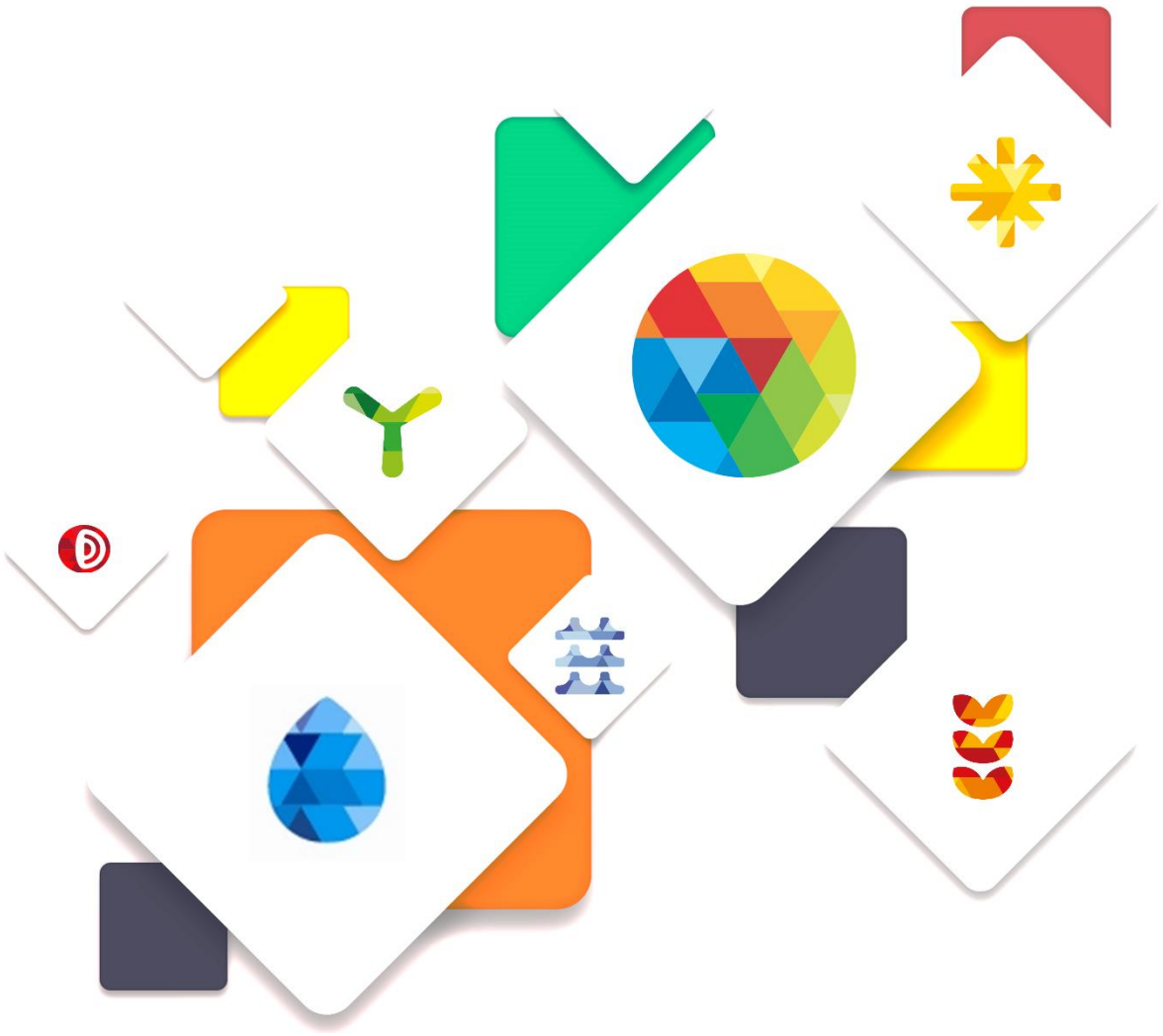
APREN Associação de Energias Renováveis



REPORT

RENEWABLE ELECTRICITY IN PORTUGAL

Monthly Edition

April 2017

RENEWABLE ELECTRICITY IN MAINLAND PORTUGAL

The past April was characterized by high temperatures and low rainfall, comparing to the historical average for April.

The reduction in the availability of hydro resource led to a smaller share of renewable energy sources (RES) in the electricity consumption mix of Mainland Portugal.

In April RES accounted to 48.5 % (1,946 GWh) of the Mainland Portugal's consumption [1] (4,016 GWh).

Despite the non-favourable weather conditions, the electricity produced due to renewable sources could fully supply the Portuguese electricity needs in 20.75 hours. Also, it is highlighted a timeframe in April 30th, between 3:30 am and 11:00 am, when the wind power accounted for 89 % of the electricity consumption (fig. 1).

