



**APREN** Associação  
de Energias  
Renováveis

# PORTUGUESE RENEWABLE ELECTRICITY REPORT

SEPTEMBER 2019



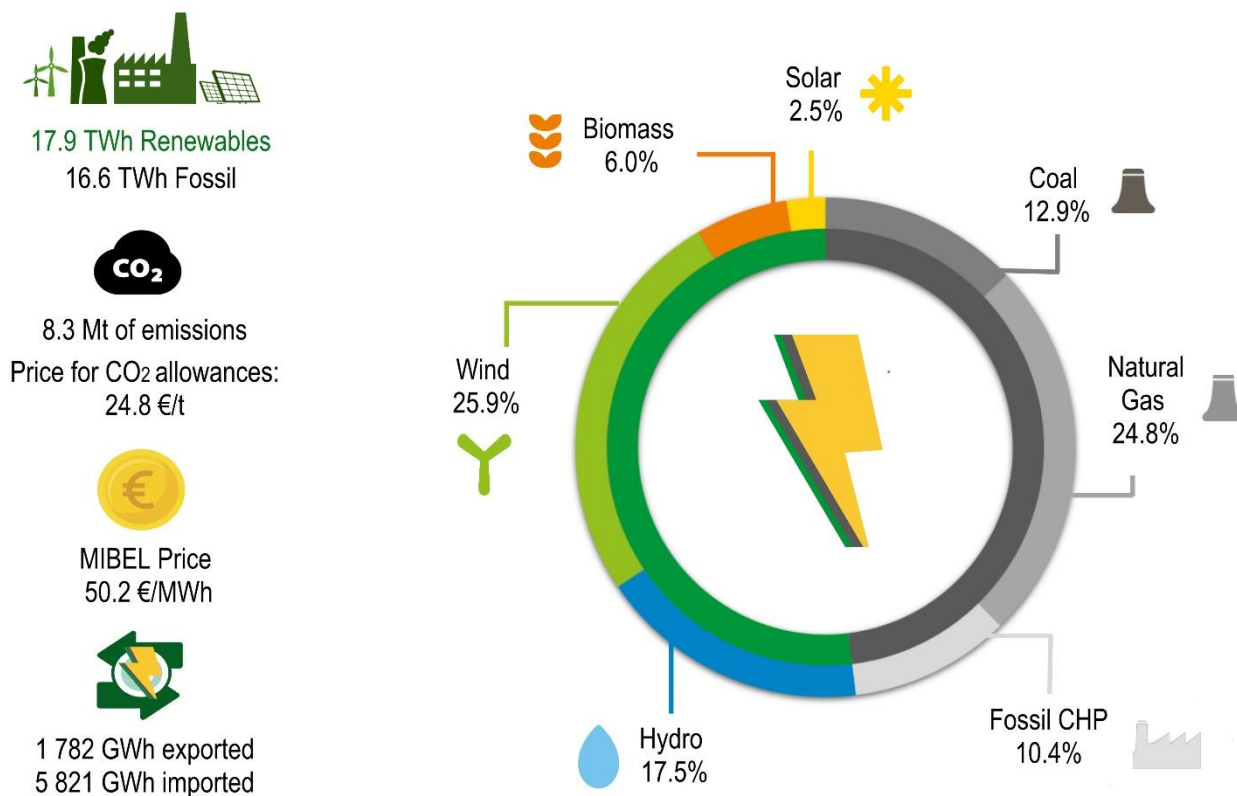
# RENEWABLE ELECTRICITY IN MAINLAND PORTUGAL

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## EXECUTIVE SUMMARY

- Between January and September 2019, renewable energy sources produced 17.9 TWh of electricity, contributing with 51.9 % of the electricity generation mix.
- Portugal imported 5.8 TWh of electricity and exported 1.8 TWh between January and September, resulting in an **import balance of 4.0 TWh**.
- During this period the average **MIBEL daily market price was 50.2 €/MWh**.
- The **electricity sector was responsible for the emission of approximately 8.3 million tonnes of CO<sub>2</sub>**, meaning a specific emission of 241 grams of CO<sub>2</sub> emitted for each kWh of electricity generated.

