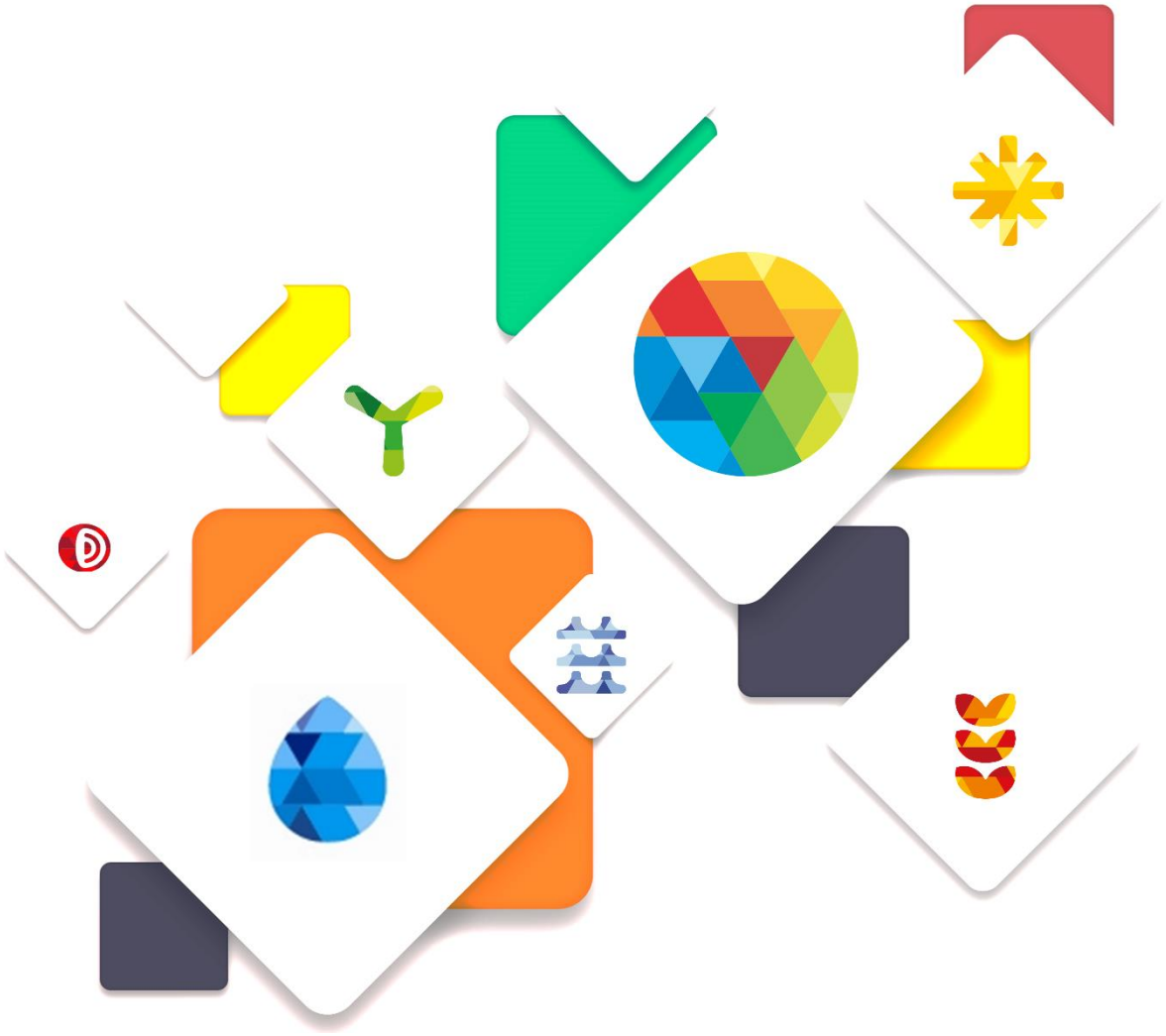
APREN Associação de Energias Renováveis



REPORT
RENEWABLE ELECTRICITY IN PORTUGAL

Monthly Edition

1st Semester 2017

RENEWABLE ELECTRICITY IN MAINLAND PORTUGAL

In the first half of 2017 the renewable electricity sources (RES) accounted for 46.9 % (12,992 GWh) of the Portuguese electricity production. This renewable share contrasts with the value of the same period of 2016, when the renewable energy sources accounted for 71 % of the electricity generated in Mainland Portugal.

