APREN Associação de Energias Renováveis

FEBRUARY

2022 BULLETIN
RENEWABLE ELECTRICITY

Portugal precisa da nossa energia!

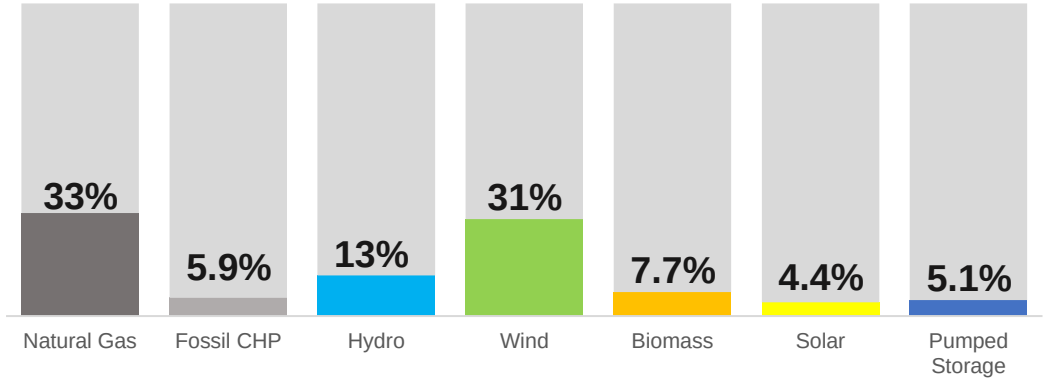
Portugal needs our energy!

Executive Summary

ACCUMULATED GENERATION (Jan-Feb)

% **38.8** // 3,112 GWh
Fossil

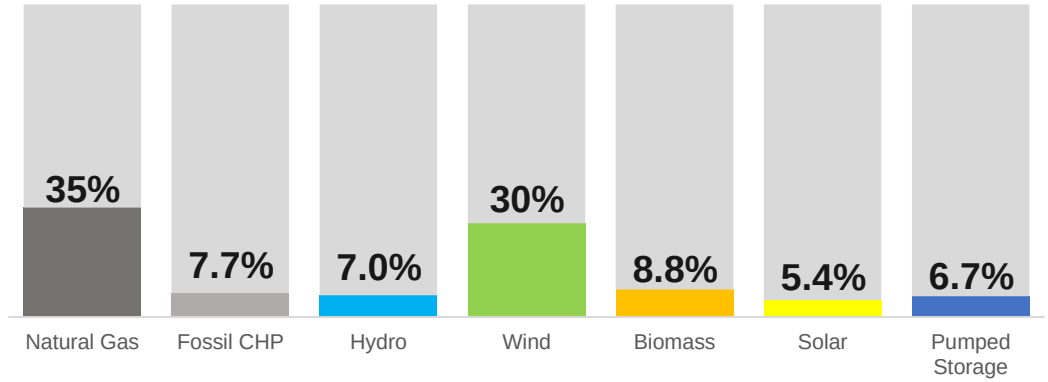
% **56.1** // 3,978 GWh
Renewables



MONTHLY GENERATION (Feb)

% **42.4** // 1,275 GWh
Fossil

% **50.8** // 1,526 GWh
Renewables



ELECTRICITY SECTOR INDICATORS (Jan-Feb)

GWh **7,090**
Generation[1]

€/tCO$_2$ **87.5**
Price CO$_2$

€/MWh **201.3**
Price MIBEL PT

MtCO$_2$eq **1.0**
Emmissions CO$_2$

GWh **2,139**
Import balance

gCO$_2$eq/kWh **114**
CO$_2$ Specific Emissions

[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, Analysys APREN

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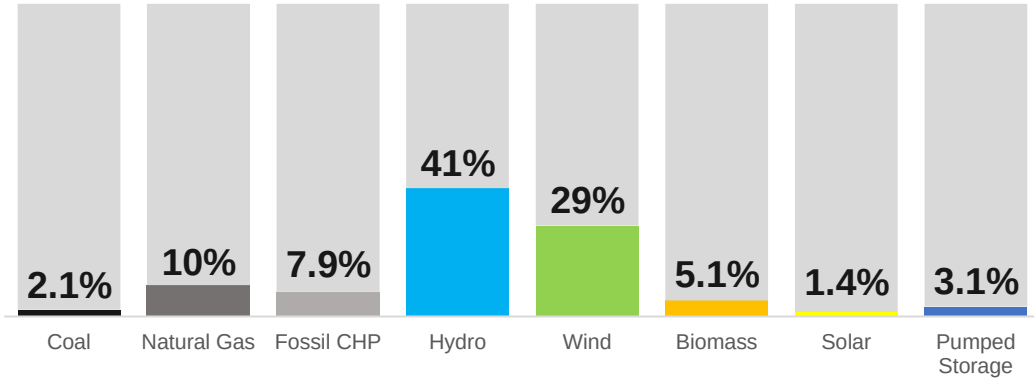
Electricity Generation: Mainland Portugal

ACCUMULATED FEBRUARY 2021 (Jan-Feb)