## ILLUSTRATIVE SUMMARY: ELECTRICITY PRODUCTION IN 2019



## ELECTRICITY GENERATION IN MAINLAND PORTUGAL

Between January and September, the renewable energy sources (RES) generated 17.9 TWh of electricity, contributing to the mix with 51.9 %, for a total electricity generated in Mainland Portugal of 34.5 TWh. The fossil power plants produced the remaining 16.6 TWh, which represented 48.1 % of the mix.

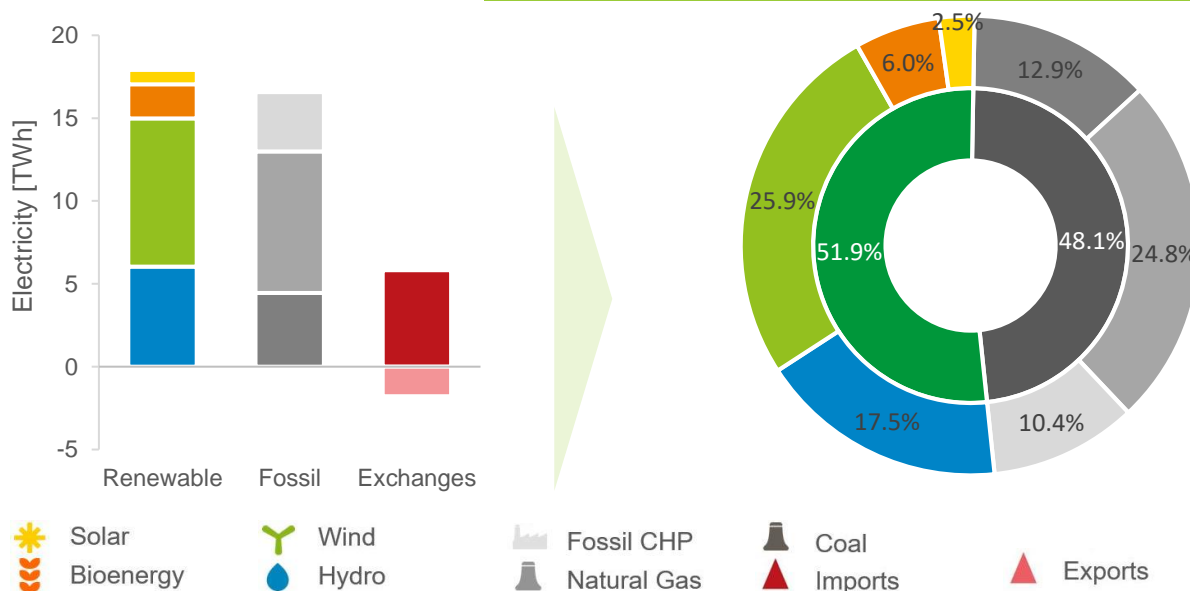
During these nine months, renewable electricity was 19.3 % lower compared to the same period of 2018 (22.2 TWh). Hydro production was 39 % lower in comparison to an average hydrological regime - hydro producibility index of 0.61. In turn, wind productivity remains on average, with a producibility index of 0.99.

In this period, the technology that individually contributed the most to the mix was wind, 8.9 GWh

(25.9 % of the mix). Hydro produced only 6.0 TWh of electricity (17.5 % of the mix), bioenergy (biogas, biomass and urban solid waste) accounted for 2.1 TWh (6.0 % of the mix), and solar PV, 0.9 TWh (2.5 % of the mix). It should be noted that solar PV technology had a substantial increase, of 30.6 %, compared to the same period of 2018. The commissioning of the Ourika! power plant, 46 MW, in July 2018 had certainly contributed to this growth.