During the period covered in this report, wind was the renewable source that produced more electricity, 23 %, followed by water with 17.4 %'s share (fig. 1).

By its turn, bioenergy and solar reached a 5.1 % and 1.4 % share in the production mix. This year's wind and biomass electricity production was similar to the verified in previous years. In its turn, solar PV power plants noticed a slight production increase. Only hydroelectricity had an important production decrease, which was due to the low rainfall in the first months of the year (cumulative hydroelectric energy capability factor of 0.58).

In the first six months of 2017 it is also highlighted a 2 % raise in the electricity consumption demand, when compared to the same period of the last year.

Additionally, it should also be mentioned that the electricity produced until the end of June not only supplied the Portuguese demand but also allowed a net export balance of 1,724 GWh.

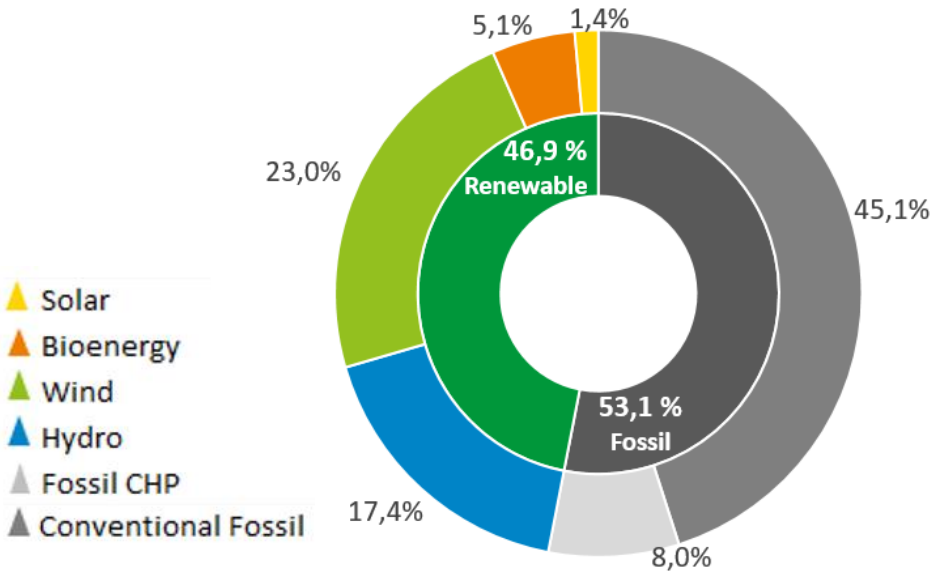


Figure 1: Electricity generation by energy sources in Portugal Mainland. (1st Semester 2017)

Source: REN; APREN's analyses

The negative correlation between **the electricity spot market price and the renewable production in the past two years** is shown in figure 2.

During the first half of 2017, the electricity spot market price was 51.27 €/MWh. This value represents an increase of the electricity price of around 70 %, compared to the same period of last year (29.69 €/MWh).

This phenomenon can be explained by the reduction of the renewable electricity production, in particular the decrease of the hydroelectricity production.

Note that in the 1st semester of 2016 the "green" electricity accounted to 82.6 % of the Portuguese electricity consumption demand, and so the market price decreased, while in 2017 the RES only accounted for 50.1 %.