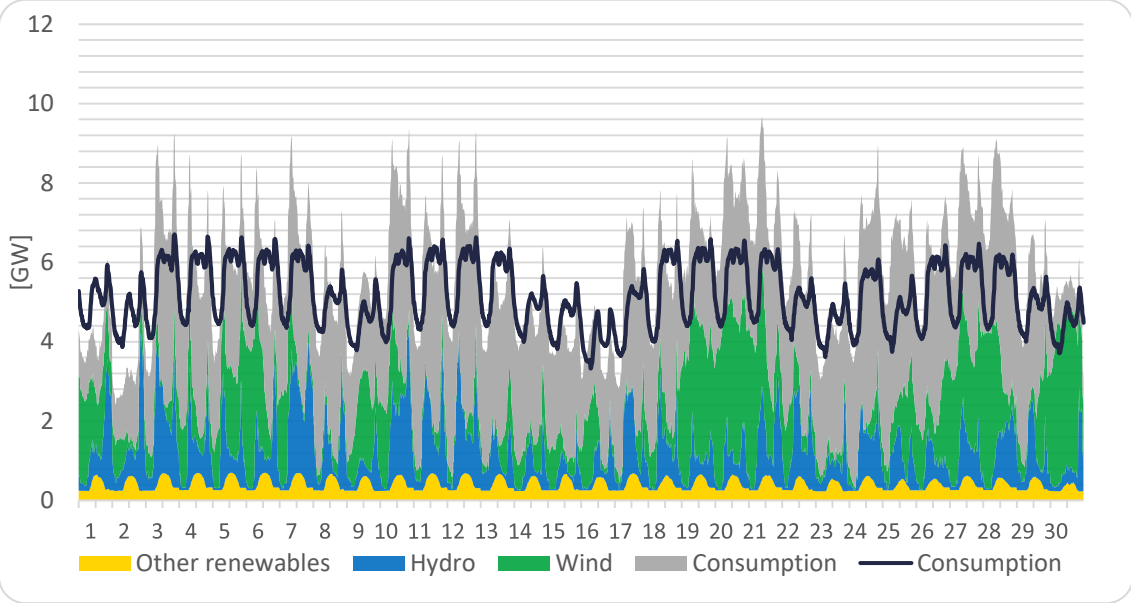


Figure 1: Load Diagram of Portugal Mainland (April of 2017)

Source: REN; APREN's Analysis

[1] This consumption value refers to the power plant's electricity generation for final consumption (grid losses and pumped hydroelectric energy storage consumptions are added up to this value.)

In cumulative terms, in the first four months of the year, the renewable electricity production provided 9,720 GWh (fig. 2). The division was as follows: wind (4,723 GWh), hydro (3,797 GWh), bioenergy (966 GWh) and solar (234 GWh). By its turn, the fossil power generation provided 9,140 GWh throughout coal power plants (4,129 GWh), natural gas power plants (3,502 GWh) and fossil cogeneration (1,509 GWh).

The analysis of the electricity exchanges between Portugal and Spain shows that until the end of April the Portuguese energy production mix supplied not only the demand but also allowed a net export balance of 1,305 GWh. This result was achieved due to the exportation of 2,389 GWh and the importation of 1,084 GWh.

