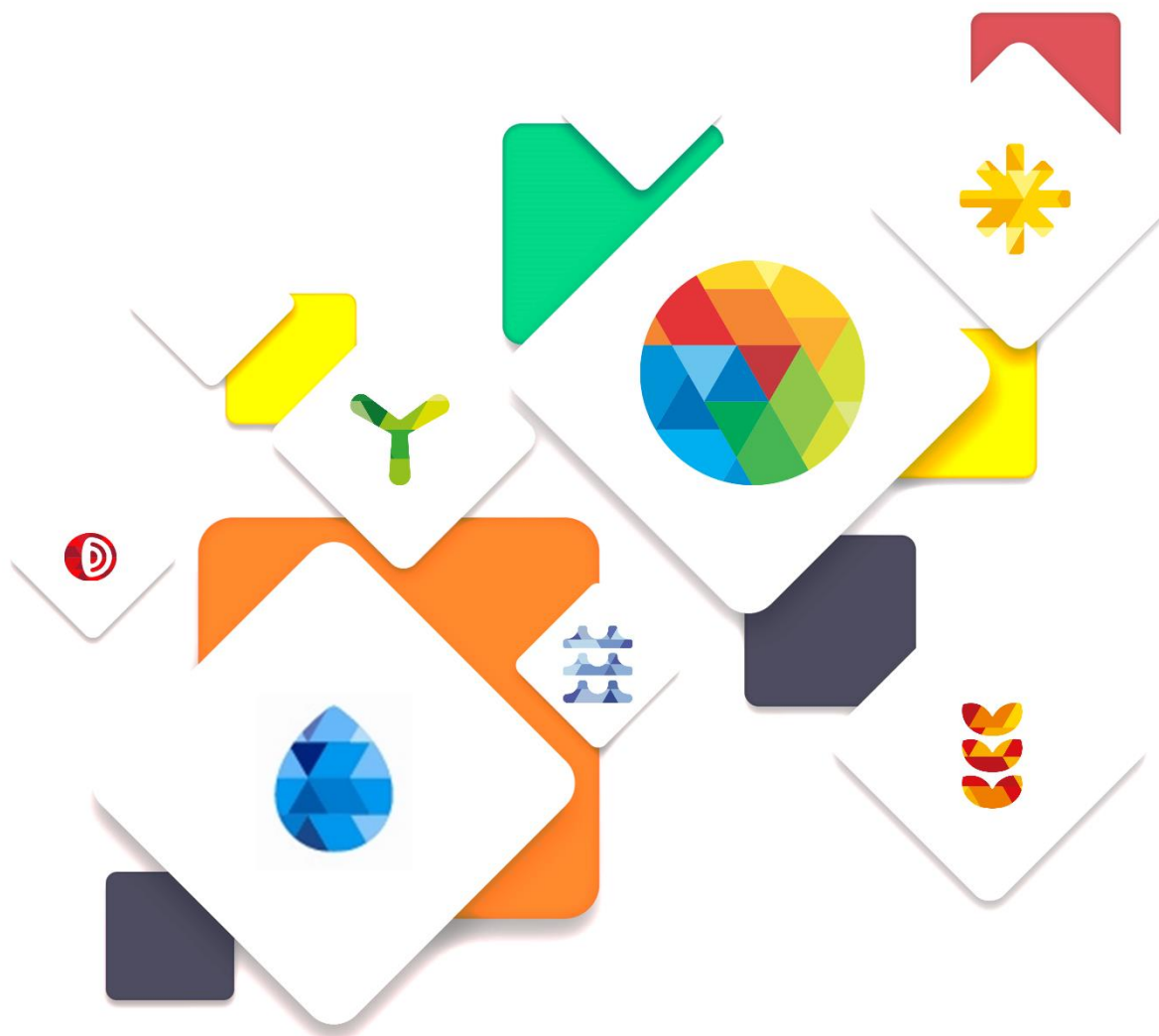




APREN Associação
de Energias
Renováveis



REPORT RENEWABLE ELECTRICITY IN PORTUGAL

Monthly Edition
August 2017

RENEWABLE ELECTRICITY IN MAINLAND PORTUGAL

In the first eight months of 2017 the renewable electricity production in the Portuguese Electricity System significantly reduced 32 %, when compared to the previous period of last year.

This reduction of the renewable sources led to an electricity spot market price of 50.46 €/MWh, a value that contrasts with the smaller value of the same period of 2016 (32.46 €/MWh) when the renewable electricity share was greater (58 % of the total production).