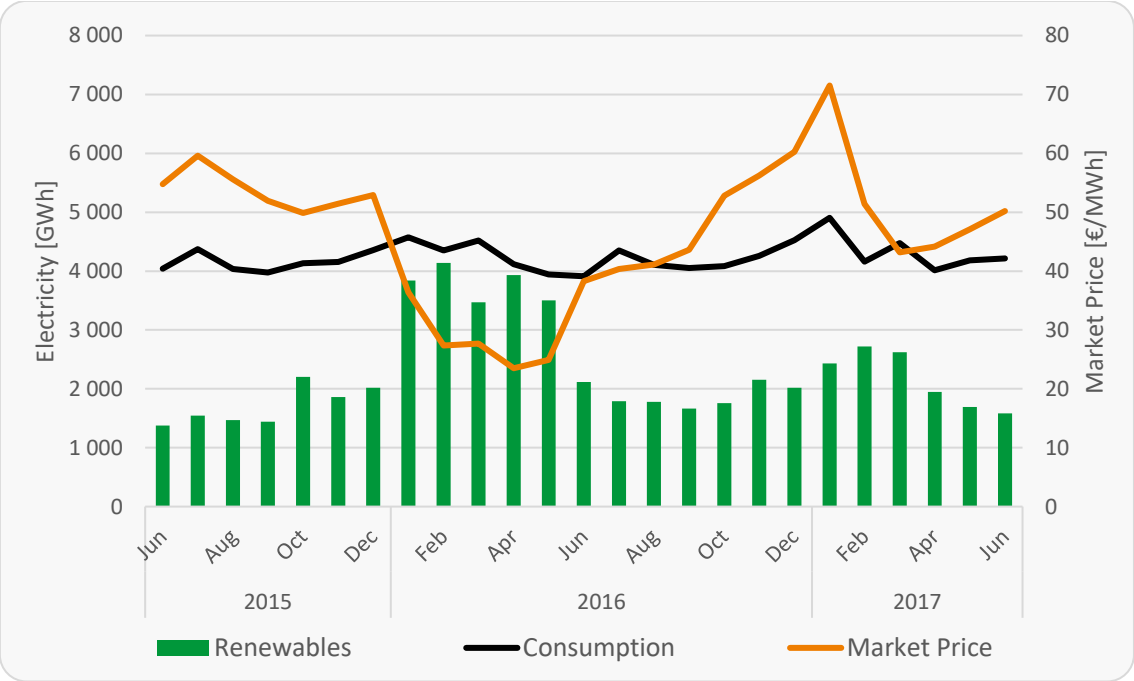


Figure 2: Evolution of the Renewable Electricity Production and of the Wholesale Electricity Price (June of 2015 until June of 2017)

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. The first finding of the figure is the natural variations of the hydroelectricity due to the seasonal and annual availability of the hydro resource. In the first semester of 2016 (wet year) the electricity generated in hydro power plants was 12,391 GWh, which contrasts with the hydroelectricity production of the current year, 4,824 GWh (dry year).

The figure also highlights an increase in the electricity production of the natural gas power plants. Please observe the significant growth of the electricity produced in the combined-cycle power plants since 2015 until 2017.

In the first semester of 2015 the utilization rate of the CCGT power plants was around 10 % (they provided 1,596 GWh to the electric grid) and in the first semester of 2017 this rate reached 35 %.

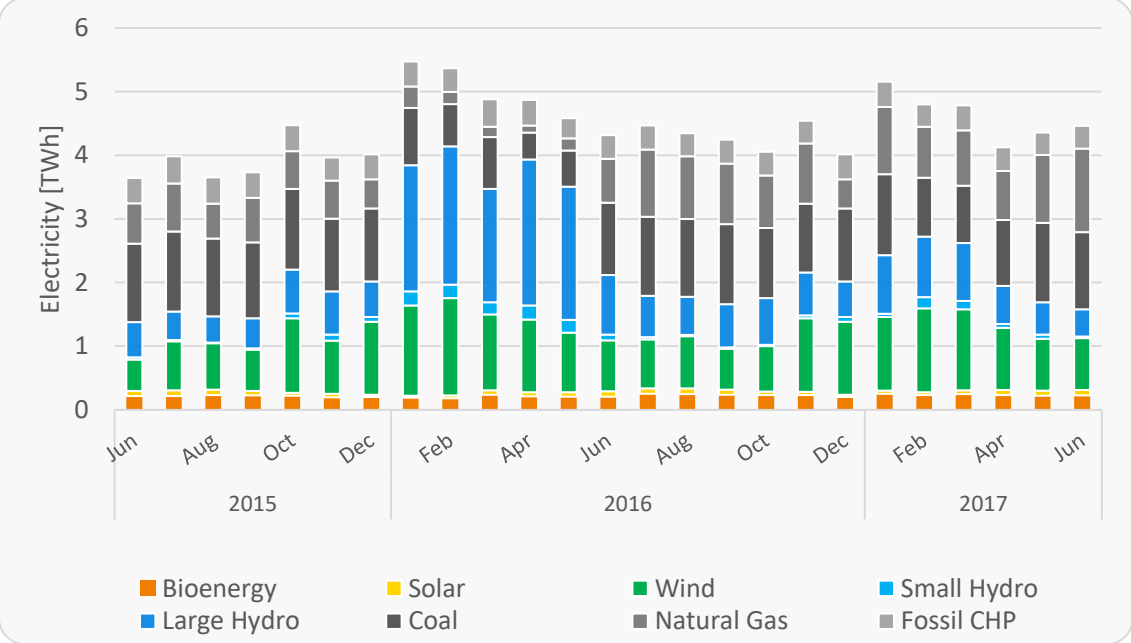


Figure 3: Distribution of the electricity generation by source (June of 2015 until June of 2017)

Source: REN; APREN's Analysis

The analysis of the electricity generation mix in June shows a high utilization rate of the non-renewable power plants, as can be checked in the daily discretization of the electricity production (fig. 4).

