REPORT
RENEWABLE ELECTRICITY IN PORTUGAL

Monthly Edition

January 2018

APREN Associação de Energias Renováveis

RENEWABLE ELECTRICITY IN MAINLAND PORTUGAL

In January of 2018, renewable energy accounted for 47.7% of the total electricity produced in Mainland Portugal. The technology that generated more electricity was wind (27.6%), overcoming natural gas and coal power plants.

During the same period, the average price of the electricity market in January was 51.63 €/MWh, a value slightly below the average of the previous year (52.39 €/MWh).

Electricity Production Profile

The year of 2018 started with a share of renewables of 47.7 % (2,341 GWh) in the total electricity production of Mainland Portugal (Figure 1). The largest renewable share was due to wind power that accounted 27.6% in the mainland electricity mix. By its turn, inside the fossil group (2,569 GWh), coal accounted for 21%, natural gas 23% and cogeneration 8.3%.

January was also characterized by a slight increase of the electricity consumption, when compared to the same period of last year, of 0.3% (1.2% with the correction of temperature and working days). In relation to international exchanges of electricity, the monthly export balance was 25 GWh, due to the export of 365 GWh and the import of 340 GWh.

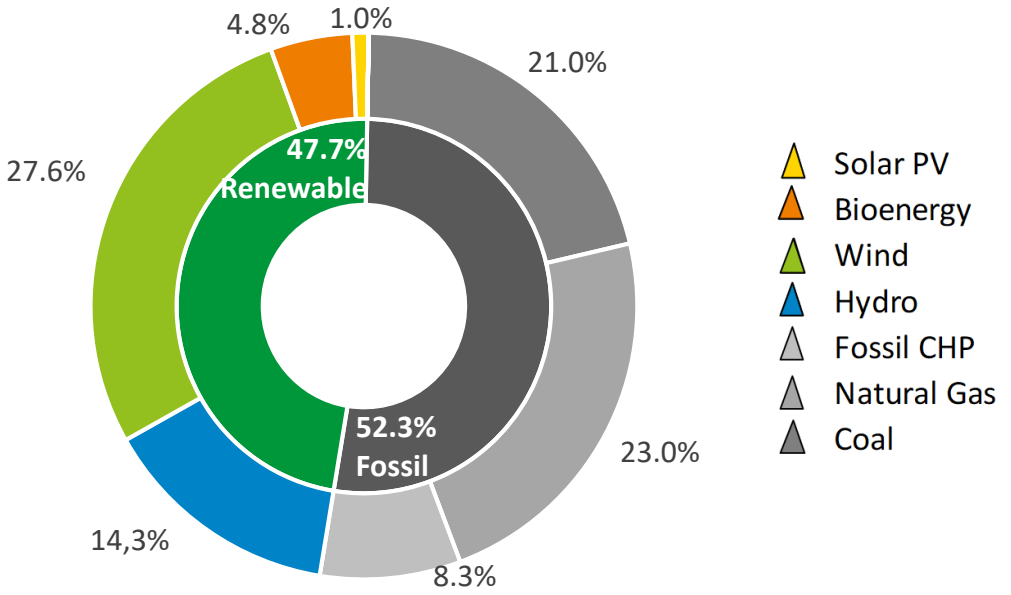

Figure 1: Electricity generation by energy sources in Mainland Portugal. (January 2018)

Source: REN; APREN's analysis

Electricity Market

The average price evolution of electricity in the wholesale market, in the context of the last two years, shows a correlation between the price of electricity and the renewable electricity generation. This means that with more renewable electricity production, the lower is the price of electricity in the market.

In January of 2018, the electricity market averaged 51.63 €/MWh, for a 47.7% share of renewables in the total production of Mainland Portugal (figure 2). By contrast, in January 2016, there was an average electricity market value of 36.39 €/MWh, for a share of 70.2% of renewables in the total production.

