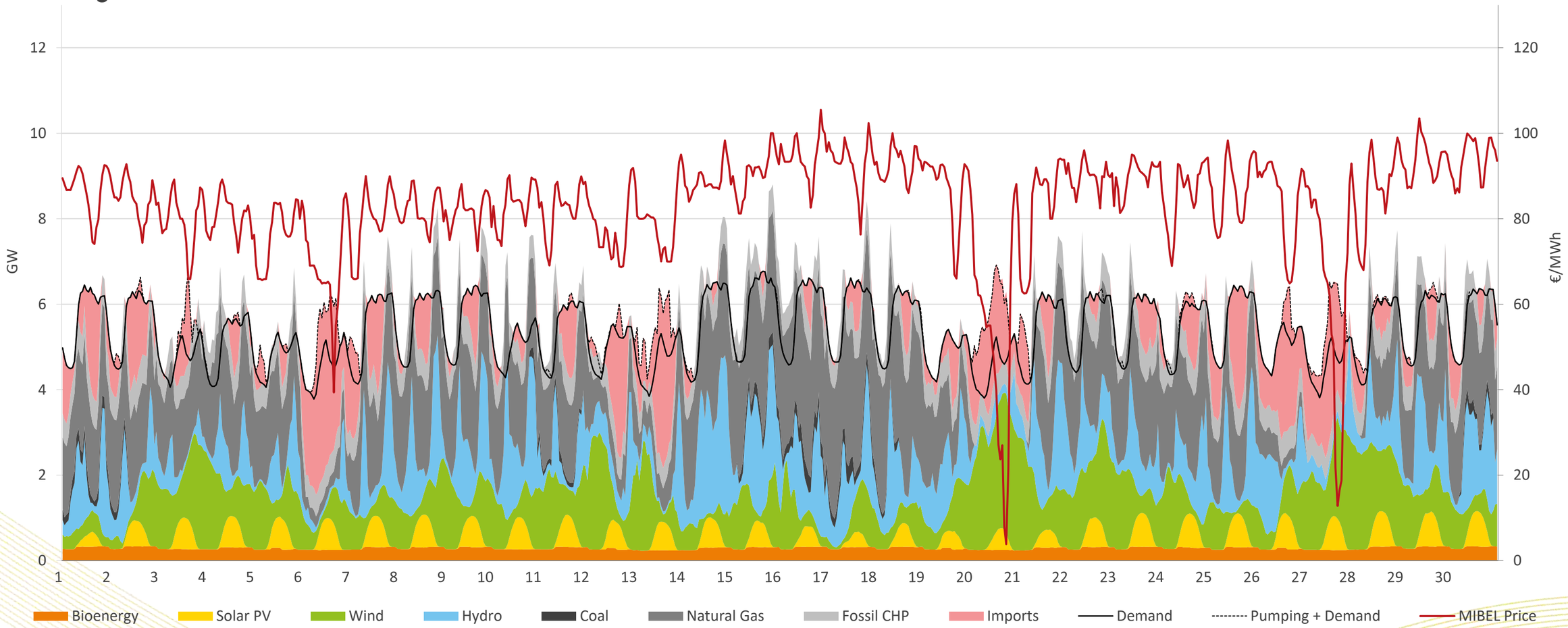
Renewables
54.5%
1,979 GWh



Source: REN, Analysis APREN

Monthly analysis in Portugal: June

Load diagram from June 2021



Soure: REN, Analysis APREN

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Monthly Market Analysis: June

