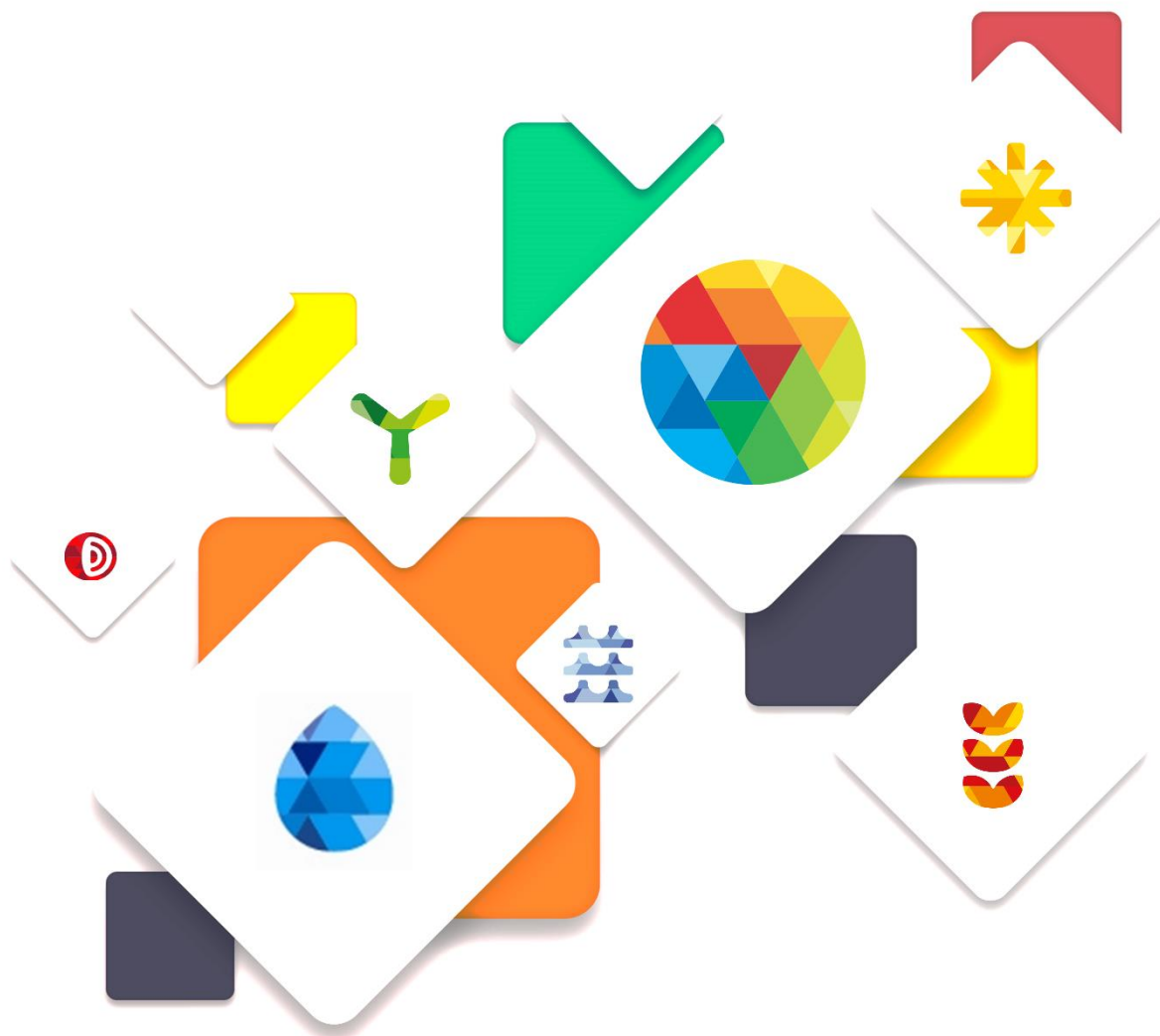




**APREN** Associação  
de Energias  
Renováveis



# REPORT RENEWABLE ELECTRICITY IN PORTUGAL

Monthly Edition  
November 2017

# RENEWABLE ELECTRICITY IN MAINLAND PORTUGAL



Until the end of November the electricity in the Iberian electricity gross market had an average price of 51.74€/MWh, well above the value of the same period of the previous year, 37.48€/MWh. This price increase was due to a renewable resource scarcity, since until the end of November renewable electricity only accounted for 41.4% of the total Portuguese Mainland electricity production.