In the figure 4, three interesting situations are shown in the load diagram of June. The first spotlight goes to the 3rd of June, in this day at 9 a.m. occurred an electricity export peak of 2,458 MW.

The second highlighted event refers to 22nd of June, in this day the renewable electricity had its lowest consumption share (21 %).

By last it is emphasised the day with the largest renewable share in the consumption, 29th of June. In this day, the renewable technologies accounted for 69 % of the electricity consumption of Mainland Portugal.

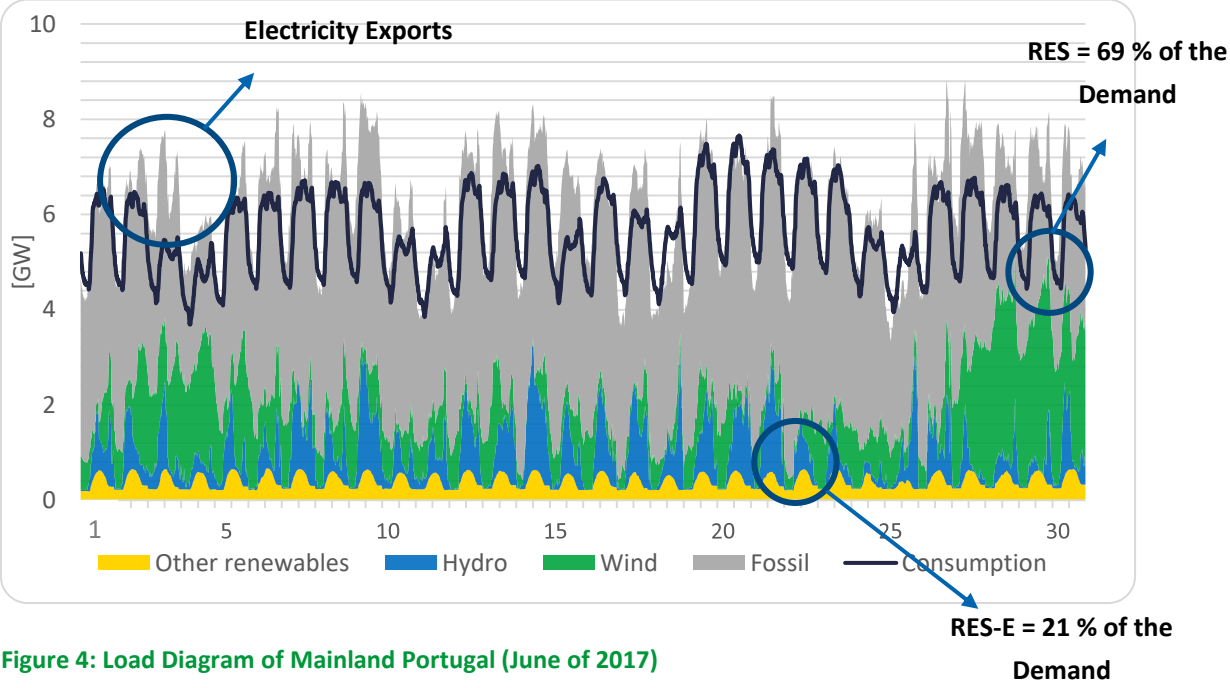


Figure 4: Load Diagram of Mainland Portugal (June of 2017)

Source: REN; APREN's Analysis

SUMMARY

In the first semester of 2017 the renewable energy sources accounted for 50.2 % of the electricity consumption of Mainland Portugal. After comparing this value with the same period of the last year (82.6 %) it is possible to identify a reduction of the renewable sources in the consumption demand.

This reduction of renewables in the Portuguese electricity system led to an electricity spot market price of around 51.27 €/MWh.

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