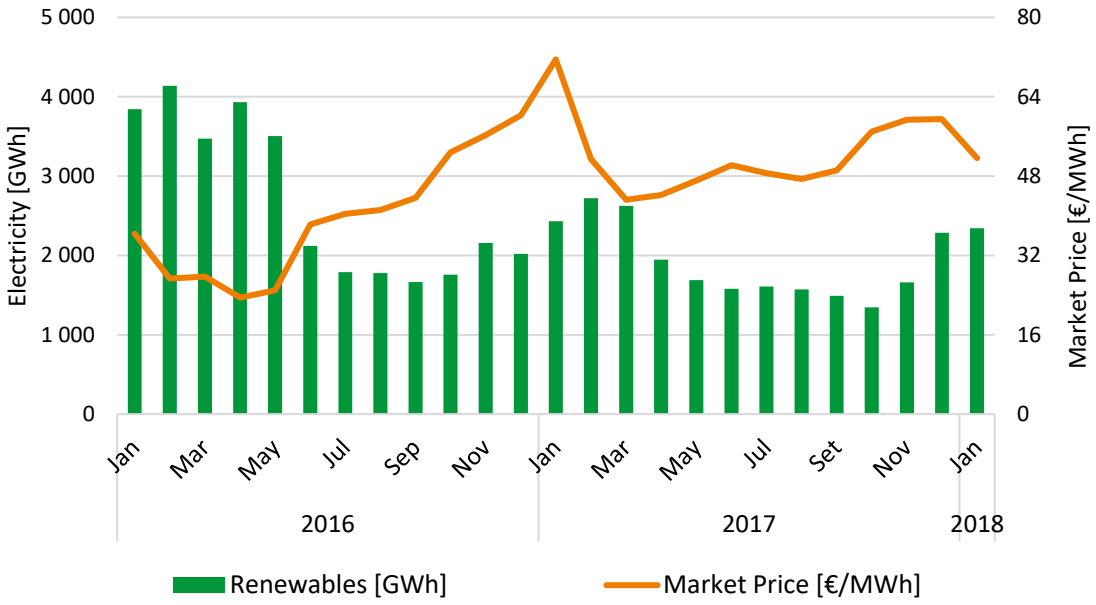

Figure 2: Evolution of the Renewable Electricity Production and of the Iberian Wholesale Electricity Price. (January 2016 to January 2018)

Source: OMIE, REN; APREN's analysis

Production profile in the last 2 years

In January, fossil sources continued to be predominant in the supply of Portuguese electricity needs, following the 2017's pattern (Figure 3).

However, it should be highlighted the positive achievement of wind power, since in the last month, the wind farms generated more electricity than natural gas and coal power plants. In that period, the load factor of wind farms achieved a value of 35 %.

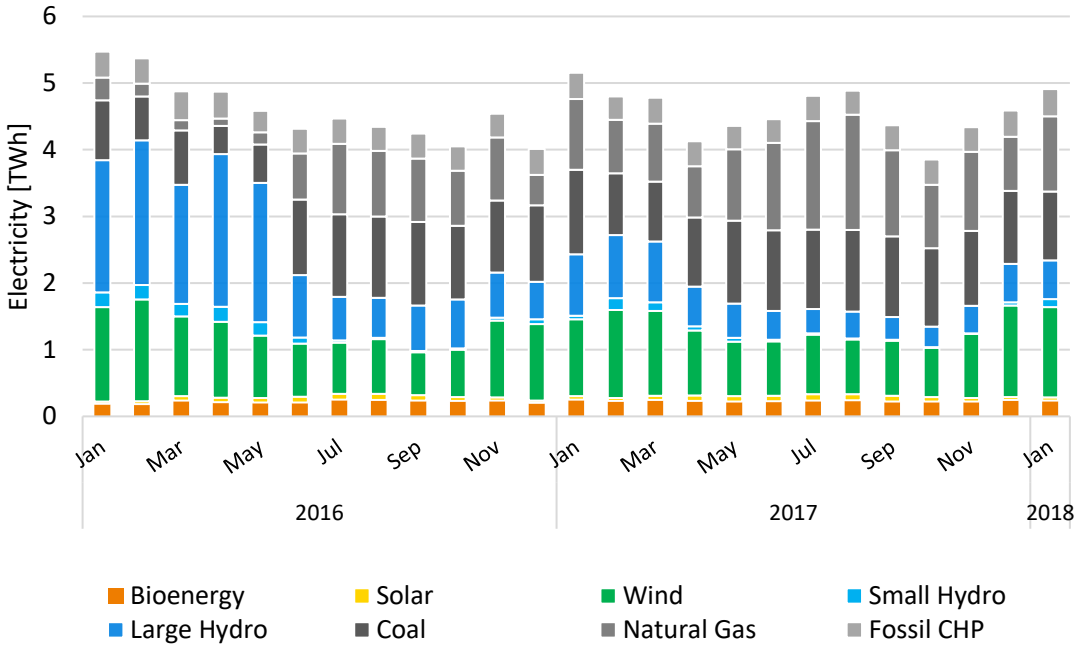

Figure 3: Distribution of the electricity generation by source in Mainland Portugal. (January 2016 to January 2018)

Source: REN; APREN's analysis

January's Load Diagram

The analysis of the load diagram (Figure 4) of January allows us to detect the existence of several periods of electrical exports, which implies that the offers of the Portuguese power plants in the wholesale market were more competitive than the Spanish counterparts. The export peak occurred on January 8th at 6:15 am and reached a value of 3,384 MW.

