APREN Associação de Energias Renováveis

PORTUGUESE RENEWABLE ELECTRICITY REPORT

MARCH 2019

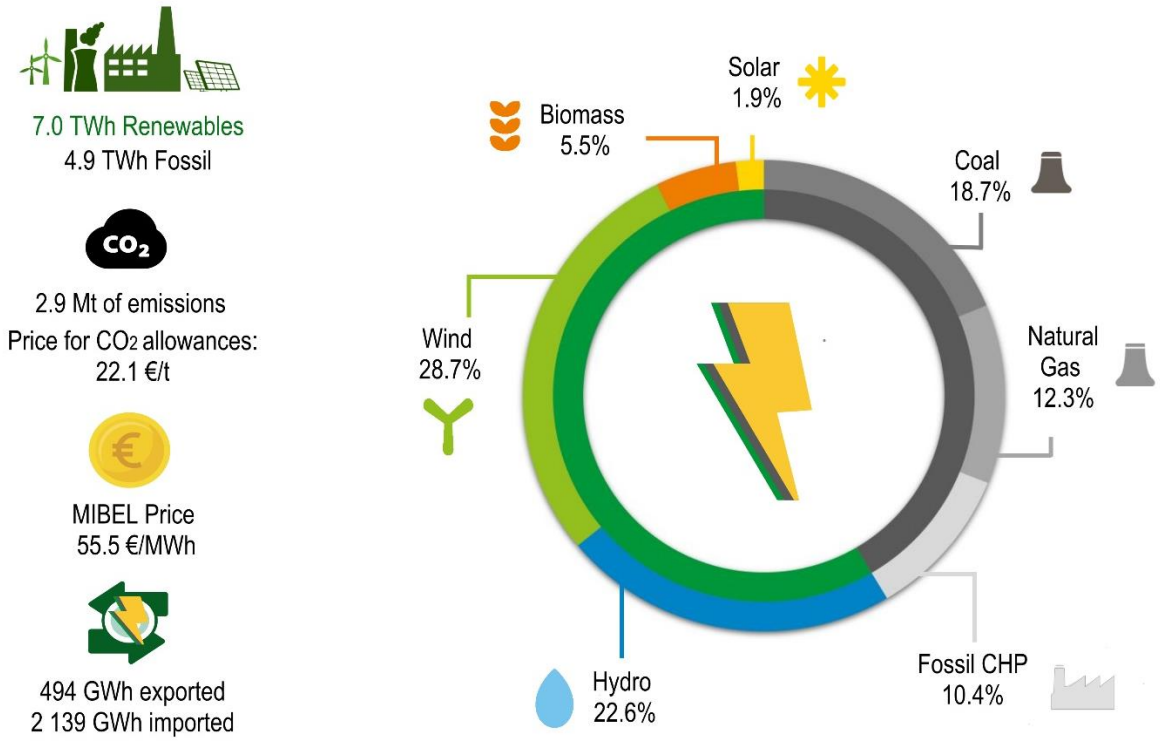
RENEWABLE ELECTRICITY
IN MAINLAND PORTUGAL

MARCH 2019

EXECUTIVE SUMMARY

- **Since the beginning of the year, renewable electricity sources accounted for 58.5 % of the electricity generation mix in Mainland Portugal**, by producing 6 954 GWh, in a total production of 11 881 GWh.
- In terms of international trade, **we highlight the fact that since the beginning of the year, Mainland Portugal recorded a net import balance of 1 645 GWh**, which represents 12.2 % of its electricity demand.
- **The average price in the MIBEL electricity market was 55.5 €/MWh** (between January and March 2019). It should be noted that since the price peak reached in September 2018 (71.3 €/MWh), we have seen a gradual reduction of its value, which in March 2019 was 49.2 €/MWh.
- **The thermal power sector emitted 2.9 Mt of CO_2**, which represents a specific emission of approximately 243.3 gCO_2 for each kWh of electricity produced.