In these nine months, there was an import balance of 4.0 TWh, resulting from a net import value of 5.8 TWh and exports of 1.8 TWh.

This import balance represented 10.5 % of electricity demand in Mainland Portugal (38.5 TWh<sup>1</sup>), 2.1 % lower than the same period of 2018 (1.0 % when considering temperature and number of working days corrections).



**Figure 1.** Electricity production by energy source in Mainland Portugal (Sep-2019).

Source: REN, APREN's analysis

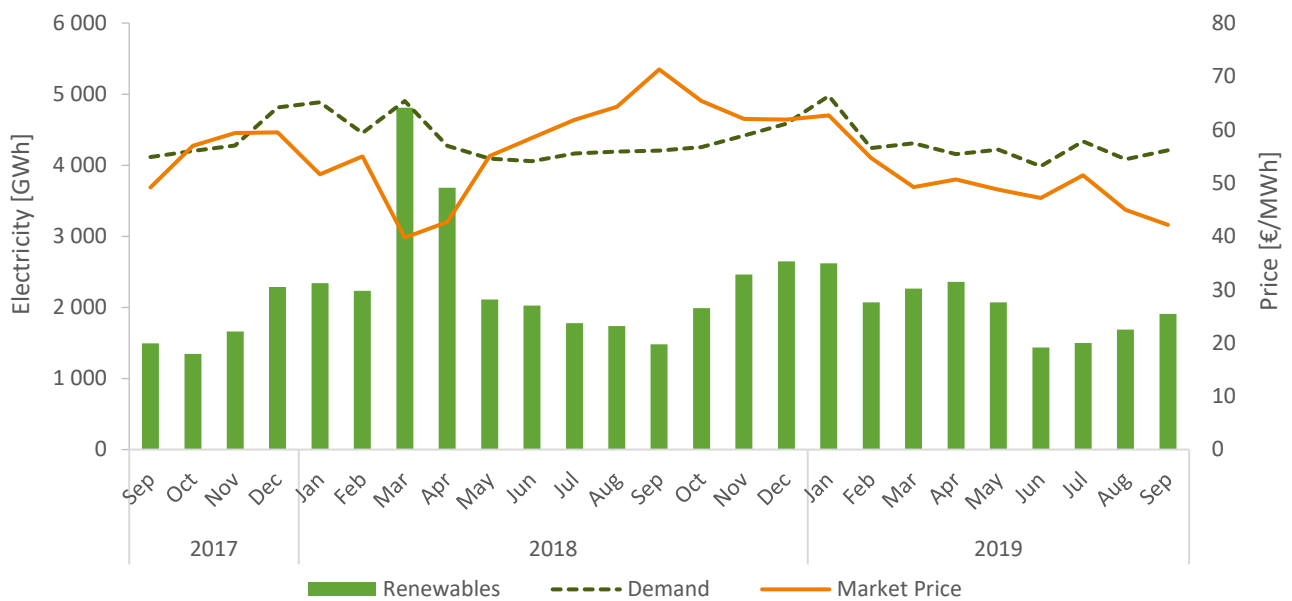
<sup>1</sup> Power plants' total electricity generation for consumption, not considering the import-export balance and grid losses.



## ELECTRICITY MARKET

Between January and September 2019, the average daily market price in the Iberian Electricity Market (MIBEL) was 50.2 €/MWh<sup>2</sup>, 9.7 % lower than the average price recorded during the same period of 2018. For September alone, an average hourly price of 45.0 €/MWh was verified.

Regarding the renewable electricity generation, September 2019 registered a much higher value than 2018's, largely due to the wind power production with a producibility index of 1.30.



**Figure 2.** Renewable electricity production, Wholesale electricity market price and Electricity demand (Sep-2017 to Sep-2019).