% 20.1 // 2,326 GWh
Fossil

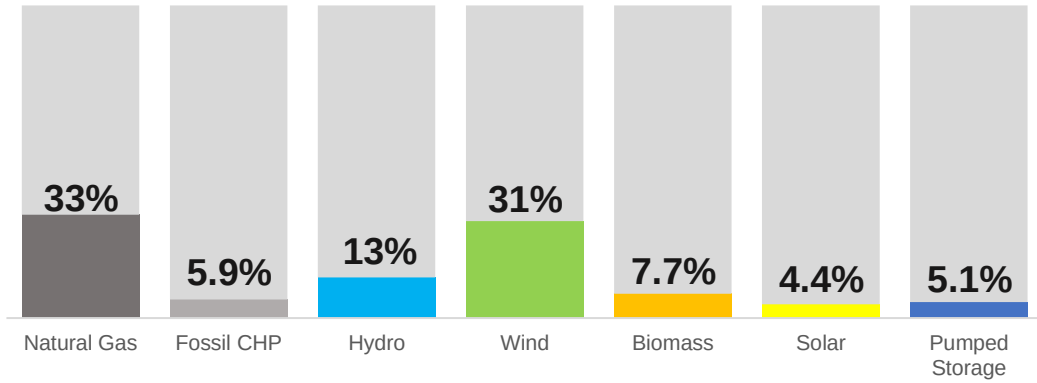
% 76.8 // 7,680 GWh
Renewables



ACCUMULATED FEBRUARY 2022 (Jan-Feb)

% 38.8 // 3,112 GWh
Fossil

% 56.1 // 3,978 GWh
Renewables



MAIN INDICATORS

GWh 7,090
Generation[1]
41.1%
compared to Feb 2021

% 56.1
Renewable incorporation
20.7%
compared to Feb 2021

GWh 8,766
Consumption[2]
2.5%
compared to Feb 2021

0.83
Wind index

0.25
Hydro index

1.25
Solar index

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

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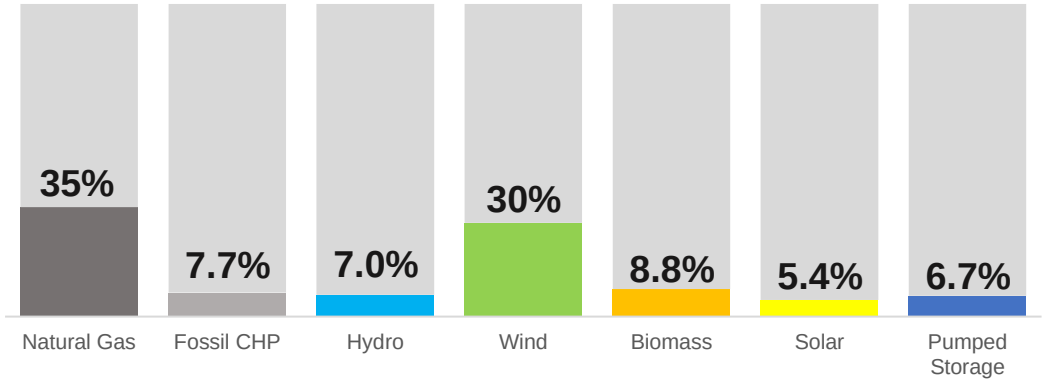
Monthly analysis in Portugal: February

From 1 to 28 February 2022, renewable incorporation was 50.8%, with 3,005 GWh produced. The reduction of 31.4% compared to February 2021 was mainly due to the low hydraulicity rate, caused by drought and suspension of electricity production in dams.