The renewable resource scarcity boosted the fossil fuels electricity production, which led to the emission of 18.3 million tons of CO<sub>2</sub>.

## Electricity Production Profile

Until the end of November, the renewable sources accounted for 41.4 % (20,671 GWh) of the electricity production mix of Mainland Portugal, while fossil fuels accounted for 58.6% (Figure 1). The leading renewable electricity source was wind, which represented 21.2% of the Mainland electricity mix.

By its turn, most of the non-renewable electricity was generated in conventional

thermal power plants (natural gas and coal power plants), which had a quota of 50.4%.

In the period under analysis, the consumption of electricity in Mainland Portugal rose by more than 0.4% (1.3% with correction of temperature and working days).

On the other hand, despite 2017 being a dry hydrological year the international exchanges of electricity had an export balance of 2,907 GWh. This value derives from the export of 5,485 GWh and the import of 2,578 GWh.

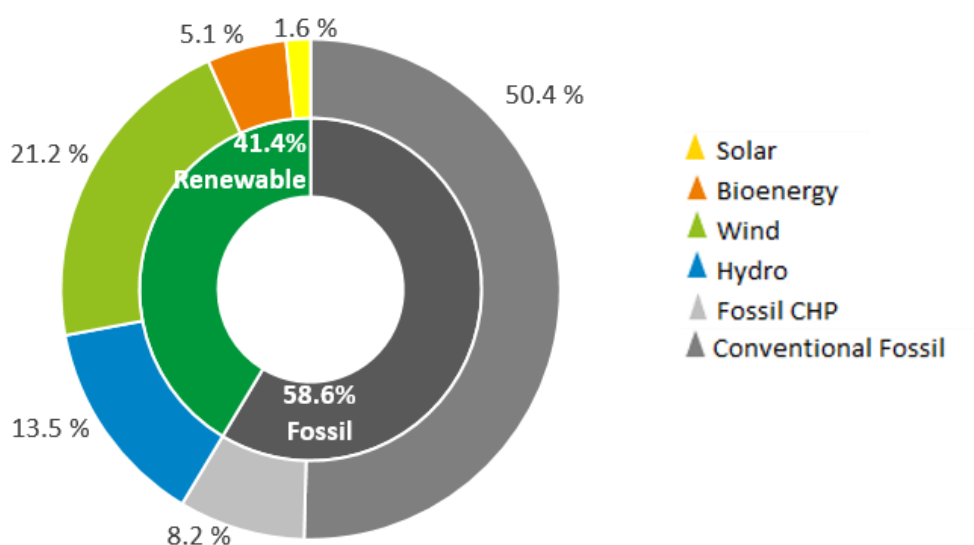
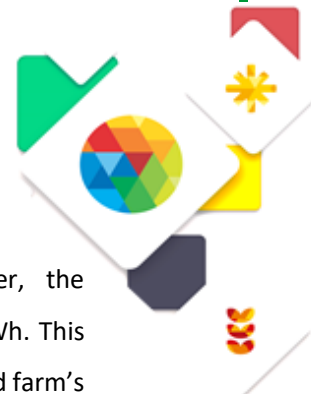


Figure 1: Electricity generation by energy sources in Mainland Portugal. (January until November 2017)  
Source: REN; APREN's analyses



