



# REPORT RENEWABLE ELECTRICITY IN PORTUGAL

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Monthly Edition

1<sup>st</sup> Quarter of 2018



**APREN** Associação  
de Energias  
Renováveis

# RENEWABLE ELECTRICITY IN MAINLAND PORTUGAL

The first quarter of 2018 was marked by the renewable record in March in which, for the first time, renewable electricity production surpassed the demand of Mainland Portugal, this allowed:

- The reduction of 10% in the electricity price of the Iberian wholesale market
- An export electricity balance of 878 GWh
- To avoid the emission of 1.8 million tons of CO<sub>2</sub>

## Electricity Production Profile

The result achieved in March boosted the positive balance of renewable energy sources (RES) in the first quarter of 2018, since the months of January and February were very dry.

During the first quarter of 2018 RES accounted for 62% (9,382 GWh) of the electricity produced in Mainland Portugal (15,098 GWh).

In the period under analysis, the source that generated most electricity was wind (29.6%) followed by hydro (26.8%).

It should be noted that March of 2018 was the 2<sup>nd</sup> rainier month since 1931, which contributed to ending the meteorological drought that had occurred in Portugal since April of 2017.

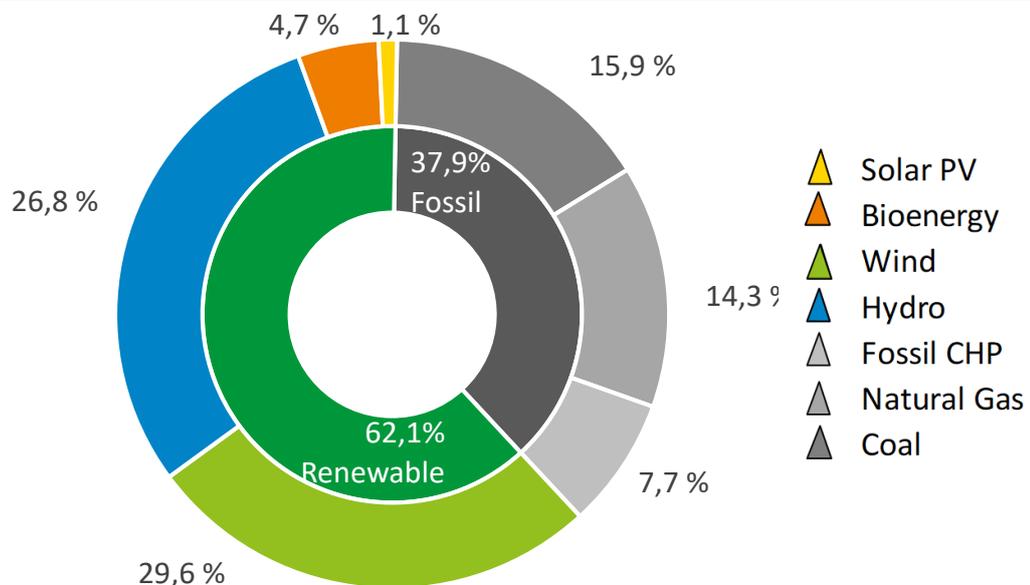


Figure 1: Electricity generation by energy sources in Mainland Portugal. (1<sup>st</sup> Quarter of 2018)

Source: REN; APREN's analysis



## Electricity Market

In the first quarter of 2018, the average daily wholesale electricity market price was 48.8 €/MWh.

Figure 2 shows that the price of electricity is strongly dependent on the share of renewables. This effect is especially noticeable in March, when the highest renewable production ever boosted a price reduction in the Iberian market

close to 10%, resulting in an average price of 39.75 €/MWh.

In addition, the Portuguese renewable production contributed to obtain a net export balance between the Iberian Peninsula and the neighboring electrical systems (Morocco and France).