ILUSTRATIVE SUMMARY: ELECTRICITY PRODUCTION IN 2019



ELECTRICITY PRODUCTION IN MAINLAND PORTUGAL

The first quarter of 2019 registered a **58.5 % (6 954 GWh) share of renewable energy sources (RES) in the electricity production mix** (Figure 1) in Mainland Portugal. During this period, a total of 11 881 GWh of electricity was produced, of which 41.5 % (4 927 GWh) were of fossil origin.

Renewable production fell well below those achieved in the same period of 2018, 9 382 GWh of electricity produced, which was 34.9 % higher than that of the current year. These results were mainly due to unfavourable weather conditions and low renewable producibility, with an accumulated hydroelectric production index of 0.52 (in 2018 - 0.93) and a cumulative wind producibility index of 0.88 (in 2018 - 1.18).

Focusing on production values by technology, wind was the biggest contributor, with 3 404 GWh (28.7 % of the mix) of electricity produced, followed by hydro, with 2 681 GWh (22.6% of the mix). Of these, wind saw the biggest reduction in its production when compared to 2018's first quarter, when it recorded 4 464 GWh of electricity produced. The remaining RES - bioenergy and solar – contributed, individually, with 5.5 % (649 GWh) and 1.9 % (221 GWh), respectively, for the mainland's electricity mix.

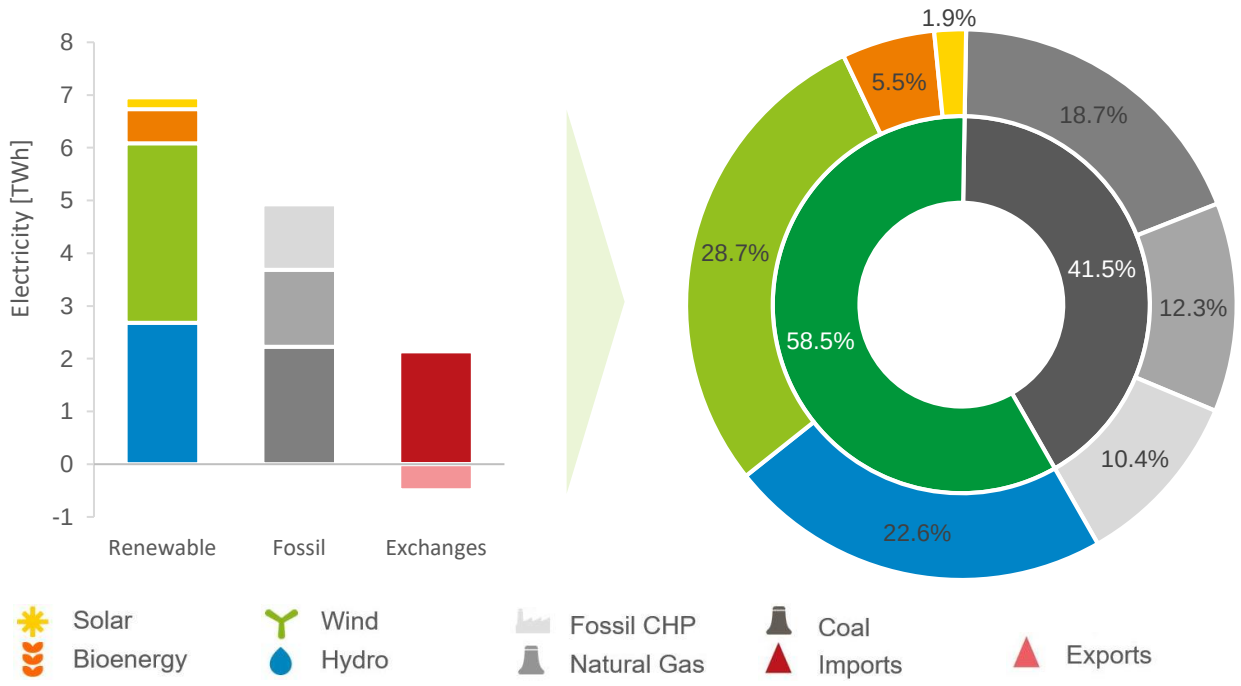


Figure 1. Electricity production by energy source in Mainland Portugal (Mar-2019).