Source: REN, Analysis APREN

% **42.0** // 1,275 GWh
Fossil

% **50.8** // 1,526 GWh
Renewables



Source: REN, Analysis APREN

ELECTRICITY SECTOR INDICATORS

GWh **3,005** Generation[1]
43.1% compared to Feb 2021

% **50.8** Renewable incorporation
31.4% compared to Feb 2021

GWh **4,115** Consumption[2]
1.03% compared to Feb 2021

0.71 Wind index

1.13 Solar index

0.14 Hydro index

32.1% Dams storage

Source: REN, Analysis APREN

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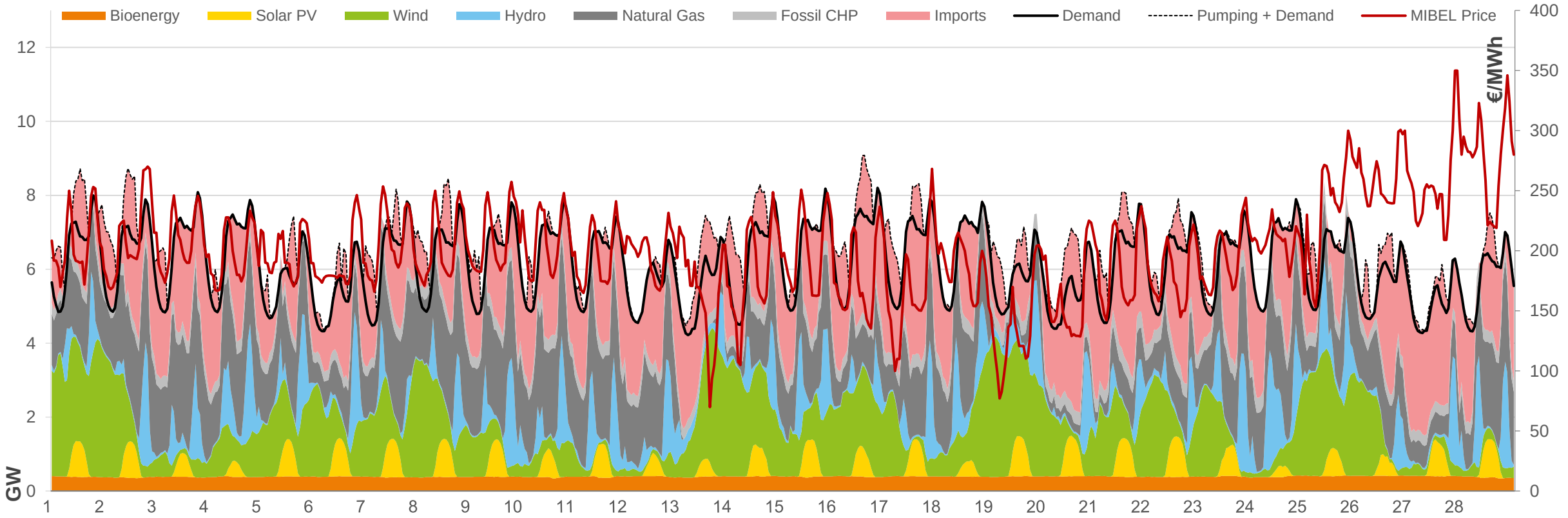
Monthly analysis in Portugal: February

Load diagram for the month of February 2022



Source: REN, Analysis APREN

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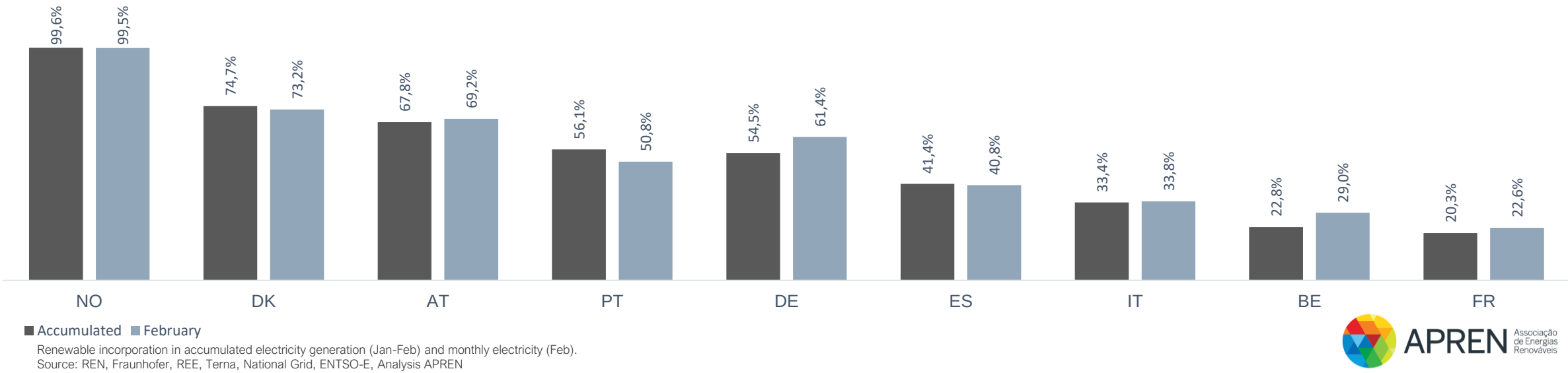
Renewable Electricity
Europe

Between January 1 and February 28, 2022, Portugal was the fourth country with the highest renewable incorporation in electricity generation, behind Norway, Denmark and Austria, which achieved 99.6%, 74.7% and 67.8 %, respectively, from RES. From February 1 to 28, Portugal moved to fifth place in the countries with the highest renewable incorporation in Europe.
This analysis only took the main European markets into account, in order to have a representative term of comparison.

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



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

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Market Price Setting : Portugal

Between January 1 and February 28, the hydro technology was the market price setting technology that recorded the highest number of hours, with 589 non--consecutive hours, followed by thermal generation cycle combined with 298 hours and renewables, cogeneration and waste with 286 hours.