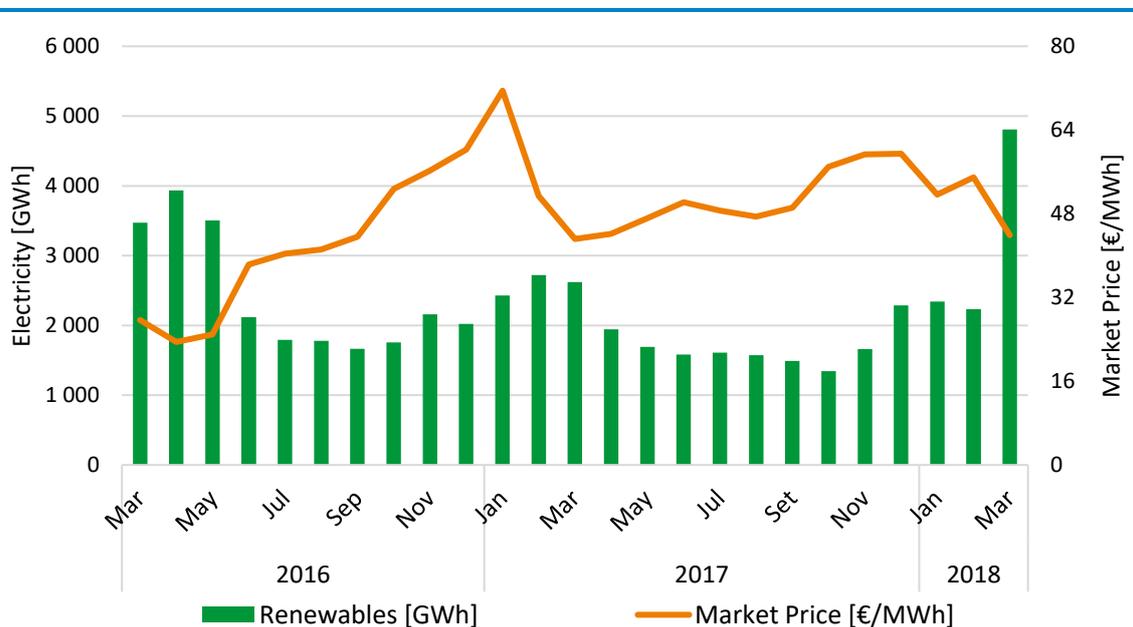


Figure 2: Evolution of the Renewable Electricity Production and of the Iberian Wholesale Electricity Price. (March 2016 to March 2018)

Source: OMIE, REN; APREN's analysis



### Production profile in the last 2 years

The first quarter of this year presents two distinct situations of renewable resources' availability (fig. 3).

In January and February fossil and renewable sources had a similar share in the supply of Portuguese electricity needs.

By its turn, in March there was a predominance of renewable sources. In fact, in the last month renewable sources reached a historical share of 103.6% of the consumption of electricity in Mainland Portugal (4,647 GWh).

In this period, the contribution of hydro and wind power plants was responsible for 55% and 42% of consumption needs, respectively.