This positive effect that the renewable electricity has in the electricity spot price offsets the feed-in tariff that it receives.

In the first eight months of 2017 the renewable electricity production accounted for 43.3 % (16,173 GWh) of the electricity consumption mix of Mainland Portugal (figure 1).

In cumulative terms, until the end of August, the renewable electricity was mainly produced by wind farms (21.6 %).

Inside the renewable electricity set hydropower plants had a share of 15 %, a value that contrasts with the same period of the last year (39 %), due to the severe drought affecting the country. By its turn, the electricity produced by thermal biomass power plants and solar power plants maintains a similar value to last year, 5.1 and 1.6 % of the mix, respectively.

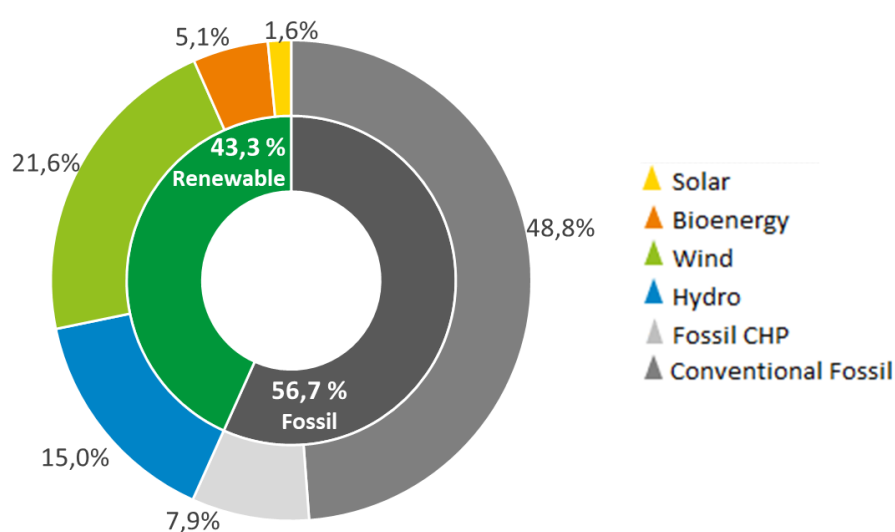


Figure 1: Electricity generation by energy sources in Portugal Mainland. (January until August 2017)

Source: REN; APREN's analyses



Until the end of last month, it should be also pointed out an increase of the electricity demand of 2.4 % (considering the temperature and working days' correction), when compared to the same period of 2016.

Regarding the international electricity exchanges, despite of being a dry year, an export net balance of 2,941 GWh was achieved, due to 4,566 GWh of exports and 1,625 GWh imports.

The evolution of the electricity spot market price and the renewable production in the past two years is shown in figure 2. During 2017 the electricity spot market price was 50.46 €/MWh. This value represents an increase of the electricity price of around 55 %, compared to the same period of last year (32.46 €/MWh), when the renewable electricity production accounted for 64 % of the production mix.

In August, the average of the electricity daily spot market price was 47.43 €/MWh, an amount that contrasts with the one from other months when the renewable sources had a higher share on the Mainland Portugal's electricity consumption demand.