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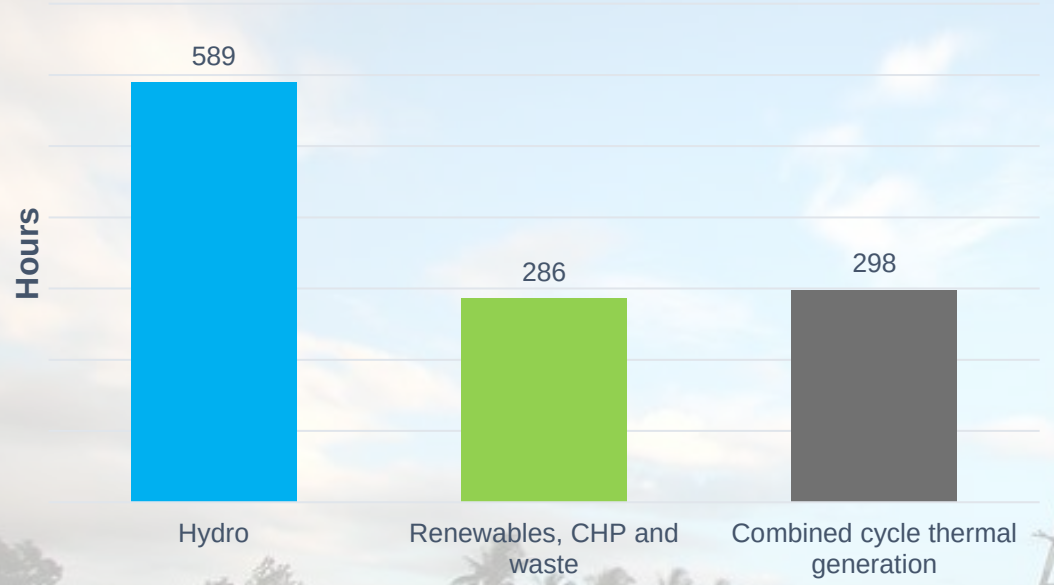
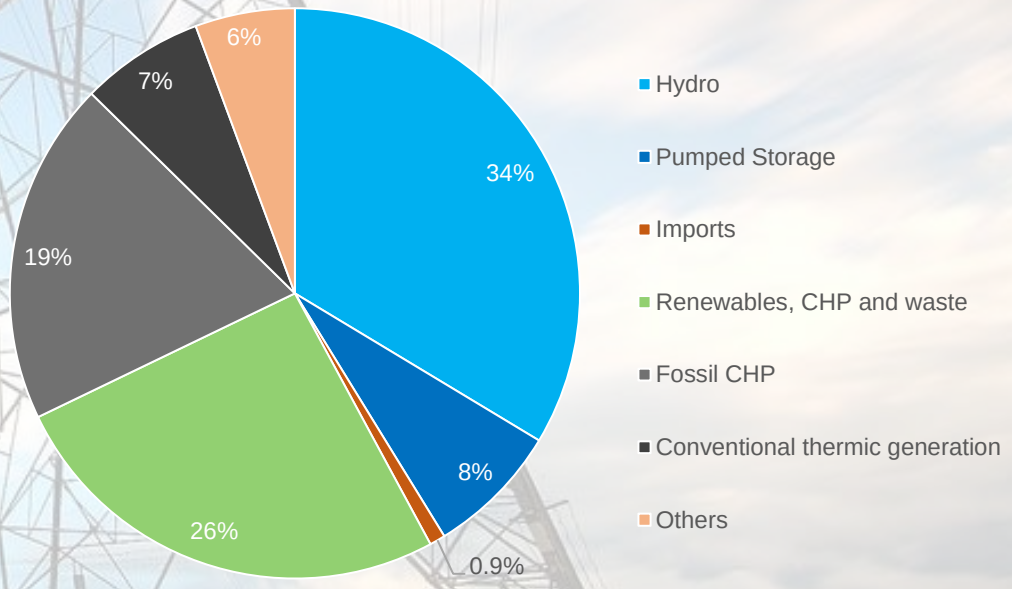


Number of market price setting hours of the three main technologies (Jan-2022 to Feb-2022).
Source: OMIE, Analysis APREN

FEBRUARY 2022



Percentage distribution of the number of market setting hours of the various technologies, totaling 672 hours (Feb).
Source: OMIE, Analysis APREN

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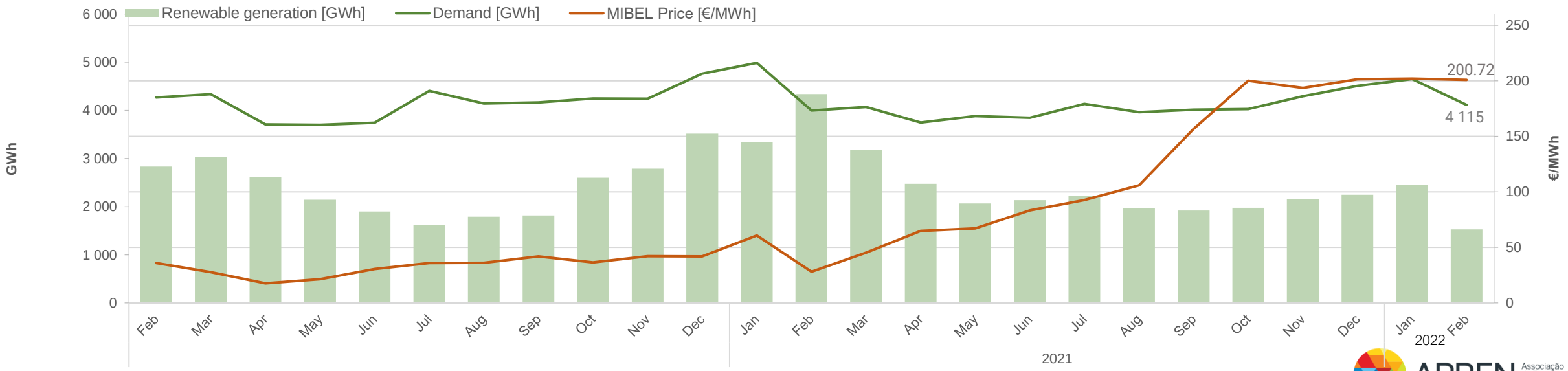
Electricity Market
Portugal