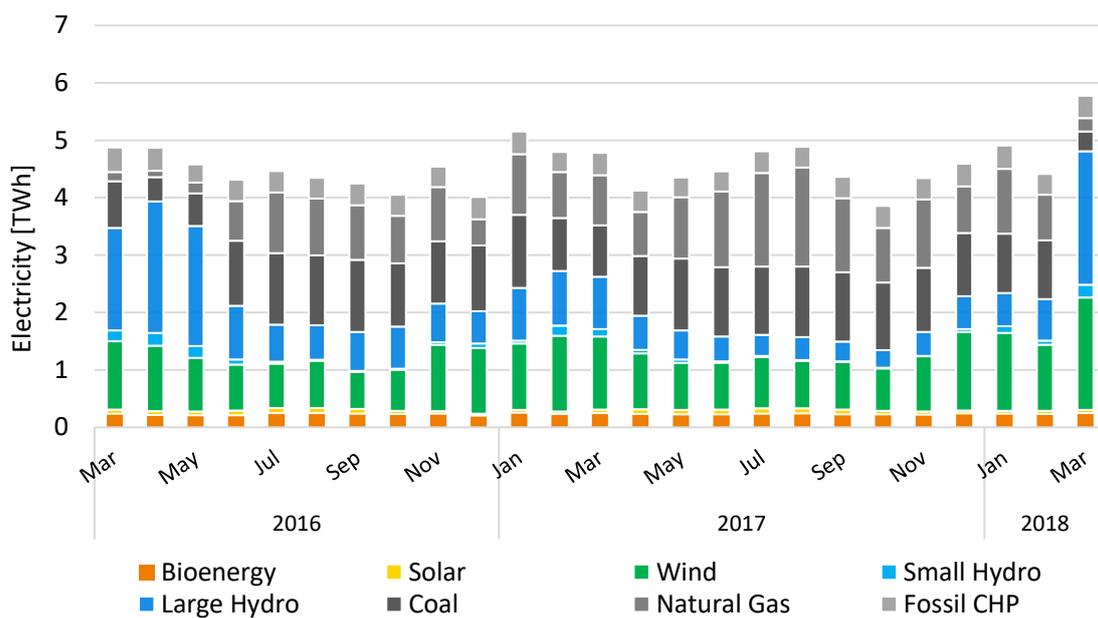


Figure 3: Distribution of the electricity generation by source in Mainland Portugal. (March 2016 to March 2018)

Source: REN; APREN's analysis



### March's Load Diagram

March stood out not only for the increase in renewable production, but also for an increase in Portugal's electricity consumption, close to 10%, compared to the same period last year. This increase was due in part to the severe weather conditions (the temperature was well below the historical average). However, even after adjusting the consumption value according to the effect of temperature and working days, it is found a consumption growth of 6.6%, according to REN (Portugal's TSO). This consumption growth may be also due to a cycle of greater economic activity in Portugal.

Moreover, the high utilization rate of renewable power plants led to the reduction of 1.8 million tons of CO<sub>2</sub> emissions, which reflected in the saving of 21 million euros in the purchase of emission allowances. In addition, this renewable electricity production contributed to an export balance of 878 GWh.

In the electric load diagram of March (fig. 4) it is still visible that, despite the high share of RES, there were some hours when fossil fuel power plants were operational, since, from the context of the Iberian market, their energy offers were competitive.

In daily terms, the share of renewables in the consumption recorded a minimum of 86 % on the 7<sup>th</sup> day and a maximum of 143 % on the 11<sup>th</sup> day.

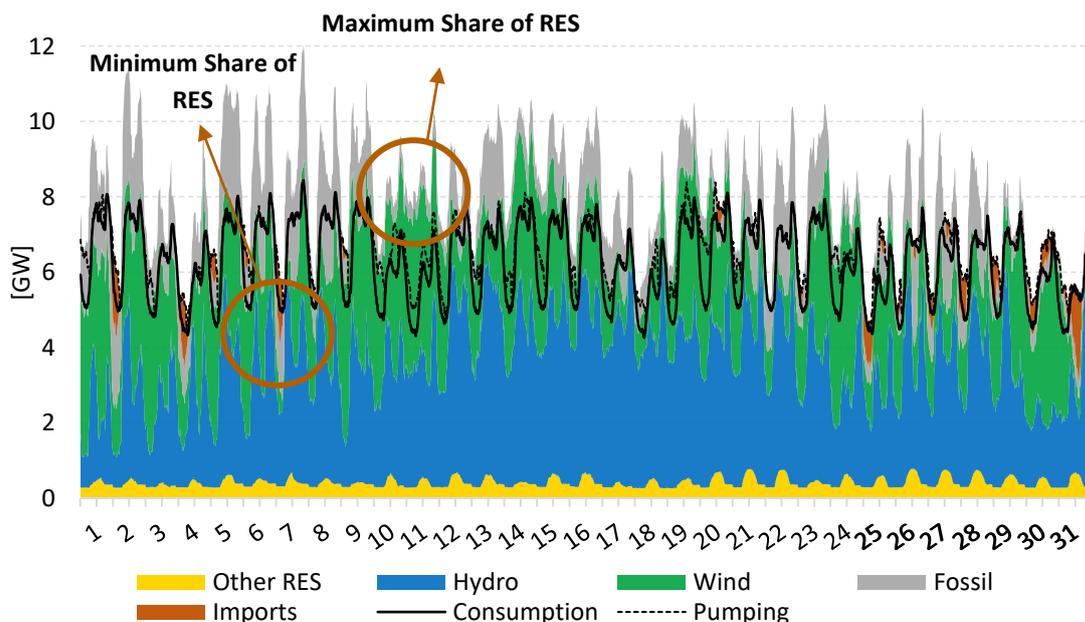


Figure 4: Load Diagram of Mainland Portugal. (March 2018)