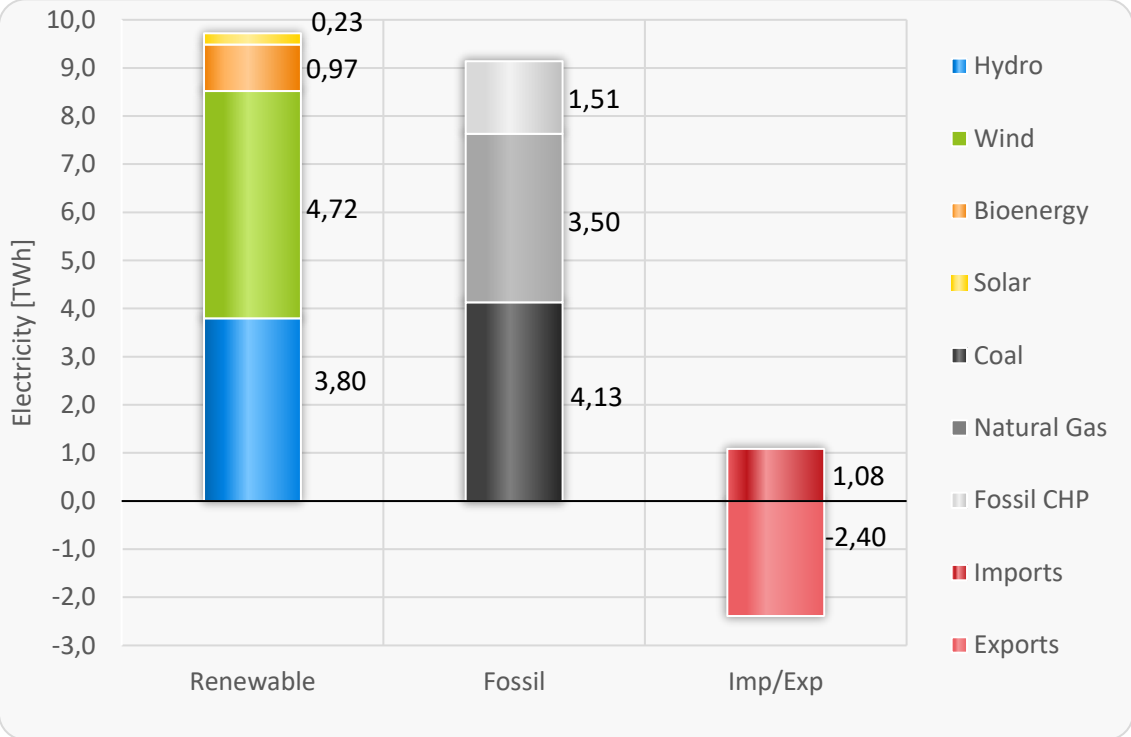


Figure 2: Electricity generation sources and international exchanges in Portugal Mainland (January to April of 2017)

Source: REN; APREN's Analysis

The analysis of the renewable electricity generation from April of 2015 to April of 2017 (fig. 3), displays that besides a growth in the RES electricity share, the fossil fuels are still accounting for a substantial proportion of the Portuguese electricity mix.

This high use of fossil fuels can be confirmed by the DGEG's report, Fatura Energética 2016, published on 28th of April of 2017. The report states that last year the imports of fossil fuels (used both to produce electricity as to road transportation) led to a net import balance of

more than 3.2 billion euros, almost 1.8 % of Portugal's GDP, a heavy economic burden for the Portuguese economy.

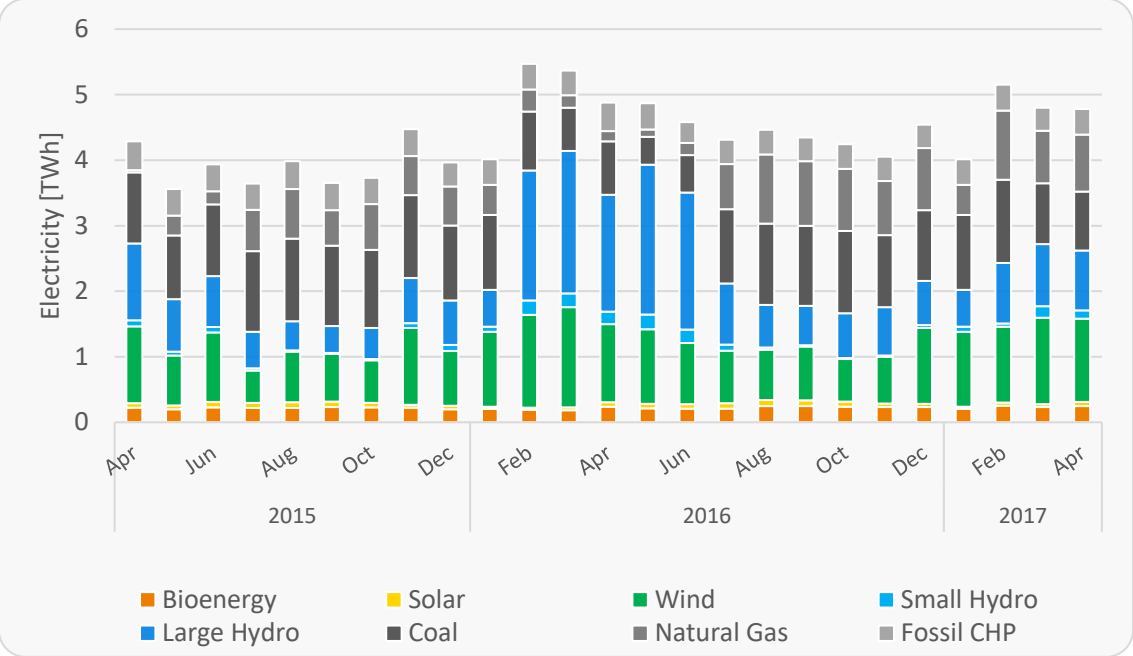


Figure 3: Distribution of the electricity generation by source (April of 2015 until April of 2017)

Source: REN; APREN's Analysis

By analysing the last two years it is also emphasised that the renewable electricity sources played a leading role in supplying the Portuguese electricity needs.