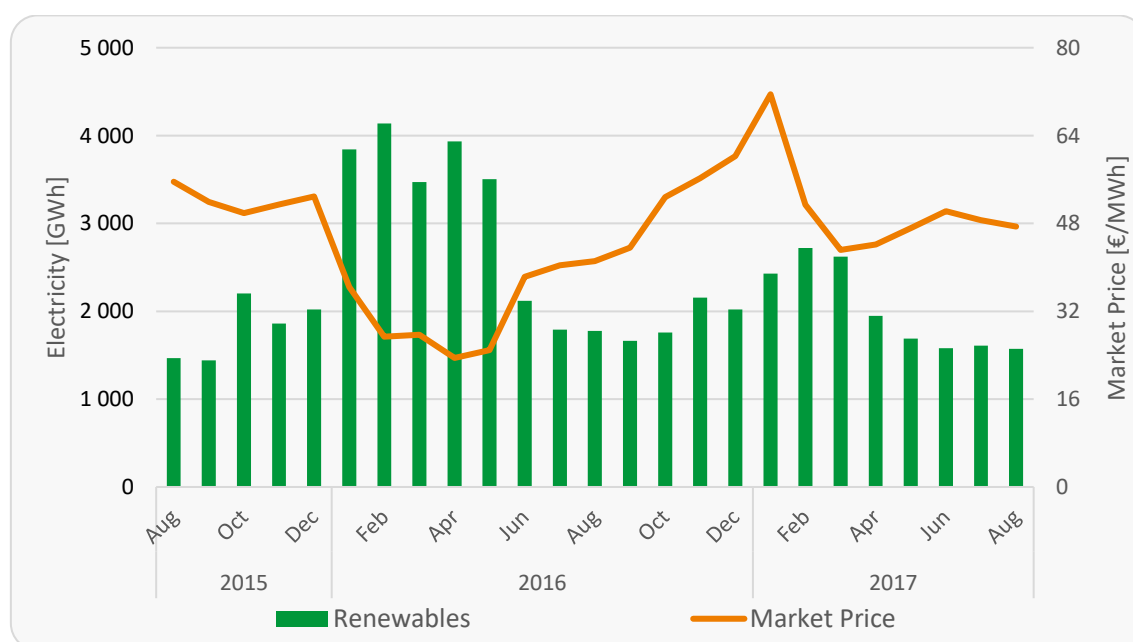
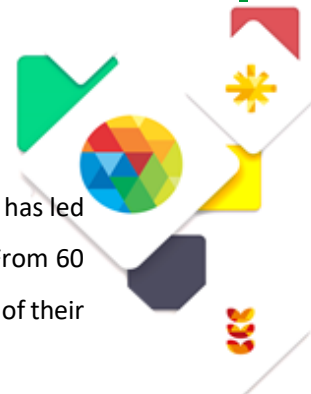


Figure 2: Evolution of the Renewable Electricity Production and of the Wholesale Electricity Price (August of 2015 until August of 2017)

Source: OMIE, REN; APREN's Analysis



The analysis of the renewable electricity generation, by source, within the context of the last two years is displayed in the figure 3.

This figure shows an increase in the electricity produced in fossil thermal power plants (mainly in natural gas power plants) during the 2017's summer.

This increase was mainly due to a reduction in the wind and hydro resources. According to the National Water Resources Information

System the severe drought in Portugal has led to reduction in the water reservoirs. From 60 monitored reservoirs, 21 had 40 % less of their total capacity.

Another factor that enabled the increase of the Portuguese non-renewable power plants was the export trends market demand.

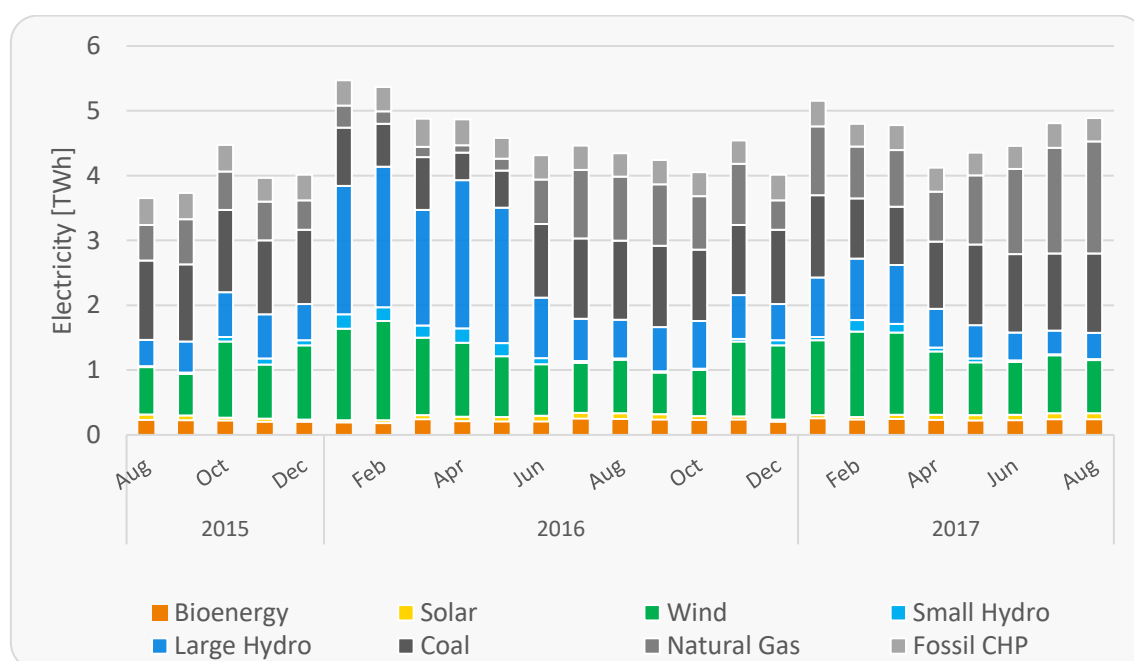
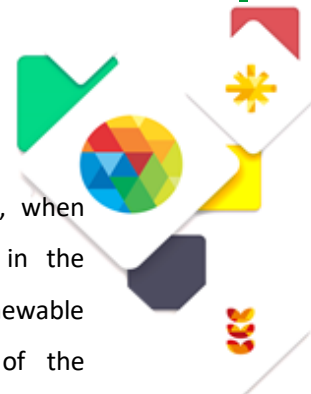


