



APREN Associação
de Energias
Renováveis

PORTUGUESE RENEWABLE ELECTRICITY REPORT

MAY 2019



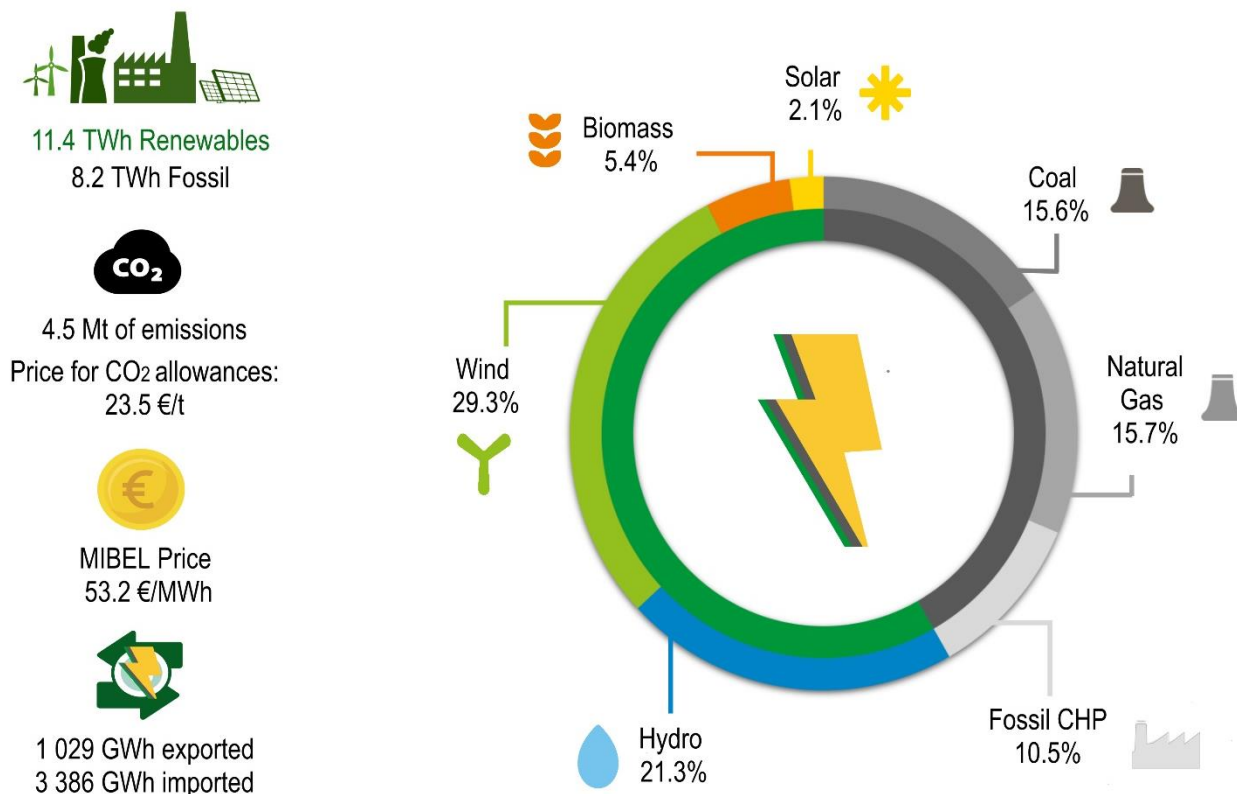
RENEWABLE ELECTRICITY IN MAINLAND PORTUGAL

MAY 2019

EXECUTIVE SUMMARY

- During the first five months of the year, **renewable energy sources accounted for 11.4 TWh of electricity production, contributing with 58.2 % to the mix.**
- Electricity imports from Spain continue to rise, **with a trading net import balance of 2.4 TWh** (11 % of the mainland's electricity demand).
- The **average price of electricity in the MIBEL market in the first five months of 2019 was 53.2 €/MWh.**
- **The CO₂ emissions derived from the power sector accounted for 4.52 Mt**, resulting from the emission of 231.5 grams of CO₂ per each kWh of electricity produced.

ILLUSTRATIVE SUMMARY: ELECTRICITY PRODUCTION IN 2019



ELECTRICITY PRODUCTION IN MAINLAND PORTUGAL

During the first five months of the year, renewable energy sources (RES) were responsible for the electricity production of 11.4 TWh, representing a 58.2 % share over a total value of 19.5 TWh for Mainland Portugal, with the remaining 8.2 TWh deriving from fossil fuels.