Source: REN; APREN's analysis



Figure 5 shows two periods in which consumption was fully assured by renewable sources and where the monthly peak of renewable share in consumption was reached. The first period comprises a set of 70 consecutive hours, which began on the 9<sup>th</sup> at 4 p.m. and ended at 12<sup>th</sup> at 1 p.m.

The second period occurred on the 12<sup>th</sup> at 11:00 p.m. and ended on the 15<sup>th</sup> at 9:00 p.m. These periods were separated by approximately 10 hours in which fossil power plants provided about 2 % of consumption.

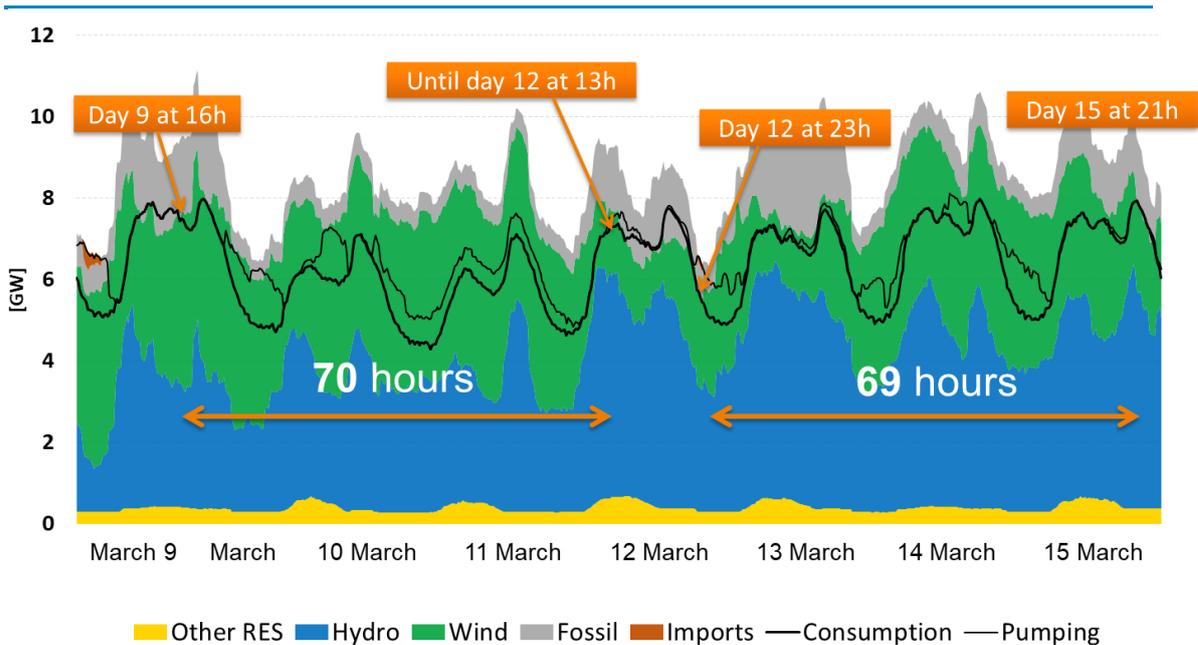


Figure 5: Load Diagram of Mainland Portugal. (9 to 15 of March 2018)

Source: REN; APREN's analysis

These data reinforce the role of renewable sources in the reliable and safe supply of the electricity needs of Portugal. If the abundance of wind and water resources allowed this record in

the winter, it is imperative to promote the use of solar photovoltaic energy and thus ensure that significant contributions from green electricity are also achieved in the summer.

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