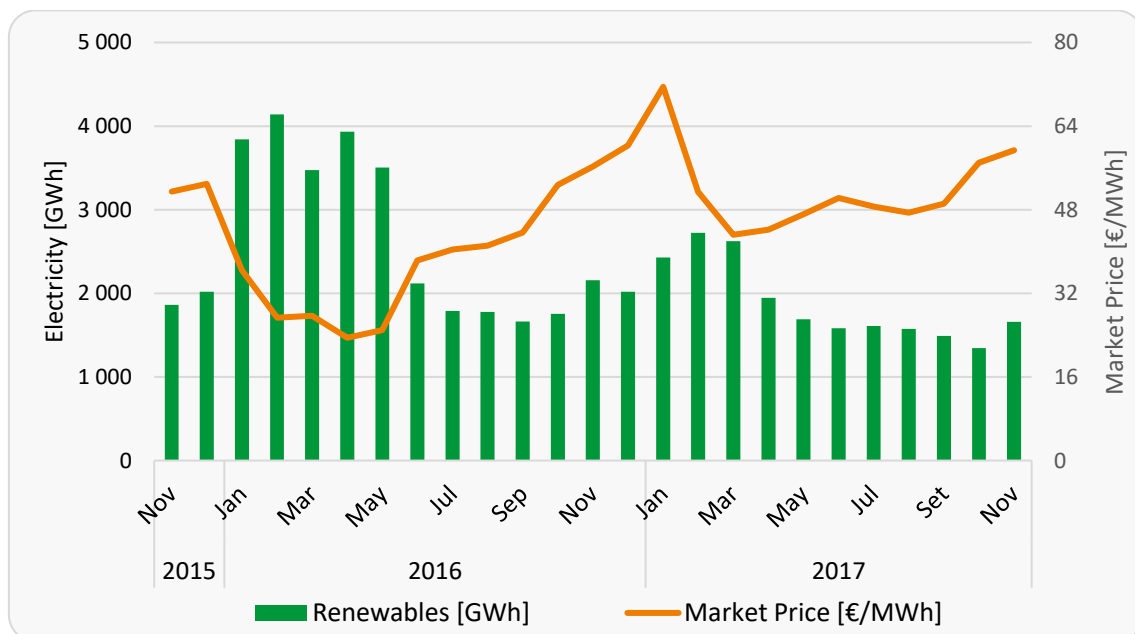
## Electricity Market

During the first eleven months of 2017, the lowest renewable share, as a result of a dry hydrological year (hydroelectric productivity index of 0.51) and a sharp decrease in wind productivity in October and November (average wind productivity index of 0.77) led to an increase of the electricity price in the wholesale Iberian market, as can be seen in Figure 2.

In fact, the average price of electricity between January and November was 51.74€/MWh, an amount about 38% higher than the previous year (37.48€/MWh).

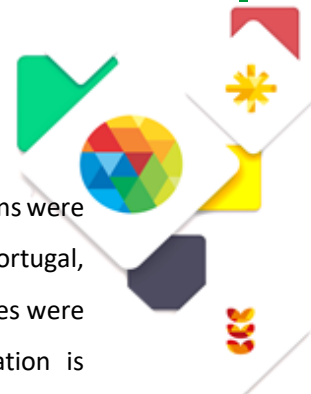
Focusing the analysis in November, the average market price was 59.39€/MWh. This amount is very similar to any new wind farm's feed-in tariff licensed after 2008, reinforcing the competitiveness of the renewable technologies.

It is also worth mentioning that in addition to the new renewable power plants already having feed-in tariffs very similar to the average value of the wholesale market, they also have many other advantages such as job creation and reduction of CO<sub>2</sub> emissions. Moreover, renewable power plants decrease fossil fuels imports, leading to an increase in the Portuguese energy autonomy.