Figure 3: Distribution of the electricity generation by source (August of 2015 until August of 2017)

Source: REN; APREN's Analysis

During the summer months (June, July and August) in 2017, it was estimated that the high use of coal power plants (3,627 GWh),

CCGT power plants (4,669 GWh) and CHP plants (1,100 GWh) has been responsible for the emission of around 5.7 million tons of CO₂, among other toxic air pollutants.



The analysis of the electricity generation mix in August reaffirms the high use rate of the non-renewable power plants, as can be checked in the **daily discretization of the electricity production** (fig. 4).

In the period analysed in figure 4 was achieved a natural gas electricity production historical record. In August, natural gas electricity production was enough to supply 42 % of the Mainland Portugal demand.

Also, two interesting situations of the load diagram of August are also showed. The first

spotlight goes to the 9th of august, when renewables had the largest share in the consumption. In this day, the renewable technologies accounted for 60 % of the electricity consumption of Mainland Portugal.

By last it is emphasised the day with the smallest renewable share in the consumption, 29th of August. In this day, the renewable technologies accounted for 22 % of the electricity consumption of Mainland Portugal.

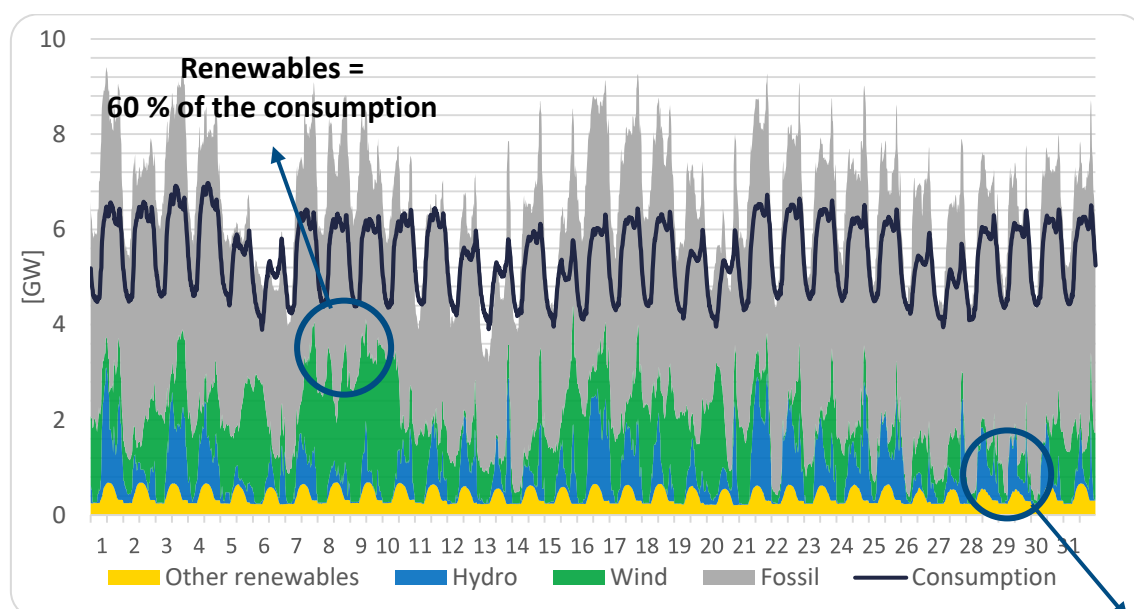


Figure 4: Load Diagram of Mainland Portugal (August of 2017)

Source: REN; APREN's analyses

**Renewables =
22 % of the consumption**

Information available in:

APREN | Communication and Technical Departments

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

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