The share of renewables reached within this period is lower than 2018's (64.2 %), which is a result of scarce renewable energy resources, and consequent low productivity rates, ranging from 0.57 for hydro and 0.98 for wind, both significantly lower than 2018's values - 1.12 and 1.10, respectively.

In fact, 2019's renewable production was strictly dependent on the available wind resource, which

contributed with 29.3 % (5.7 TWh) of the mix. Hydro power plants produced 4.2 TWh (21.3 % of the mix), subdivided into 3.6 TWh from large power plants and 0.5 TWh from small power plants with a less than 10 MW of installed capacity. Solar PV, on the other hand, continues ascending in its contribution to the mix, by producing 0.4 TWh (in 2018 - 0.3 TWh), which is 2.1 % of the Mainland's production.

This low rainfall regime has direct impact on the dams' storage level, which is now at 62% of the national storage capacity, when in May 2018 this level was near 82%.

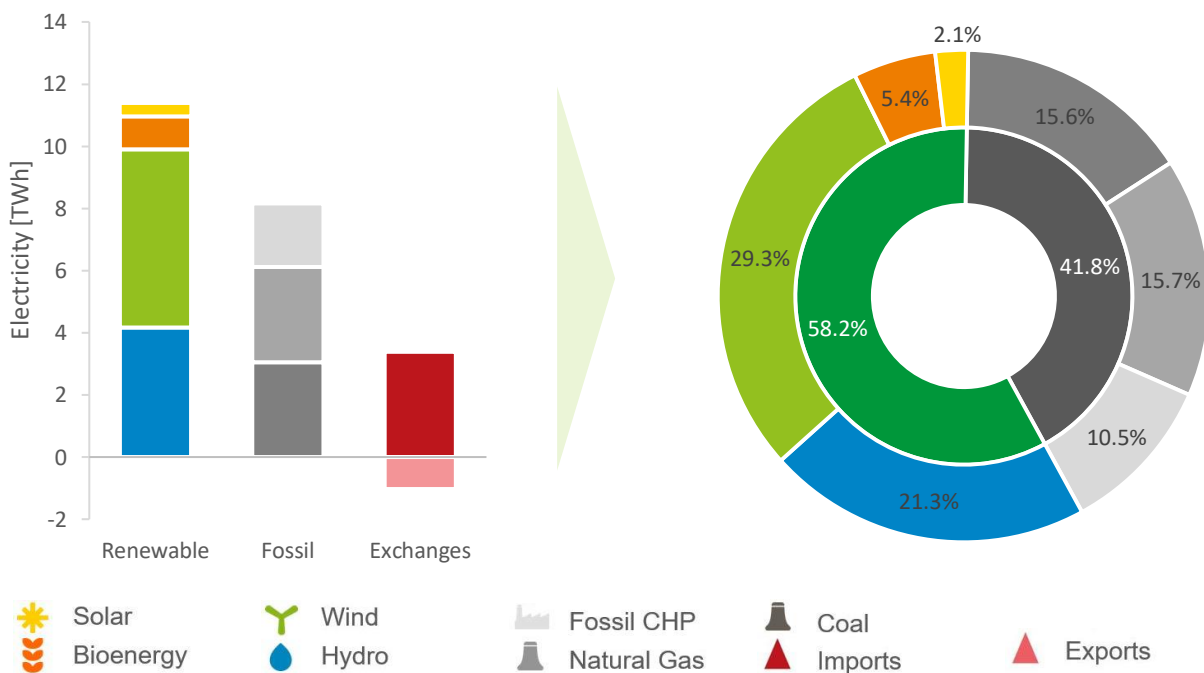


Figure 1. Electricity production by energy source in Mainland Portugal (May-2019).

Source: REN, APREN's analysis



In addition to the low renewable productivity, it should be noted that national fossil fuel power plants are selling electricity at higher prices to the market when comparing to:

1) the new Moroccan coal power plant, Sefi, which is not subject to the CO₂ emission allowances payment;

2) Spain, since in April the competitive equilibrium rate was reintroduced to the national fossil fuel plants, after a period of suspension to the fiscal measures inputted on Spanish fossil power plants.

In fact, electricity imports from Spain continue to rise, with 3.4 TWh of electricity being imported during these five months and only 1.0 TWh being exported, resulting in an import balance of 2.4 TWh.