Between January 1 and February 28, the average hourly price recorded in MIBEL in Portugal (201.3 €/MWh3) represented an increase of more than four times compared to the same period last year.
In the same period, 12 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 the MIBEL of €177.68/MWh.
During February, renewables were not able to supply an entire hour of electricity consumption.

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



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

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Electricity Market: Europe

During February 2022, there was a minimum hourly price at MIBEL in Portugal of €70/MWh[3], for an hour, in which market setting was due to renewable technologies, CHP and waste. The maximum hourly price reached 350 €/MWh[3], where the market price settting depended on both hydro and combined cycle thermal generation.

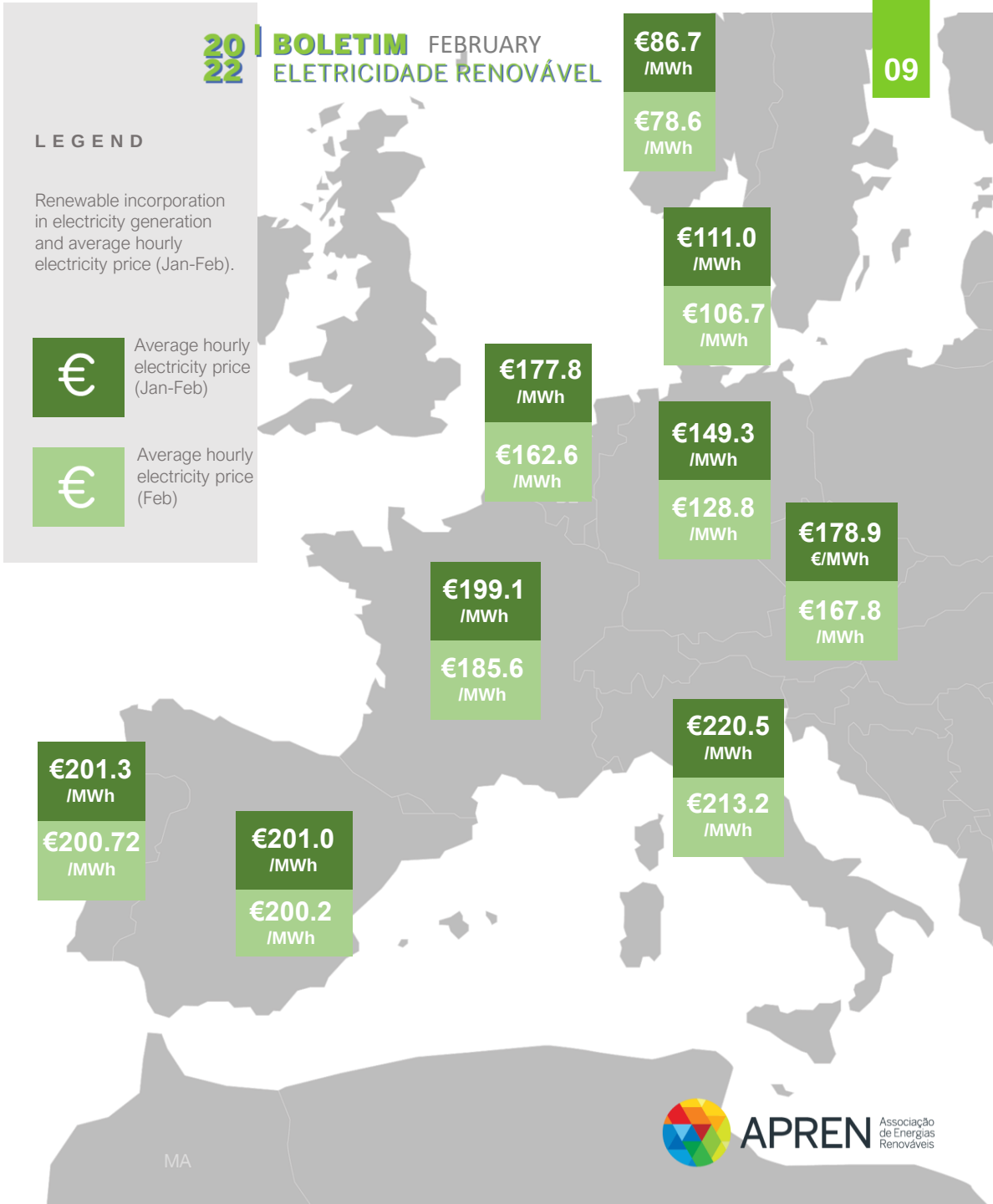
Regarding prices in Europe, all values decreased compared to the previous month, except for Portugal, and the price variation in Belgium, which recorded both the minimum and the maximum prices in the markets considered.