Source: REN, APREN's analysis

Within the thermal fossil fuels category, coal had the greatest contribution, by producing 2 227 GWh of electricity (even so, less than 2018's 2 400 GWh). This is a consequence of a less competitive position by national fossil power plants within the Iberian Market (MIBEL), since Natural Gas also saw reductions in its production, downgrading from 2 156 GWh to 1 459 GWh - 32.3%. The values registered in the period from January to March 2019 reflect a significant reduction in the electricity production, of 21.3 % compared to 2018's (15 098 GWh). This is partly due to the **reduction in electricity demand**[1] **by 3.5 % compared to 2018** (1.6 % when accounting the corrections in temperature and number of working days), with a current cumulative value of 13 526 GWh, which goes against the upwards tendency that had been registered until then, and since 2016.

Another factor influencing the downgrade on the electricity production is the **cumulative import balance, which currently represents 12.2 % (1 645 GWh) of the electricity demand in Mainland Portugal**, with the importation of 2 139 GWh and the exportation of only 494 GWh. It is noteworthy that this period registered the second largest import balance since 2010, only to be exceeded in 2012, which had an accumulated hydroelectric producibility index of 0.19 for the same period.

This import record is not disconnected from the strong pressure from Morocco to trade electricity since the start-up of its new coal power plant. This, together with the imbalance between European Union (EU) and Morocco existing rules, allows Morocco's coal-fired electricity to be cheaper than in EU countries. This situation should be reviewed because it benefits electricity production with most greenhouse gases (GHGs) emissions, as opposed to national and European rules that penalize the negative externalities of this type of production.

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

Regarding the electricity market, the monthly evolution of the electricity price, shown in Figure 2, translates its gradual reduction since September 2018 (71.3 €/MWh) and, at a more toned pace, since January 2019 (62.7 €/ MWh), recording 49.2 €/MWh[2] in March.

We highlight this **continuous reduction in electricity prices in the daily MIBEL market, that currently stands at an average value of 55.5 €/MWh** for the first quarter of the year. Despite this downfall, the average price is still 13.7 % higher than the one for 2018 (48,8 €/MWh) within the corresponding period.

In this period, 28.8 non-consecutive hours of 100 % renewable production were identified, and these were characterized by an average market price of 46.6 €/MWh, which is 16.0 % lower than the real average market price.