As for the Mainland's electricity demand, it recorded 21.9 TWh¹ for the period between January and May 2019, showing a 2.3 % reduction compared to 2018's real value (1.2 % when considering the correction on temperature and number of working days).

¹ Power plants' total electricity generation for consumption, including the import-export balance and grid losses.



ELECTRICITY MARKET

During the first five months of the year, the Iberian electricity market (MIBEL) registered an average price of 53.2 €/MWh² for Portugal, showing a significant reduction towards the values reached at the beginning of the year, particularly in January (62.7 €/MWh). As for May alone, it recorded an average value of 48.8 €/MWh, which is 11.4 % lower than 2018's (55.1 €/MWh).

This reduction on the spot market price, which is translated in a monthly basis in Figure 2, is related

to a reduction in the Mainland's electricity demand and to a drop in the commodity prices – 29 %³ for natural gas and 27 %⁴ for coal.

However, it should be noted that in the 52 hours of 100 % renewable production (identified for the first five months of the year), an average price of 38.5 €/MWh was registered, thus reflecting the positive impact of renewable production on the spot market price.

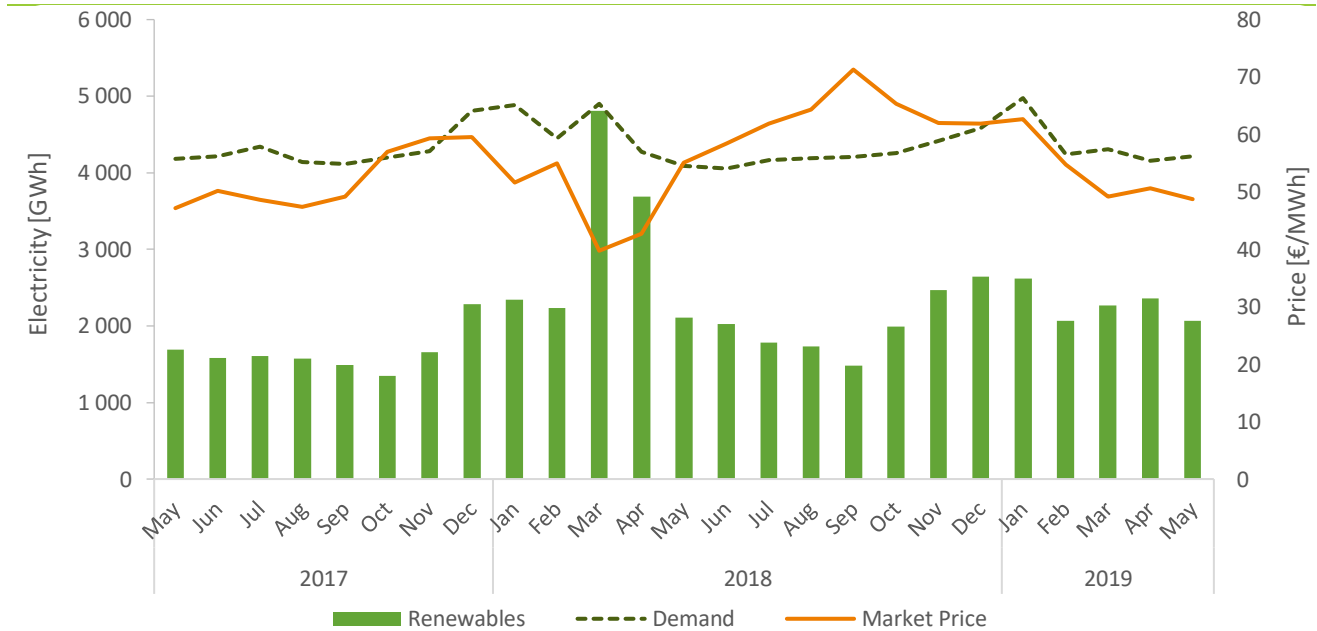


Figure 2. Renewable electricity production, Wholesale electricity market price and Electricity demand (May-2017 to May-2019).

Source: OMIE, REN, APREN's analysis

² Arithmetic average of the electricity prices in May 2019. Source: OMIE

³ Source: The World Bank

⁴ Source: DGEG



POWER SECTOR SPECIFIC EMISSIONS

In the period under analysis (January-May 2019), the CO₂ emissions derived from the power sector reached a total amount of 4.5 Mt, resulting from the emission of 231.5 grams of CO₂ per each kWh of electricity produced.

One should notice that this scenario would be entirely if there was no renewables integration in the power system, leading to an additional 5.4 Mt of CO₂ emissions and an extra expenditure of 127 M€ in CO₂ allowances.