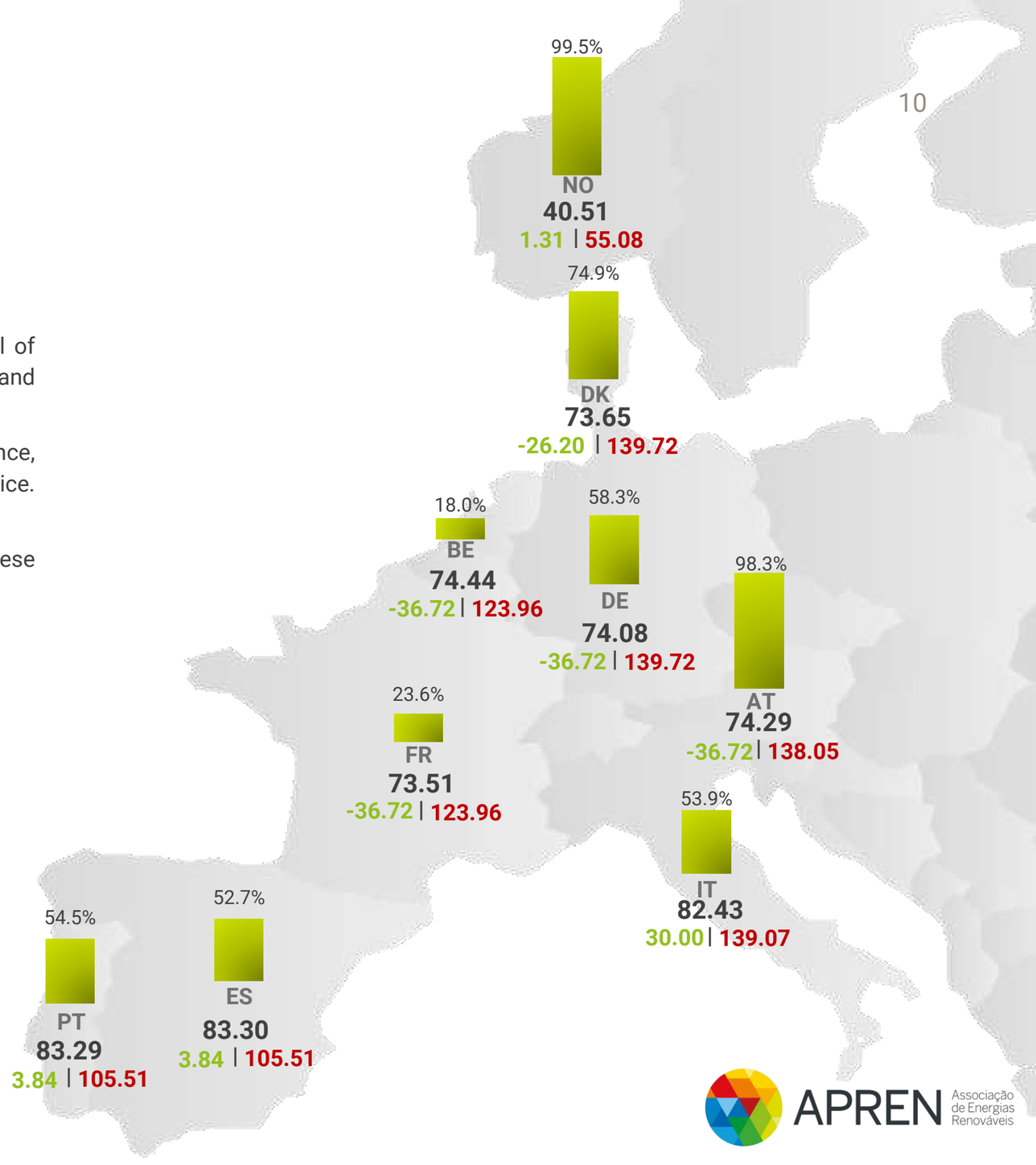
Electricity market in Europe

During the month of June 2021, there was an hourly average price on MIBEL in Portugal of €83.29/MWh, which represents near the triple the price recorded in June 2020. In Portugal and Spain there was a minimum hourly prince on MIBEL of €3.84/MWh.

Of the countries shown on the right, the lowest price registered was €-36.72/MWh in France, Belgium, Germany and Austria. Denmark also had a negative hourly minimum price. The highest hourly price was recorded in Denmark and Germany, reaching €139.72/MWh.