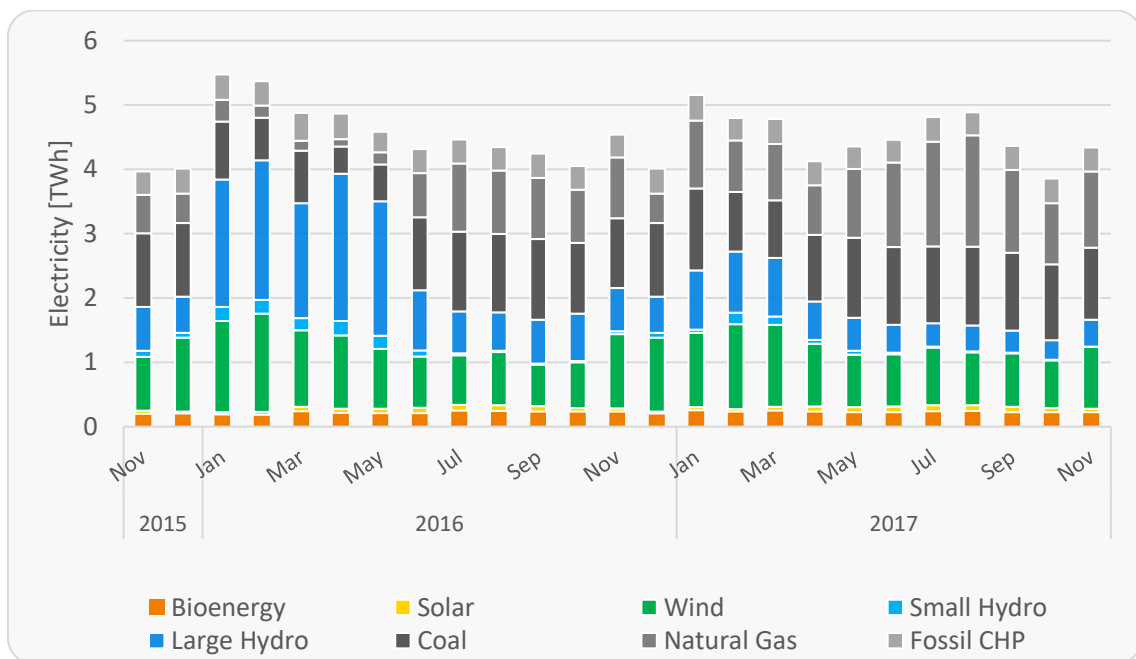
**Figure 2: Evolution of the Renewable Electricity Production and of the Iberian Wholesale Electricity Price. (November of 2015 until November of 2017)**

Source: OMIE, REN; APREN's Analysis



Another relevant fact of the Iberian electricity market is the generation deviation costs for market agents. By analyzing the behavior of these costs in Portugal and Spain, using official reports from the Portuguese (REN) and Spanish (REE) transmission system operator, it becomes obvious that the deviations represent a much higher burden in Portugal, which penalizes negatively the Portuguese market agents.

In fact, during 2016 and 2017, deviations were 1.0 and 0.81 €/MWh<sup>1</sup> in Portugal, respectively, while in Spain these values were 0.19 and 0.24 €/MWh<sup>2</sup>. This situation is unfairly penalizing small electricity producers that are now running in the electricity market. This unfair situation should therefore be reviewed as soon as possible, in order to create the same conditions of competitiveness between Portugal and Spain.



**Figure 3: Distribution of the electricity generation by source in Mainland Portugal. (November of 2015 until November of 2017)**

Source: REN; APREN's Analysis

### Production profile in the last 2 years

The evolution of electricity production in the last two years (Figure 3) shows an increase in the generation of fossil fuels in recent

months, for the reasons above stated. It is estimated that in 2017 the electricity production in the fossil thermal power plants in the Portuguese Mainland have been

<sup>1</sup> Information Available at: [http://www.mercado.ren.pt/PT/Electr/InfoMercado/PressReleases/BibInfAnual/MercadoEletricidadeSinteseAnual2013\\_2017\\_jan\\_nov.pdf](http://www.mercado.ren.pt/PT/Electr/InfoMercado/PressReleases/BibInfAnual/MercadoEletricidadeSinteseAnual2013_2017_jan_nov.pdf)

<sup>2</sup> Information Available at: [http://www.ree.es/sites/default/files/11\\_PUBLICACIONES/Documentos/SeriesEstadisticas/octubre\\_2017/12\\_Mercados\\_electricos\\_10\\_2017.xlsm](http://www.ree.es/sites/default/files/11_PUBLICACIONES/Documentos/SeriesEstadisticas/octubre_2017/12_Mercados_electricos_10_2017.xlsm)