PRICES MINIMUM (Feb)

1º	€-30.0 /MWh	BELGIUM
2º	€-0.52 /MWh	GERMANY
3º	€0.02 /MWh	DENMARK

PRICES MAXIMUM (FEB)

1º	€463.3 /MWh	BELGIUM
2º	€350.0 /MWh	PORTUGAL
3º	€349.0 /MWh	ITALY FRANCE



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

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International Trade

Between January 1 and February 28, 2022, the electricity system of Mainland Portugal recorded electricity imports equivalent to 2,453 GWh and exports of 314GWh, with Portugal being an importer with a balance of 2,139 GWh.

MAIN INDICATORS OF INTERCONNECTION PT-ES

USAGE

PT-ES		ES-PT	
%	%	%	%
7.3 (Jan-Feb)	18.3 (Feb)	37.6 (Jan-Feb)	49.7 (Feb)

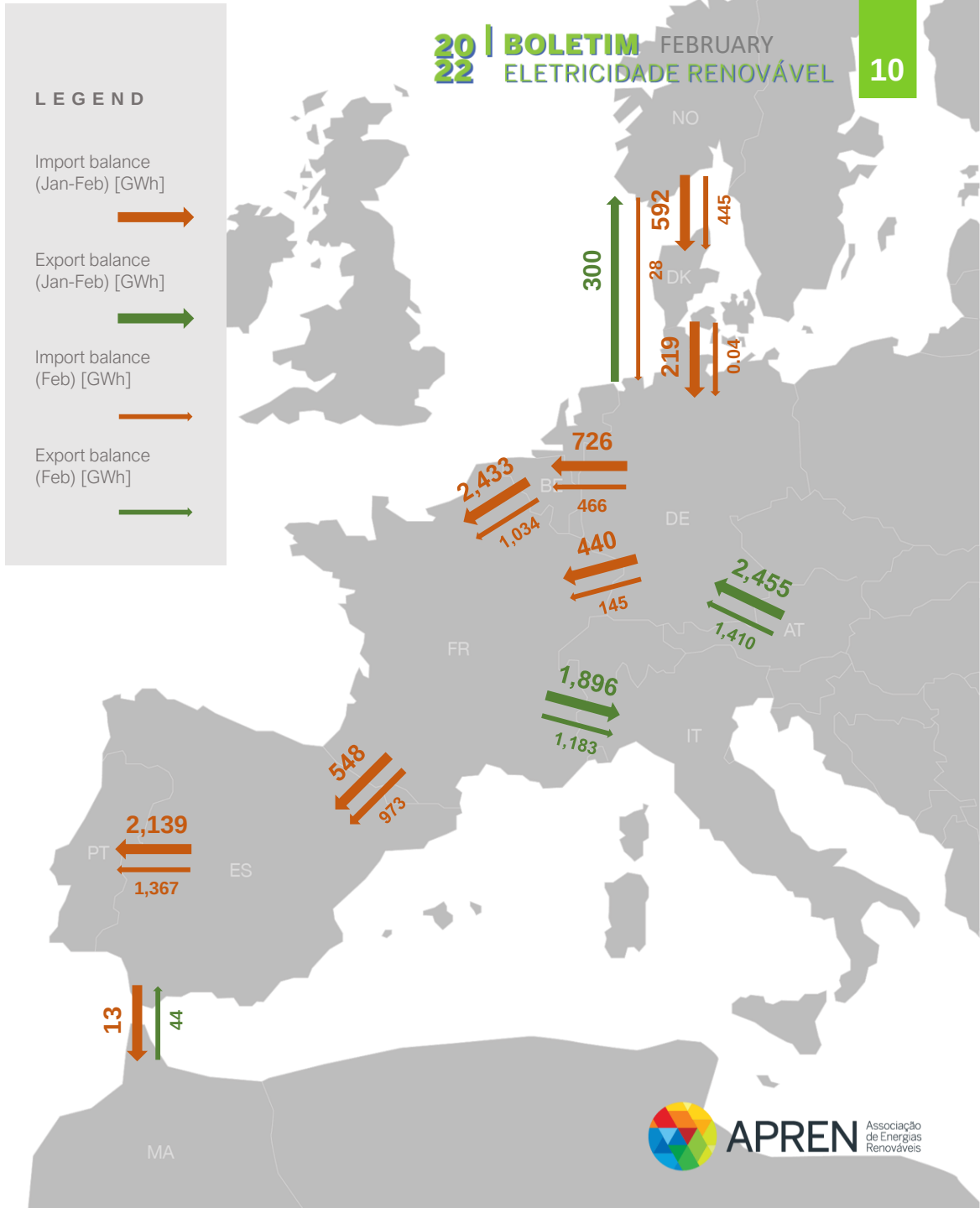
CONGESTION

PT-ES		ES-PT	
%	%	%	%
0.0 (Jan-Feb)	0.0 (Feb)	3.0 (Jan-Feb)	4.9 (Feb)

MARKETS SPLIT

PT-ES		MIBEL-FR	
%	%	%	%
2.8 (Jan-Feb)	4.2 (Feb)	52.3 (Jan-Feb)	48.8 (Feb)

Source: REN, Analysis APREN.