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

Source: ENTSO-E, IESOE, Analysis APREN



Source: ENTSO-E, IESOE

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Monthly market analysis: June

Electricity market in Portugal

12.9%
Usage
PT-ES

15.5%
Usage
ES-PT

1.4%
Congestion
PT-ES

0.4%
Congestion
ES-PT

1.8%
Market split
PT-ES

65.3%
Market split
MIBEL-FR

Environmental Service

The indicators below identify the savings achieved between January 1 and June 30, 2021 in fossil fuels, CO_2 emissions and CO_2 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 …

€534 M
Imported fossil fuels (Jan-Jun)

€90 M
Imported fossil fuels (Jun)

6.6 $MtCO_2eq$
CO_2 emissions (Jan-Jun)

0.9 $MtCO_2eq$
CO_2 emissions (Jun)

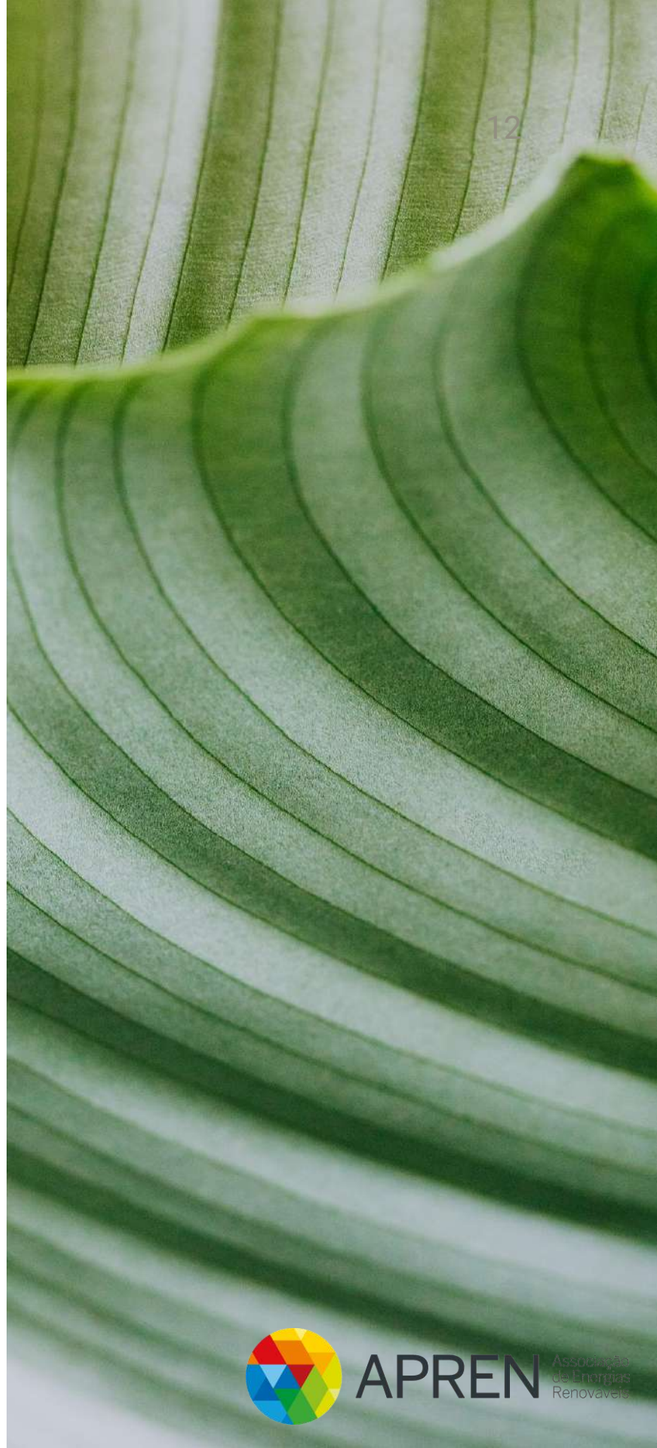
€260 M
Imported electricity (Jan-Jun)

€47 M
Imported electricity (Jun)

€260 M
CO_2 allowances (Jan-Jun)

€46 M
CO_2 allowances (Jun)

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

Green hydrogen

On June 2, a partnership between the European Commission (EC) and Breakthrough Catalyst was announced, to support clean technology investments for low-carbon industries, starting with the following sectors: green hydrogen, sustainable jet fuel, direct air capture and long-term energy storage.

