



BULLETIN RENEWABLE ELECTRICIT

Portugal precisa da nossa energia!

Portugal needs our energy!

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Executive Summary



MONTHLY GENERATION (Apr)



ELECTRICITY SECTOR INDICATORS (Jan-Apr)



¹ 'Generation' refers to the net power generation of the plants, considering the pumping production recently disclosed by REN. Pumping production is not accounted for in the percentage of production from renewable sources. Source: REN, Analysis APREN





Electricity Generation: Mainland Portugal





Monthly analysis in Portugal: April

From April 1 to 30 April 2022, renewable incorporation was 62.1%, with 3,535 GWh produced. The increase of 5.5% compared to April 2021 is mainly due to the high indexes of wind and solar, which resulted in an increase in wind and solar production. It should be noted the reduction in the share of natural gas in electricity generation to 24%, the lowest figure since March 2021.

Source: REN, Analysis APREN



INDICATORS OF THE ELECTRICITY SECTOR



 ¹ 'Generation' refers to the net power generation of the plants, considering the pumping production recently disclosed by REN. Pumping production is not accounted for in the percentage of production from renewable sources.
² Consumption refers to the liquid generation of power of the plants, considering the import-export balance.

Source: REN, Analysis APREN





Monthly analysis in Portugal: April Load diagram for the month of April 2022





Source: REN, Analysis APREN

Renewable Electricity Europe

Between January 1 and April 30, 2022, Portugal was the fourth country with the highest renewable incorporation in electricity generation, behind Norway, Denmark and Austria, which obtained 99.5%, 75.7% and 69.5%, respectively, from RES. From April 1 to 30, Portugal decreased renewable incorporation by 0.6% compared to March, thus being the fourth country with the largest renewable incorporation in Europe.

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

Source: OMIE, Analysis APREN



■ Accumulated ■ March



•APRIL

Renewable incorporation in the generation of accumulated electricity (Jan-Apr) and monthly (April). Source: REN, Fraunhofer, REE, Terna, National Grid, ENTSO-E, Analysis APREN

Market Price Setting: Portugal

Between January 1 and April 30, hydro was the market price setting technology that recorded the most hours, with 1,169 non-consecutive hours, followed by cogeneration and waste with 678 hours and thermal generation combined cycle with 535 hours.



APRIL 2022



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Electricity Market Portugal

Between January 1 and April 30, the average hourly price recorded in MIBEL in Portugal (€220.2/MWh³) represents an increase of more than four times compared to the same period last year.

In the same period, 52 non-consecutive hours were recorded in which renewable generation was sufficient to supply the electricity consumption of mainland Portugal, with an average hourly price in MIBEL of \leq 146.9/MWh. Doing the same analysis for the period from April 1 to 30, a total of 40 non-consecutive hours were recorded, with an average hourly price in the MIBEL of \leq 137.5/MWh.

³Arithmetic average hourly prices Source: OMIE, Analysis APREN





Market price, electricity consumption and renewable generation (Apr 2020 to Apr 2022) Source: OMIE, REN, Analysis APREN

Electricity Market: Europe

During April 2022, there was a minimum hourly price at MIBEL in Portugal of $\in 1,03$ /MWh³, for an hour in which the market price setting was due to renewable technologies, cogeneration and waste. The maximum hourly price reached $\in 319,32$ /MWh, where the market price setting depended on pumping.

Concerning the prices in Europe, it should be noted that the average values remained similar to those of the previous month. However, the maximum price decreased in all countries, except for France, which recorded a maximum value of \in 2.987,8/MWh.

PRICES

MAXIMUM (Apr)

PRICES MINIMUM (Apr)





International Trade

Between January 1 and April 30 2022, the electricity system of Mainland Portugal recorded electricity imports equivalent to 4,383 GWh and exports of 874 GWh, with Portugal being an importer with a balance of 3,509 GWh.



BOLETIM · APRIL ELETRICIDADE RENOVÁVEL 10 LEGEND Import balance (Jan-Apr) [GWh] 28 à 873 Export balance (Jan-Apr) [GWh] Import balance (Apr) [GWh] Export balance (Apr) [GWh] 3.723 1,027 3,509 775 12 52 APREN Associação de Energias Renováveis

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Power sector emissions

Between January 1 and April 30, specific emissions reached 129 gCO₂eq/kWh, while total emissions from the electro-producing sector reached 1.9 MtCO₂eq. The European Emissions Trading System (EU-ETS) recorded an average price of €82.9 /tCO₂, doubling the increase compared to the same period in 2021.

3Arithmetic average hourly prices Source: OMIE, Analyis APREN





Source: OMIE, REN, Analysis APREN

Environmental Service

The indicators on the right identify the savings reached between January 1 and April 30, 2022, in natural gas, CO_2 emissions and CO_2 emission allowances, resulting from renewable incorporation into electricity generation.

This analysis assumes that, in the absence of renewables, production would be ensured primarily by natural gas and finally by imported electricity.

Renewables have avoided:



E369 M

€1,254 M Imported natural gas (Jan-Apr)



2.8 MtCO₂eq





€542 M Imported electricity (Jan-Apr)



€195 M CO₂ allowances (Jan-Apr)

€55 M CO₂ allowances (Apr)

Source: REN, REE, SendeCO2, WorldBank, DGEG, ERSE, Analysis APREN. Note1: For the estimate of the savings in imported natural gas, the price of natural gas in Europe indicated in the WorldBank has been considered. Nota2: For the estimation of savings in imported electricity, the average price on the MIBEL market has been considered.

European Barometer

Smart Cities of Carbon Neutrality

The European Commission has announced the 100 cities that will participate in the <u>European mission</u> to become smart cities with carbon neutrality. Amongst them, three are Portuguese cities: Lisbon, Porto and Guimarães.

Limit on the price of natural gas

The European Commission has approved the <u>temporary limit on the price of natural gas</u> used in the production plants in the Iberian Peninsula, with the average value of \leq 50/MWh, for a period of one year.

Climate Change

The European State of the Climate 2021 Report has been published, indicating an average temperature increase of 2°C in Europe, amongst other negative indicators for global warming.

Dependence on Russian fossil fuels

The European Commission has issued an <u>announcement</u> concerning technical support to 17 EU Member States to eliminate dependence on Russian fossil fuels.

European Market

The European Commission Agency for the Cooperation of Energy Regulators (ACER) has published a <u>report</u> on its assessment of the design of the European electricity market.



National Barometer

Recovery and Resilience Plan

On April 7, <u>Ordinance No. 136-A/2022</u>, was published which approves the regulation of the incentive system arising from the allocation of the Recovery and Resilience Plan affects investment in energy efficiency and service buildings.

Production procedures by RES

It was published on April 19 the <u>Decree-Law No. 30-A/2022</u>, approving exceptional measures to ensure the simplification of energy production procedures from renewable sources. On April 26, the <u>Rectification Declaration No. 14-A/2022</u> was published.

Repowering

It was published by the Directorate-General for Energy and Geology on April 22, a <u>clarification</u> concerning the measurement and quantification of the energy produced by the repowered power plants.

Licensing of Private Service Power Lines

On April 22, DGEG published the <u>Dispatch No. 05/2022</u>, as rectification in relation to the definition of specific procedures for licensing interconnection infrastructures, of private service.

PRE Extraordinary Auction

The <u>6th Extraordinary Auction</u> took place on April 22, for the placement of energy acquired by the Last Resort Trader (CUR) to producers under special regime (PRE).

Floating Solar Auction

It was published on April 14, the <u>Final Report</u> in relation to the results of the floating solar energy auction, in which the lowest energy price worldwide was recorded.





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