Thus, the greater renewable contribution contrasts with a minor solar energy share (1.5 %). This value is still quite low when compared to the availability of the Portuguese solar resource, the second in Europe following Cyprus.

Besides the high solar radiation values, the solar PV technologies are quite adaptable to the Portuguese load diagram due to the correlation between solar, wind and hydro resources producibility.

Despite this, the Portuguese strategy for the renewable electricity sector may lead to lost opportunities for investment and to the obstruction of the use of the immense endogenous resource and the highly competitive prices of PV technology.

In the last years because of the continuous research and development there has been a substantial increase in the efficiency of the PV modules, an optimization in the manufacturing process and a reduction of the various PV power plants components. All of this combined with the effects of scale economy allowed a reduction of the utility scale PV power plants around 80 % between 2010 and 2016.

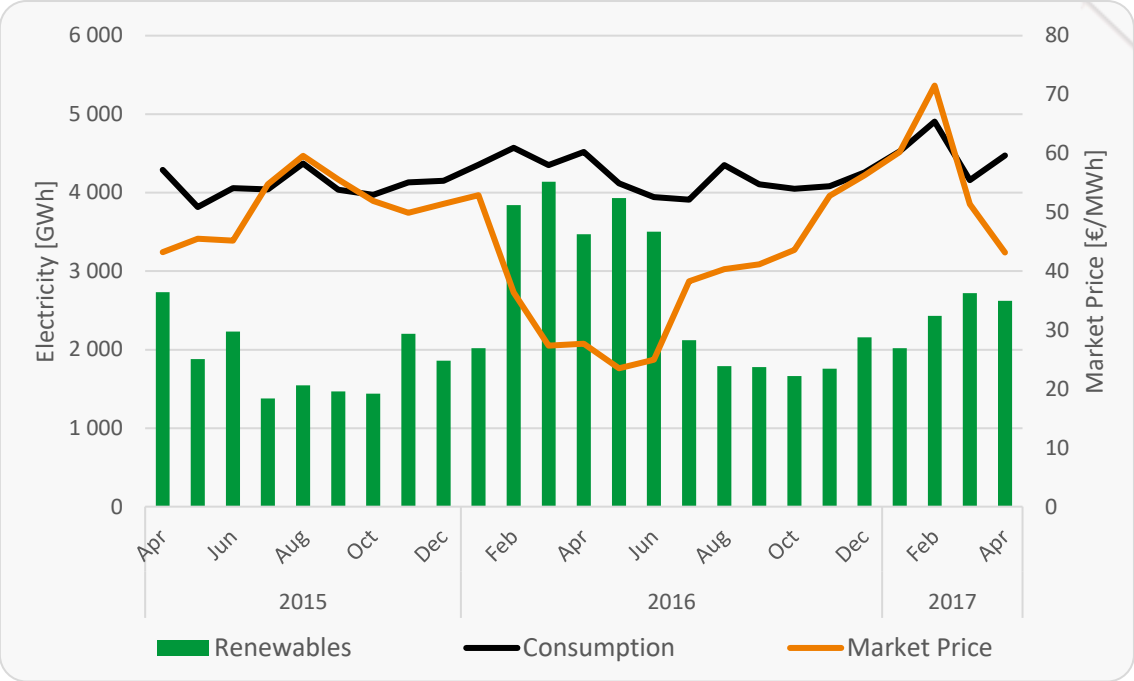


Figure 4: Correlation between the renewable electricity production and the wholesale electricity price (April of 2015 until April of 2017)

Source: REN; APREN's Analysis

The negative **correlation between the electricity spot market price and the renewable production in the past two years** is shown in figure 4.

In April of 2017, the decrease of the electricity produced by renewable technologies kept the average electricity spot market price in 44.18 €/MWh, a value that contrasts with the one of last year's April (23.5 €/MWh) when the RES share had a remarkable 95.5 % share of the electricity consumption.

Since the beginning of 2017 until the end of April, the electricity spot market price was 52.57 €/MWh, a value greater to the 2016's average, which reflects the smaller representativeness of RES-E. In 2016 the renewable electricity sources accounted to 64 % of the Portuguese electricity consumption and the average electricity spot market price was 39.4 €/MWh.

SUMMARY

In April of 2017 the renewable electricity representativeness was 48.5 %, this means that the RES-E was by itself, enough to fully supply the Portuguese electricity need in half of the month.

In addition, it is highlighted a consecutive period of 7.5 hours of April 30th, between 3:30 am and 11:00 am, when the wind power accounted for 89 % of the electricity consumption. In fact, in this day the wind electricity (79 %) in Portugal outperformed its European counterparts, surpassing countries like Denmark and Ireland that have a higher wind/consumption proportion.

Information available in:

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