Carbon Boarder Adjustment Mechanism (CBAM)

According to the documents *leak* referring to CBAM, the Europenan Union (EU) plans to impose costs on carbon emissions related to imports of goods, including electricity. It is anticipated that both direct and indirect emissions will be considered for cost allocation.

New Strategy on Adaptation to Climate Change

On June 10, the European Union environment ministers approved the new EU Strategy on Adaptation on Climate Change, which sets a vision by 2050 to make Europe resilient and fully adapted to its inevitable impacts.

Next Generation EU

On June 16 the EC approved the Portuguese recovery and resilience plan in the amount of 16.6 billion euros, with the Commission having concluded that the Portuguese plan intends to apply 38 % of its total allocation to measures to support climate objectives.

European Climate Law

On June 28, the European Council adopted its first-reading position on European climate legislation, closing the adoption process and defining in legislation the objective of climate neutrality in the EU by 2050.

National Policy and Regulation

Energy Efficiency

On June 15 the Decree-Law No. 50/2021 was published, which establishes the legal regime for energy efficiency management contracts, to be signed between the State and energy service companies.

On June 21 the Dispatch No. 6070-A/2021 was published, which approves the regulation for the attribution of incentives for the 2nd phase of the Support Program for More Sustainable Buildings, which includes projects for the installation of photovoltaic panels and other equipment for the production of renewable energy. Later, on June 25, the Rectification Statement No. 463-A/2021 was published, changing the mentioned order.

Permitting

On June 21 the Assistant Secretary of State and Energy published an Dispatch, which extends the deadlines for the implementation of power plants resulting from the 2019 and 2020 capacity auctions.

Electricity Sector Energy Tariff

The Regulatory Entity for Energy Services (ERSE), published the Directive No. 11/2021, approving the update of the Electricity Sector Energy Tariff.

Wind power plants remuneration

On June 25 the 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 the Decree-Law No. 35/2013, of February 28.

National Policy and Regulation

Hybrid power plants

On June 29 the Dispatch No. 13/DG/2021 was published by Directorate General for Energy and Geology (DGEG), which establishes the technical rules for the implementation of hybrid power plants associated with photovoltaic power plants resulting from competitive procedures, which are subject to the application of penalties in cases where it is verified that the photovoltaic power plant has not complied with the number of equivalent hours of use per year.

Electricity market

On June 29 the Dispatch No. 6398-A/2021 was published, which adjusts the value of the parameter that represents the impact of extramarket measures and events registered within the European Union in the formation of average electricity prices in Portugal, setting a null unit value, resulting from the suspension of tax incidence measures in Spain, thus culminating in the suspension of the Clawback applied to PRE exchanges in the market.

Overcost

On June 30 the Ordinance No. 138/2021 was published, which defines the methodology for calculating the rate of remuneration to be applied to the intertemporal transfer of permitted income referring to the extra costs with the acquisition of electricity from producers under special regime.

European Barometer

European Climate Law

The European Council has adopted its position at first reading on European climate legislation, closing the adoption process and defining in legislation the objective of climate neutrality in the EU by 2050.

New Climate Change Adaptation Strategy

EU environment ministers have endorsed the EU's new climate change adaptation strategy, which sets a vision by 2050 to make Europe resilient and fully adapted to its inevitable impacts

Next Generation EU

The European Commission has approved Portugal's recovery and resilience plan in the amount of 16.6 billion euros, and the Commission concluded that the Portuguese plan intends to apply 38% of its total allocation to measures to support climate objectives.

National Barometer

Energy Efficiency

DL No. 50/2021 was published, establishing the legal regime for energy efficiency management contracts to be signed between the State and energy service companies. The Dispatch No. 6070-A/2021, was also published, which approves the regulation for the attribution of incentives for the 2nd phase of the Support Program for More Sustainable Buildings.

Electricity Market

The Dispatch No. 6398-A/2021 was published, which adjusts the value of the parameter that represents the impact of extramarket measures and events registered within the scope of the European Union in the formation of average electricity prices.

Permitting

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Wind power plants remuneration

The 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, of 28 February.

Hybrid plants

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

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