Power sector emissions

Between January 1 and February 28, specific emissions reached 141 gCO_2eq/kWh, while the total emissions from the electro-producing sector reached 1,0 $MtCO_2eq$.
The European Emissions Trading System (EU-ETS) recorded an average price of €87.5/tCO_2, increasing by more than double compared to the same period in 2021.

3Arithmetic average hourly prices
Source: OMIE, Analysis APREN

SECTOR EMISSIONS

1.0

MtCO2eq

10.4%

compared to Fev 21

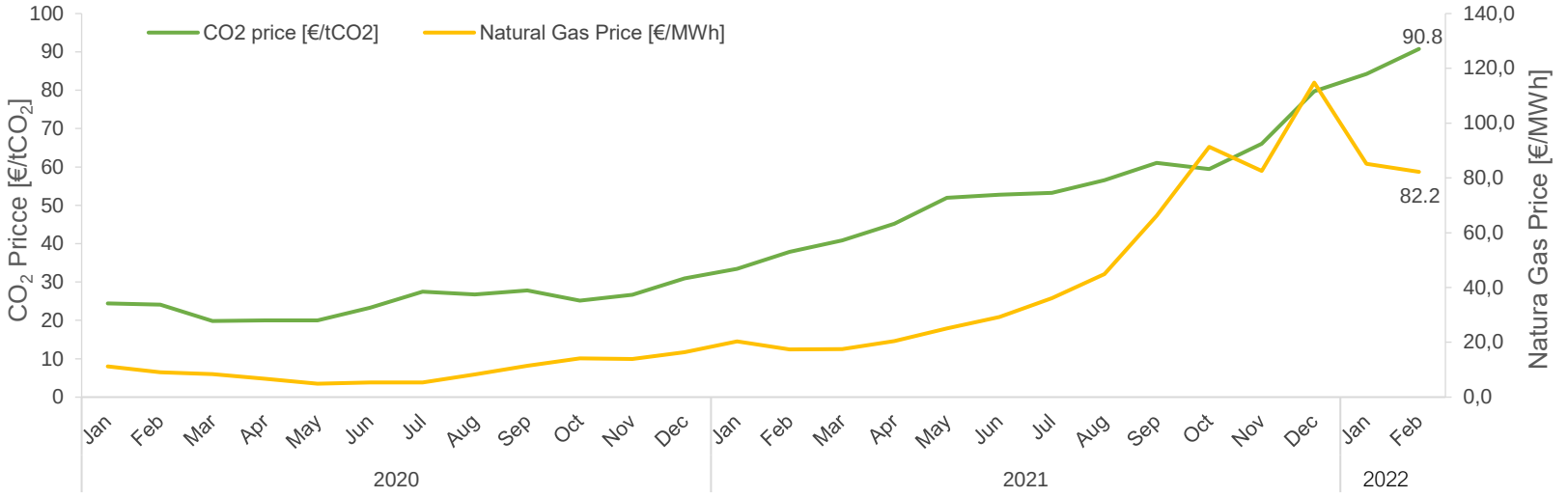
ALLOWANCES AVERAGE PRICE

€90.8

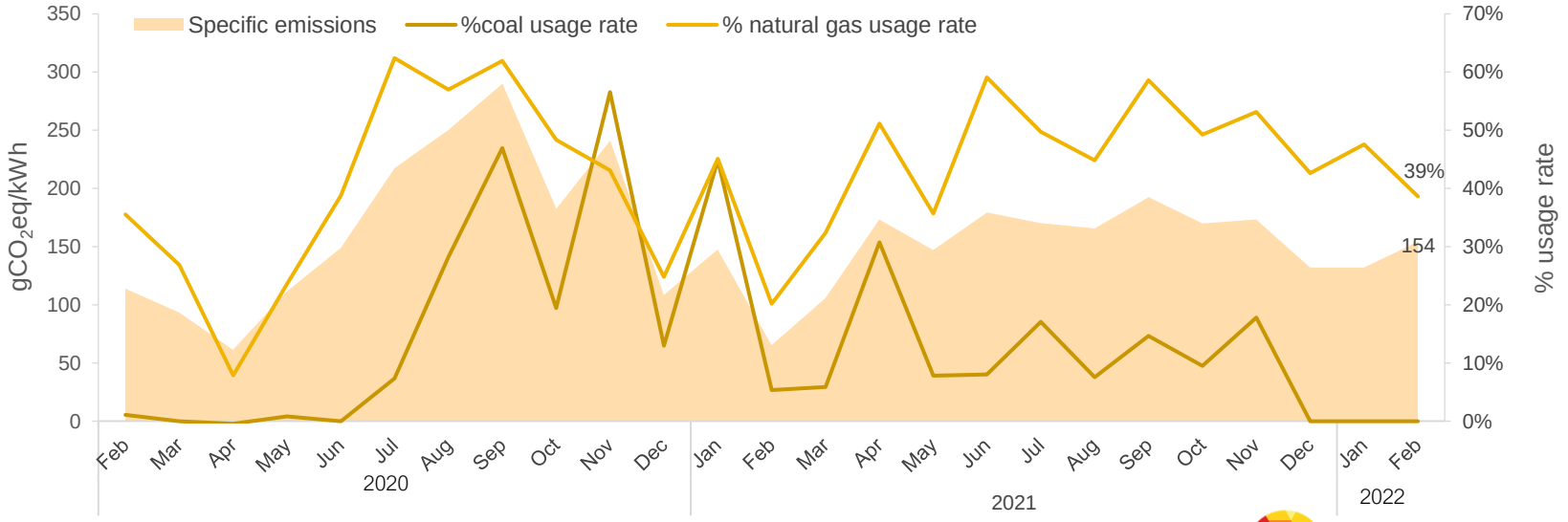
/tCO2

239%

compared to Fev 21



CO_2 allowances price at EU-ETS and natural gas price in Europe (Feb-2020 to Feb-2022).
Source: SendeCO2, WorldBank.



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

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Environmental Service

The indicators on the side identify the savings achieved between January 1 and February 28, 2022, in fossil fuels, CO_2 emissions and CO_2 emission allowances, resulting from renewable incorporation into electricity generation.

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

Renewables have avoided:

€488 M
Imported Natural Gas (Jan-Feb)

€238 M
Imported Natural Gas(Feb)

1.2 $MtCO_2eq$
CO_2 emissions (Jan-Feb)

0.5 MtCO2eq
CO_2 emissions (Feb)

€214 M
Imported electricity (Jan-Feb)

€16 M
Imported electricity (Feb)

€95 M
CO_2 allowances (Jan-Feb)

€49 M
CO_2 allowances (Feb)

Source: REN, REE, SendeCO2, WorldBank, DGEG, ERSE, Analise APREN.
Note1: For the estimate of the savings in imported natural gas was considered the price of natural gas in Europe indicated in the WorldBank.
Note2: For the estimation of savings in imported electricity, the average price on the MIBEL market was considered.

European Barometer

Nord Stream 2

With recent events in Ukraine, any activity related to Nord Stream 2 was suspended, therefore ceases the advance of the certification of the pipeline.

Complementary taxonomy for climate action

The European Comission (EC) presented a complementary taxonomy concerning activities with nuclear energy and natural gas, for climate change mitigation. Activities with nuclear energy and natural gas that are considered transitory have been defined, as well as the obligation for businesses in both sectors to have extreme transparency.

Cross-border renewable energy projects

EC has published the Commission Delegated Regulation (EU) 2022/342, supplementing Regulation 2021/1153 of the European Parliament on the specific selection criteria and details of the process for selecting cross-border renewable energy projects.

RES in Heating and Cooling

Eurostat has published a report on the increase in the integration of renewable energy into heating and cooling in Europe in recent years, reaching an average of 23.1% in 2020.