Focusing on the European market for CO₂ allowances, it is noticeable the continuity in its

upwards tendency, which now stands at an average price of 23.5€/tCO₂, when in May alone, it reached 25.5 €/tCO₂.

It should be noted that these allowances are imposed on European fossil fuel production units only, therefore, they are not applied to the electricity imported from outside Europe, as it is the case of Sefi's electricity production and its subsequent export to Spain, turning its production erroneous and artificially cheaper than the electricity derived from its European counterparts.



Figure 3. Specific emissions resultant from the power sector's activity in Mainland Portugal and CO₂ allowances price (May-2017 to May-2019).

Source: REN, APREN's analysis



MAY'S LOAD DIAGRAM

The load diagram for May (Figure 4), translates different production profiles, with a RES representativeness of 56.5 % (2 073 GWh), within which we highlight the wind technology, that represents 31.1 % (1 149 GWh) of the mainland's total electricity production (3 671 GWh). In fact, May registered the year's highest wind productivity index, with a value of 1.25.

Notwithstanding the import tendency that has taken place since the beginning of the year, this month has registered electricity imports of 675 GWh, as opposed to exports of only 267 GWh. When compared to the electricity demand (4 075 GWh), the import balance (408 GWh) is of notorious representativeness (10.0 %).

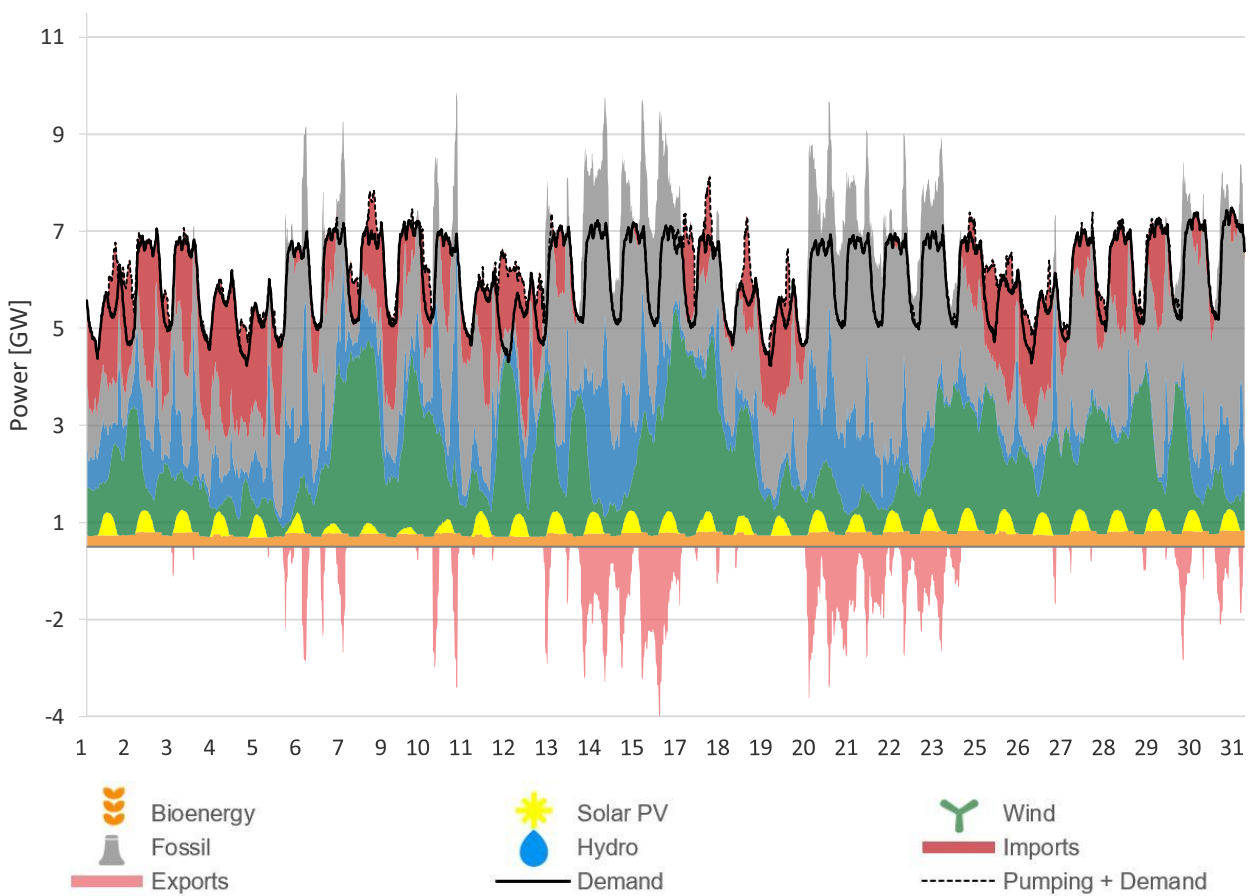


Figure 4. Load Diagram for Mainland Portugal (May-2019).