The peak of renewable production is also highlighted on the chart. This milestone occurred on January 28th, at 8:15 p.m., when Mainland Portugal's renewable power plants produced 6,566 MW (94% of the electricity consumption).

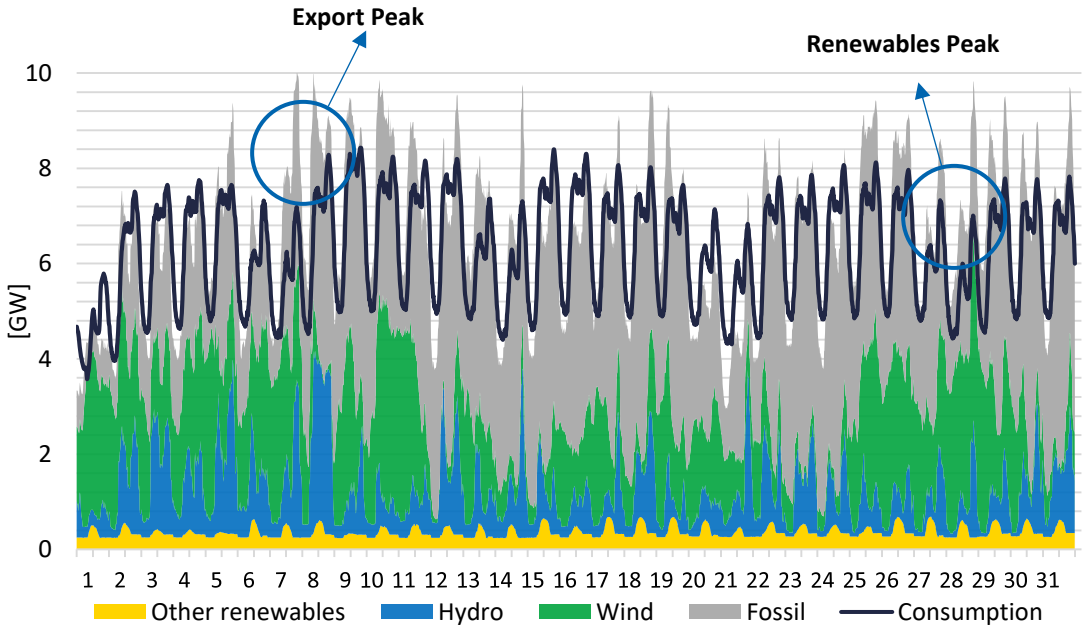

Figure 4: Load Diagram of Mainland Portugal. (January 2018)

Source: REN; APREN's analysis

AUTONOMOUS REGIONS OF PORTUGAL [1]

Autonomous Region of the Azores

In the Autonomous Region of the Azores, the electricity mix of 2017 was marked by a high proportion of fossil sources (63.4% of production, equivalent to 509 GWh).

Electricity from renewable sources accounted for 36.6% (281 GWh) of production, with the dominant technology being geothermal. In the Azorean mix, geothermal power plants accounted for 24% of the total production, an increase of 41 GWh compared to 2016.