Source: OMIE, REN, APREN's analysis

<sup>2</sup> Simple arithmetic average of the hourly electricity prices between January and September 2019. Source: OMIE



## POWER SECTOR SPECIFIC EMISSIONS

In the period under review (Jan-Sep 2019), the electricity sector emitted about 8.3 Mt CO<sub>2</sub>, which translates into 241 grams of CO<sub>2</sub> emissions per kWh of electricity produced. Concerning the total emissions so far recorded in the sector, about 7.6 % were due to September's production activity.

Since the beginning of the year, the integration of renewables in the power sector has been able to avoid the emission of about 9.4 Mt CO<sub>2</sub> into the atmosphere. In addition to this environmental benefit, renewable electricity generation has prevented the expenditure of about 482 M€ on fossil

fuel imports and has saved around 243 M€ on CO<sub>2</sub> emission allowances in the European Emissions Trading System (ETS).

Since 2018, there has been identified a growing trend in the price of CO<sub>2</sub> allowances in the ETS, as a consequence of the ETS regulation review and the new guidelines for Phase 4 (2021-2030). In fact, during these 9 months, the average price was 24.8 €/tCO<sub>2</sub>, noting that September registered an average monthly price of 25.8 €/tCO<sub>2</sub>, which represents a 10.8% increase when compared to January 2019.



**Figure 3.** Specific emissions resultant from the power sector's activity in Mainland Portugal and CO<sub>2</sub> allowances price (Sep-2017 to Sep-2019).