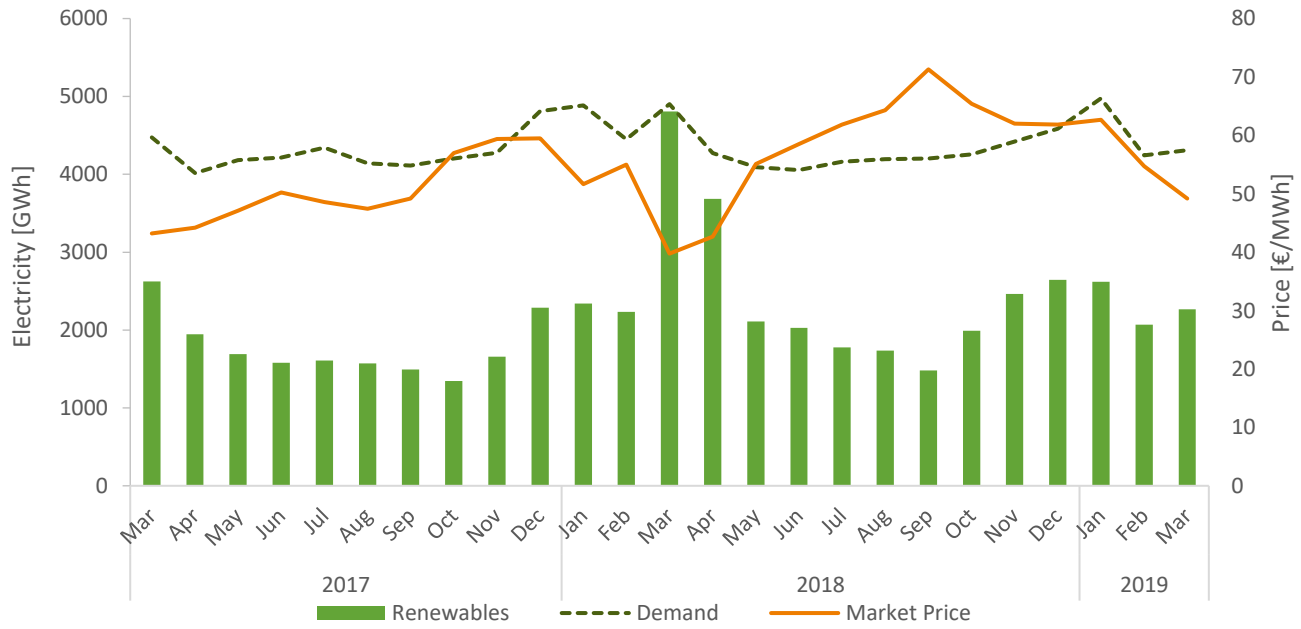


Figure 2. Renewable electricity production, Wholesale electricity market price and Electricity demand (Mar-2017 to Mar-2019).
Source: OMIE, REN, APREN's analysis

[2] Arithmetic average of the electricity prices in March 2019. Source: OMIE

POWER SECTOR SPECIFIC EMISSIONS

During the first quarter of the year the power sector emitted 2.9 Mt of CO_2, resulting in approximately 243.3 gCO_2 per each kWh produced. At the monthly level, March recorded specific emissions of 213.0 gCO_2/kWh, 1.4 times higher than in 2018, which is a direct result from the lower renewable electricity production.

Focusing on the **CO_2 allowances price** within the European Carbon Allowances Market, **the average price was 22.1 €/tCO_2 for the period between January and March**, which is 2.3 times higher than the one registered for the same period of 2018 (9.79 €/tCO_2). This continuous increase in the allowances price penalizes the most CO_2-emitting fossil fuel energy sources.