Source: REN, APREN's analysis



FINAL REMARKS

In the beginning of June, the Decree-Law n°. 76/2019 was published in the Official Gazette, amending the legal regime for electricity production, transportation, distribution and trading activities and for the organization of electricity markets. This document adapts the current legal regime to allow the adoption of auctioning procedures for the attribution of production permits, in prejudice to sweepstakes, in practice previously.

Aiming to optimize the administrative procedures and to avoid unnecessary costs for stakeholders - eg. environmental impact assessments - this document reverses the procedure for the attribution of production permits, whereby, one should first obtain the title of capacity reserve in the Public Service Electricity Network (RESP).

This Decree-Law also establishes the possibility for project developers, for whom there is no available capacity in the network, to discuss with Network Operators solutions concerning the network expansion or the anticipation of network investments, assuming a fair allocation of charges.

It also regulates the permitting process of hybrid projects (diverse energy sources) within existing power plants, following the same rules as to the over-equipment, in order to optimize the plants' load diagram, without interfering with the grid connection capacity value previously licensed.

Small production units with an installed capacity of less than or equal to 1 MW are also covered by the Decree-Law n°. 76/2019 (enlarging the scope of the maximum power covered by Law-Decree n°. 153/2014 for small production and self-consumption

units). In these cases, the permitting process is simplified, requiring only a prior registration and a certificate for exploitation. The power licensed of these units are subject to a competitive price descending bidding procedure against a reference value set by the Government and revised and updated until December 15th of each year. The reference tariff price for these small power plants will be, according to this new Decree-Law, defined based on the average values obtained on the capacity auction for large power plants.

In this new Decree-Law, the repowering with increased capacity is considered as a greenfield project, requiring new production and exploitation permits. However, the framework for repowering should consider the guidelines from the European Commission which impose simplified permitting procedures, due to be decided within a maximum period of one year.

At last, it also establishes and defines the market aggregator figure (already foreseen in Law-Decree n°. 215-B/2012 but never put into practice), whom is expected to acquire and resell to the market the energy produced by those power plants that so request.

Apart from this Decree-Law, the public institutions also announced that during this summer, the Manual of Procedures of the regulatory framework for the Certification of Guarantees of Origin (expected to be operational later this year), will be put under public consultation.





Ordinance n. 043/2019: Over-equipment of wind farms

Exempts ERSE's consultation for the projects on the over-equipment of wind farms, in cases where the project developer accepts a fixed tariff of 45 €/MWh, for a 15-year period, to the extra amount of energy derived from the over-equipment.



Solar Capacity Auctions

The Environment and Energy Transition Ministry expressed its intention of holding a 1 400 MW auction for new PV capacity in June 2019.



Guarantees of Origin transition to REN

REN was again named as the Responsible Entity for the Issuing of GO - Guarantees of Origin (it had already been operational from 2010 to 2015, but only for high efficiency cogeneration). No GO for renewable has been issued so far.



Law-Decree nº. 76/2019

Allows the adoption of auctioning procedures

Published on June 3rd, 2019, this Law-Decree adapts the current legal regime to allow the adoption of auctioning procedures for the attribution of connection rights for new power plants.



Hybrid projects

It regulates the permitting of hybrid electricity systems, that is, production units based on different primary sources.



Market facilitator

It introduces the market aggregator/facilitator agent that is responsible for the aggregation of the energy produced by the power plants under the general remuneration regime, and then selling it to the market.



Small projects receive a compensation based on the capacity auction values

Small production units with an installed capacity of less than or equal to 1 MW are also covered by this Decree and are subject to a competitive bidding procedure applied to a reference tariff, which will be defined based on the average values from the capacity auction.



Repowering with increased power not considered

Repowering projects with increased capacity are dealt with as greenfield ones, thus not considering the guidelines from the European Commission that imposes a simplified permitting procedure to this kind of projects, which should be decided within a maximum period of one year.

Information available in:

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