Source: REN, APREN's analysis

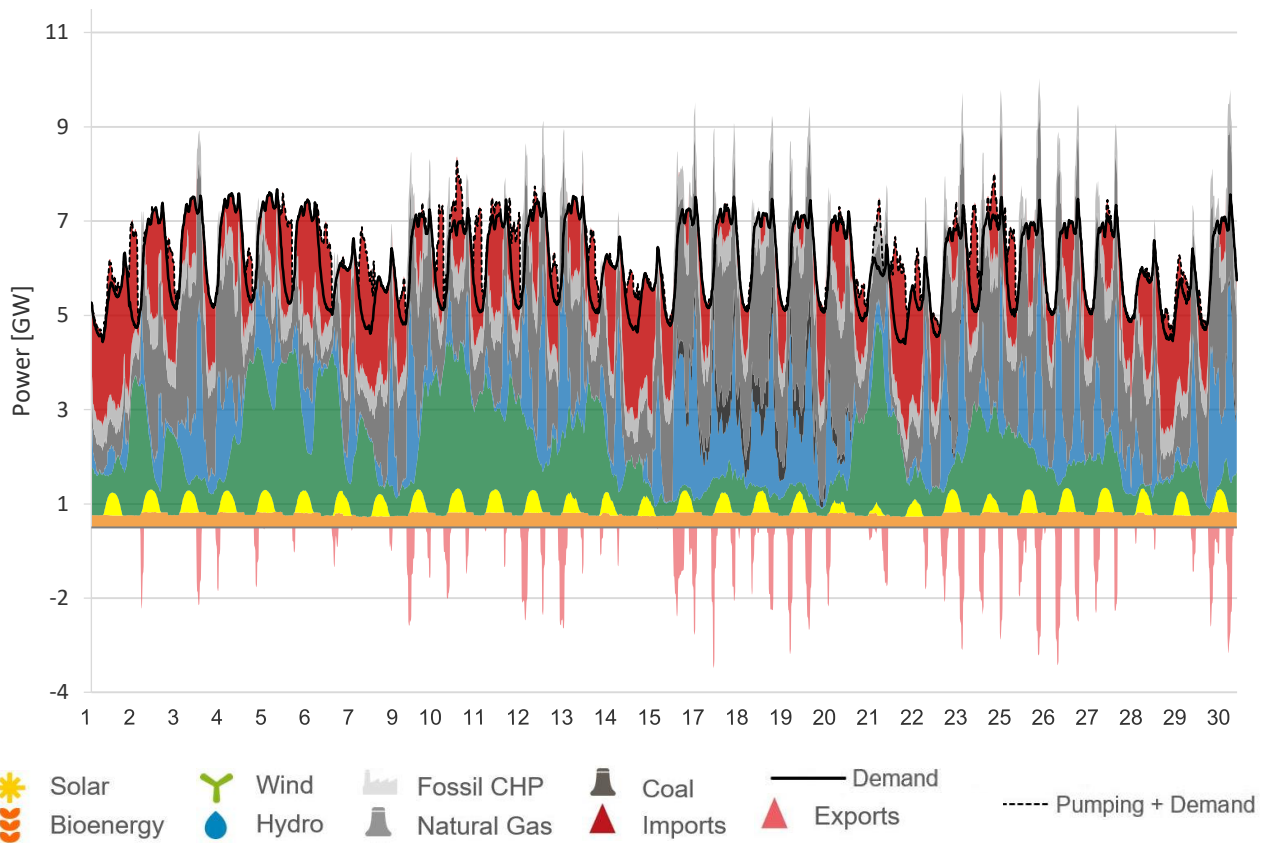


## SEPTEMBER'S LOAD DIAGRAM

September 2019's load diagram, represented in Figure 4, reflects the importing profile of the Portuguese electricity system that has been seen since the beginning of the year. In fact, this month, the electricity production in the Mainland (3 472 GWh) represented 89.1 % of the electricity demand (3 895 GWh), with the remainder being filled by an import balance of 614 GWh.

From the total electricity produced, 51.8 % was of renewable origin, mostly wind power, which accounted for 25.5 % of the monthly mix.

Coal-fired thermal production was halted for 25 days, with a continuous maximum non-operation period of 15 days. Such an event reflects its lower price competitiveness against natural gas. On the other hand, it also shows that, in a sustained way, SEN (Portuguese National Electricity System) can function technically and economically effectively with little use of coal power plants.



**Figure 4.** Load Diagram for Mainland Portugal (Sep-2019).

Source: REN, APREN's analysis



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## FINAL REMARKS

On September 16<sup>th</sup>, the General Directorate for Energy and Geology (DGEG) published the Dispatch n.º 40/2019 announcing “The new SERUP Portal and suspension for new registrations and MCP of Self-Consumption Production (UPAC)” to ensure proper data migration, to start and normalize the activity on the new platform. However, the SERUP suspension was scheduled until September

23<sup>rd</sup> and the opening of the new Portal in experimental phase scheduled for the period from September 23<sup>rd</sup> to 27<sup>th</sup>, which has not yet been fulfilled, and the SERUP is still suspended. The Dispatch informs that from October 1<sup>st</sup>, the New Self-Consumption Portal will be under normal operation.





### **Roadmap for Carbon Neutrality Approved**

On July 1<sup>st</sup>, the Council of Ministers Resolution n<sup>o</sup>. 107/2019 was published in the Official Gazette, approving the Roadmap for Carbon Neutrality 2050 (RNC 2050).



### **Solar Capacity Auctions**

The 25<sup>th</sup>, 26<sup>th</sup> and 29<sup>th</sup> of July were marked by the allocation of 1 400 MW of solar PV capacity in an auction, spread over 24 capacity lots.



### **Guarantees of Origin still not operational**

Although the public consultation on the “Guarantees of Origin Issuing Authority Procedures Manual” has already taken place in August, it has not yet been published and the Guarantees of Origin issuing system is not yet operational.



### **SERUP suspension for UPP (Small Production Units) registrations**

Registration platform for new production units (SERUP) for UPPs suspended throughout September. Although the new portal is expected to open in the experimental phase between September 23<sup>rd</sup> and 27<sup>th</sup> September, this has not yet happened.



### **Regulatory mechanism to balance competition in wholesale electricity market in Portugal**

Renewable power plants (solar and wind) with a capacity exceeding 5 MW and which are only on market remuneration are now covered by this mechanism.

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*Information available in:*

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