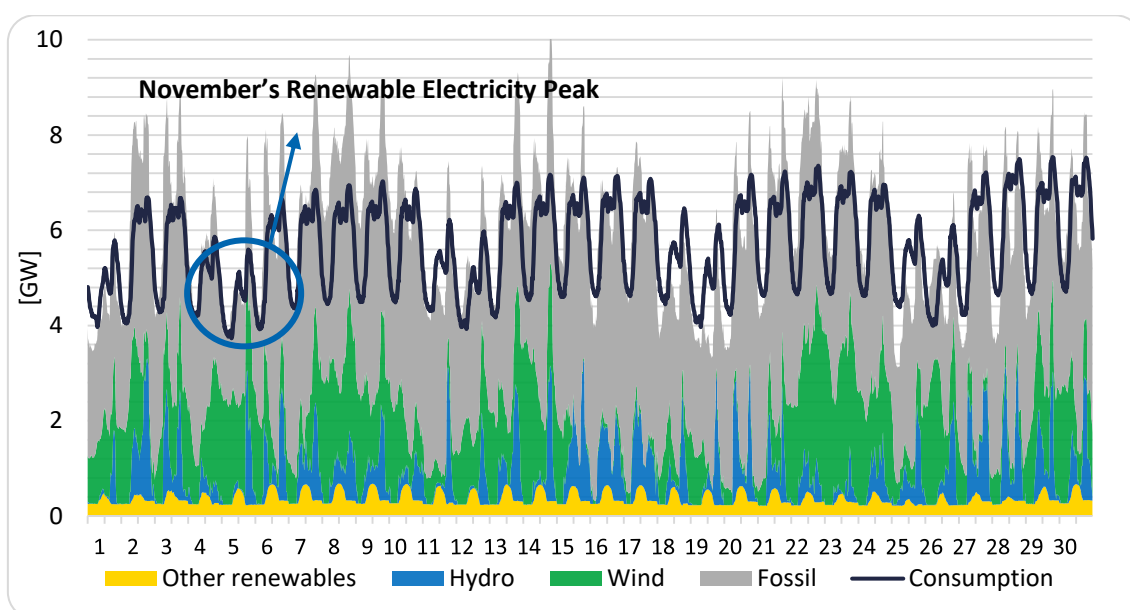


responsible for the emission of at least 18.3 million tons of CO<sub>2</sub>.

In November's electricity mix (Figure 4), it is seen a high utilization rate of the thermoelectric generating plant (generated 2,679 GWh).

Electricity production from renewable sources was 1,661 GWh, distributed by wind farms (961 GWh), hydroelectric power plants (423 GWh), thermal and biomass cogeneration plants (222 GWh) and solar photovoltaic plants (55 GWh).

The monthly renewable electricity peak, 5,413 MW, was reached on the 5<sup>th</sup>, at 6:30 p.m.



**Figure 4: Load Diagram of Mainland Portugal. (November of 2017)**

Source: REN; APREN's analyses

#### Other relevant facts

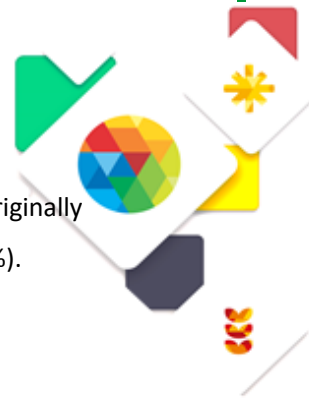
The end of last month was marked in political terms by the approval by the European Committee on Industry, Research and Energy of the amendments to be made to the Clean Energy Legislative Package. It should be recalled that this legislative package establishes the regulatory framework for renewable energy,

the internal energy market, security of supply and energy efficiency in the European Union for the post 2020 period.

Regarding renewable electricity, the ITRE new proposal for the decarbonization target establishes that at least 35 % of the total energy consumed in the EU by 2030 should have its origin in renewable sources, as

opposed to the previously 27% value proposed by the European Commission. Moreover, a more ambitious energy efficiency

target of 40% was set to 2030 (the originally proposed by the Commission was 30 %).



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