Energy inflation

According to the data published by Eurostat, inflation on energy reached record levels in January, with inflation of 27% in Europe. This figure has been increasing since February 2021 and is expected to continue to increase.

Impact of the war on the price of energy

With the current war in Ukraine, energy prices have skyrocketed. Adding to already high prices in recent months, tension between the EU and Russia has led to an even greater increase in the price of natural gas. Prices are expected to remain high and volatile until 2023, according to the UE report, to be released next month.

National Barometer

Average electricity prices

On February 1, the Dispatch No. 1322/2022 was published, setting out the impact parameter of the measures and out-of-market events registered within the European Union on the formation of average electricity prices on the wholesale market in Portugal, to be applied between 01.01.2022 and 31.03 of 2022.

4th Extraordinary PSR Auction

On February 17, a 4th extraordinary auction took place, for the placement of energy acquired by the Last Resort Trader (CUR) to producers under special regime (PSR).

Hydrogen and Renewable Gases

It was published on February 18, the Ordinance No. 98-A/2022, approving the Regulation of the Incentive System to Support the Production of Renewable Hydrogen and other Renewable Gases.

Licensing of interconnection infrastructures

DGEG published a dispatch on February 22, DGEG No. 05/2022, defining the specific procedures for licensing private service interconnection infrastructures.

Pego Auction

DGEG published two dispatches regarding the deadline for submitting applications for the allocation of injection capacity reserve in the Public Service Electric Network, the firts one until February 25, and later until March 4.

Information note Decree-Law No. 15/2022

DGEG published a clarification concerning the provisions introduced by Decree-Law No. 15/2022 on the repowering of renewable power plants and the provisions introduced by decree.

Photovoltaic power plants

The Dispatch No. 1424/2022; Dispatch No. 1873/2022; Dispatch No. 1874/2022 and Dispatch No. 2021/2022 have been published, which declare of essential public use the photovoltaic plants to be installed, respectively, in the parish of Carriço; in Mato do Conde buildings; rustic buildings located in the parish of Penamacor; and in the rustic buildings located in Margalha, Lamarancha, Perna do Arneiro and Vale da Vinha.

Rectification of information related to the Floating Solar Auction

A joint dispatch of the Deputy Secretary of State for Energy and the Secretary of State for the Environment was published, on the rectification of Table 4, on page 68, of the Floating Solar Auction Procedure Program.

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