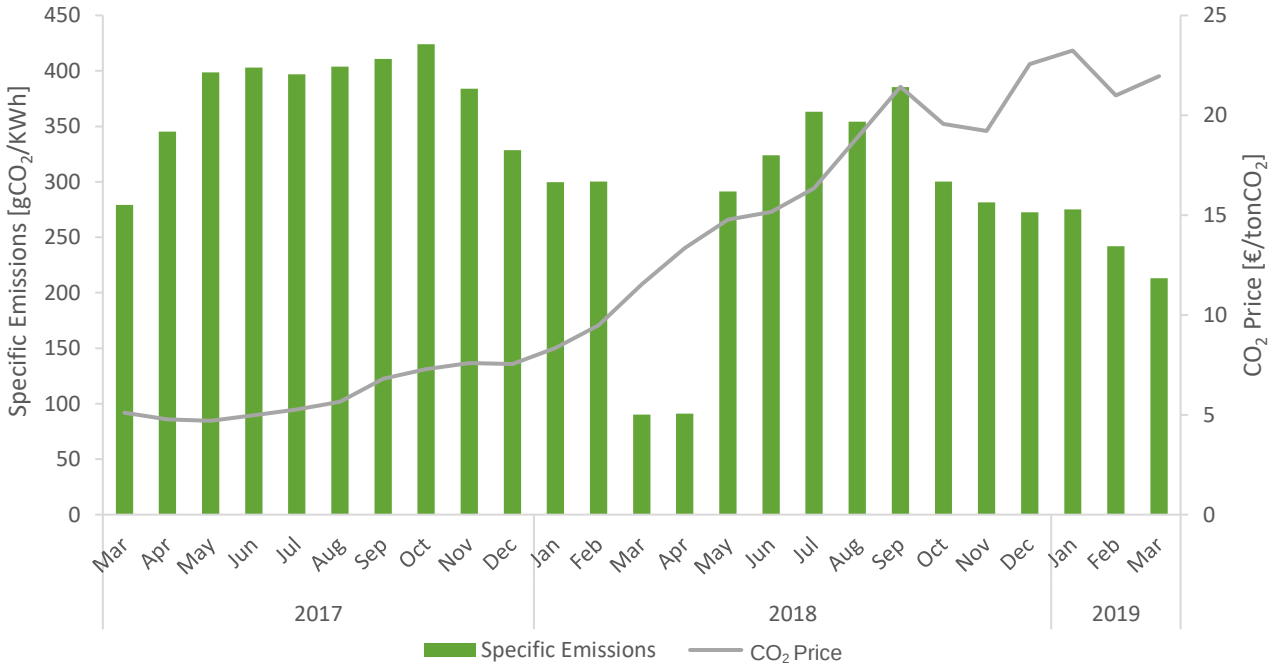


Figure 3. Specific emissions resultant from the power sector's activity in Mainland Portugal and CO_2 allowances price (Mar-2017 to Mar-2019).

Source: REN, APREN's analysis

MARCH'S LOAD DIAGRAM

The load diagram for March (Figure 4) reflects the importing character of the national power system in the first quarter of 2019, which is therefore characterized by scarce exporting periods.

In March 2019, a total of 872 GWh of electricity was imported and only 83 GWh exported, thus aggravating the external dependence of the Portuguese power system. During this period, the maximum consecutive period of importation lasted more than 4 days (from 13th to 18th) and the maximum daily import value was 18.9 GWh (on the 25th).

These values are, as previously mentioned, partly due to the lower competitiveness of national fossil fuel power plants within the MIBEL daily market, and also to low renewable productivities.

These productivities resulted in a significant decrease in the renewables share compared to March 2018, in which the national renewable electricity production was enough to supply the electricity demand in Mainland Portugal. Whereas, in March 2019, the RES share in the national electricity demand was only 54.2 %, with wind accounting for 25.9 % and hydro with 20.8 %.