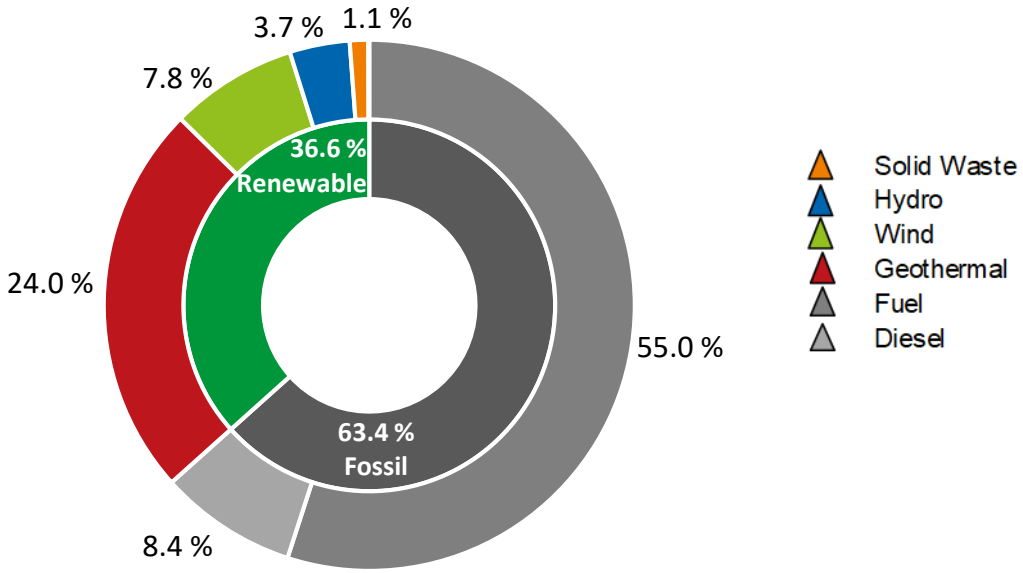

Figure 5: Electricity generation by energy sources in Autonomous Region of the Azores, 2017

Source: EDA; APREN's analysis

This increase in the electricity generated by geothermal power plants was mainly due to the start of operation, in August, of Pico Alto geothermal power plant, located in Terceira Island. This plant has a power capacity of 4.5 MW and is expected to supply, by itself, 10% of the electricity needs of Terceira Island in 2018.

In the last year, in the Azorean electricity production system it should also be emphasized the maintenance of the testing phase of the Younicos' project, which aims to reduce the fossil fuel consumption of Graciosa island. This project involves an optimized management of the electricity generated by a 4.5 MW wind power plant and a 1 MW photovoltaic power plant combined with a 4 MW lithium-ion battery system. Currently the electricity consumption of Graciosa Island is fully supplied by a diesel power plant of 4.7 MW.

[1] This edition of the Report Renewable Electricity in Portugal has a special chapter with information regarding the electricity generation by energy sources in the Autonomous Regions.

Autonomous Region of Madeira

In the electricity production mix of the Autonomous Region of Madeira, in 2017, fossil technologies had a share of 71%[2] (624 GWh) and renewables 29% (254 GWh), as can be seen in Figure 6.

The renewable technology that produced more electricity was wind, 10.1%, followed by hydro (9.7 %). Solar and Solid Urban Waste had a share of 5.4% and 3.8%, respectively, in the production of electricity in the region.

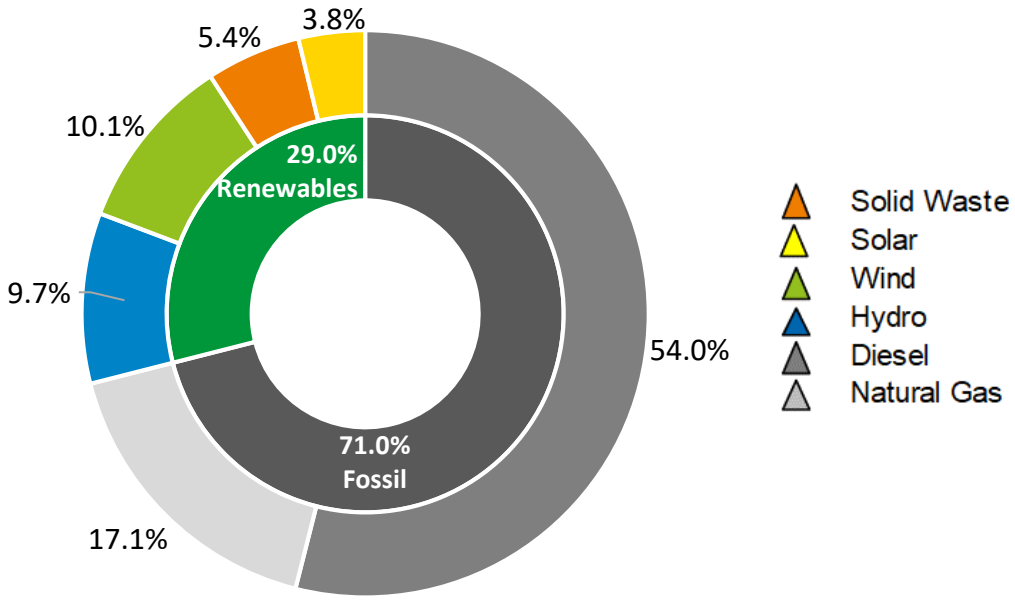

Figure 6: Electricity generation by energy sources in Autonomous Region of Madeira, 2017

Source: EEM; APREN's analysis

The abovementioned figures reflect a slight reduction of the renewable resource, close to 2%, compared to 2016.

The largest reduction occurred in Hydro, about 19% between 2016 and 2017. In 2016, the hydroelectric power plants of the archipelago generated 105 GWh, while in 2017 generated 85 GWh.

Information available in:
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[2] Provisory value based with November's data available at Madeira TSO's website.