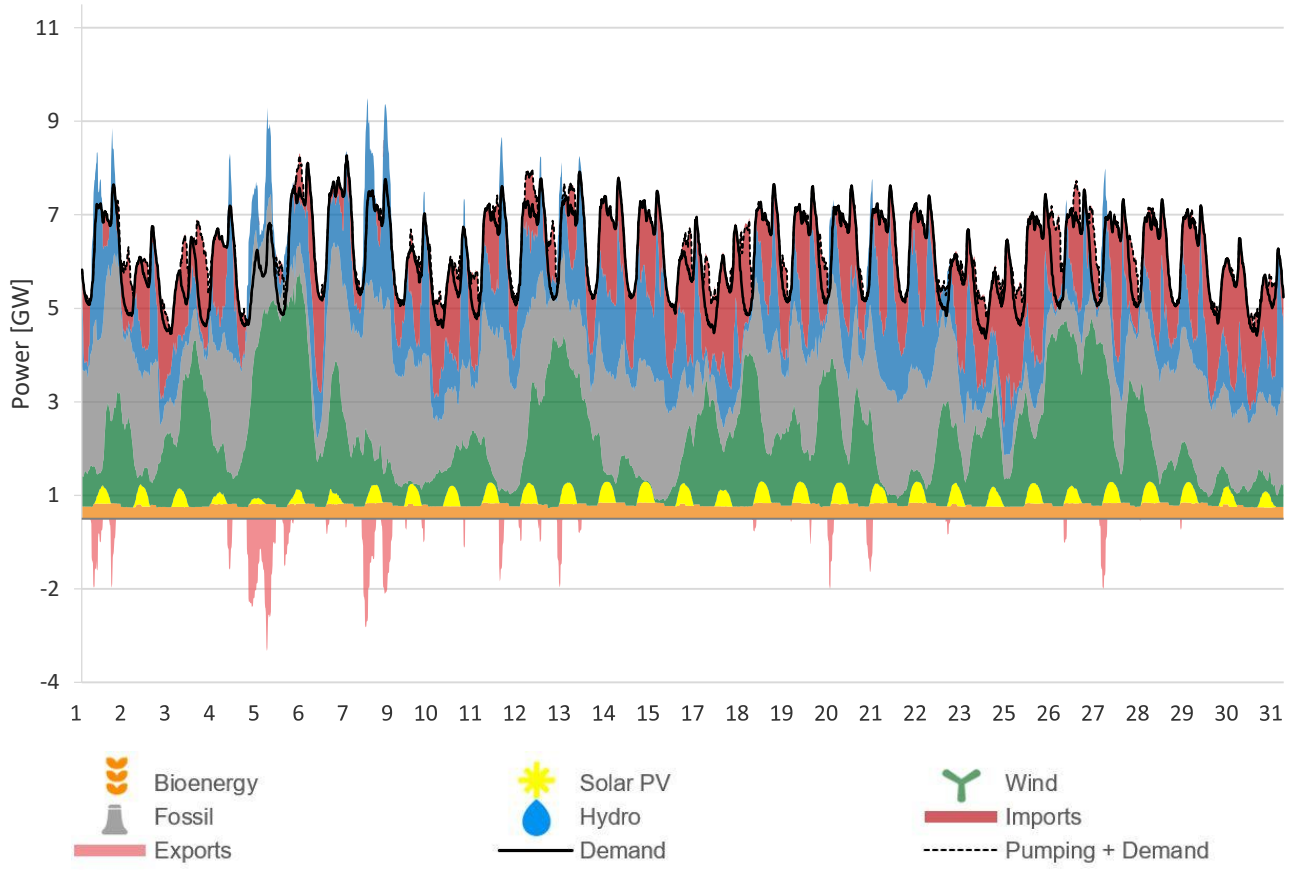


Figure 4. Load Diagram for Mainland Portugal (Mar-2019).

Source: REN, APREN's analysis

FINAL REMARKS

On March 26th, the European Parliament signed and approved the Electricity Market Directive and Regulation, thus closing negotiations on the European Commission's (EC's) Clean Energy Package, which is an important step for the Energy Union and for the fulfilment of the European and national efforts to combat climate change. These two legislative acts allow the adaptation of current market rules to new realities that are compatible to the growth and development of renewables incorporation in the electricity market.

At the national level, we highlight the opening of applications for the Environmental Fund Programs: (1) EduMove-te, for sustainable mobility; (2) Re-Educa, for the circular economy; and, (3) EducarTe, for the preservation of the territory. These programmes are important for sustainable development and for the pursuit of national and international goals and commitments to decarbonise the economy, with respect to the fight against climate change and the conservation of nature and biodiversity.

Closing of negotiations for the EC's Clean Energy Package

On March 26th, the European Parliament signed and approved the Electricity Market Directive and Regulation, thus closing the negotiations on the EC's Clean Energy Package.

Ordinance n. º43/2019: Over-equipment of wind farms

Exempts ERSE's consultation for the over-equipment projects in cases where the project developer accepts a fixed tariff of 45 €/MWh for 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 1 350 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.

Capacity allocation session for SPUs was rescheduled

The capacity allocation session for SPUs - Small Production Units, that was previously scheduled for the end of March was rescheduled for April's session. Thus, March's expected allocated capacity will be added to the capacity to be allocated in April.

Ordinance setting reference tariff for SPUs yet to be published

The Ordinance defining the reference tariff applicable to SPUs for 2019 has not yet been published.

Information available in:

APREN | Communication and Technical Departments

Av. Sidónio Pais, nº 18 R/C Esq. 1050-215 Lisbon, Portugal

Tel. (+351) 213 151 621 | www.apren.pt