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## **CHANCES AND CHALLENGES FOR PHOTOVOLTAICS IN EUROPE AFTER THE FEED-IN-TARIF SCHEMES**

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At the end of 2016, the total installed PV power was about 102 GW and about 65% of it was on residential and commercial rooftops. This development was first driven by feed-in tariffs, which were introduced first in Germany in 2000. However, the rapid growth of installations between 2007 and 2012/13 when the total installed capacity increased from about 5GW to over 81GW, with regular installation peaks before tariffs changed led to an increasing speed of regulatory changes, which increased the installation volatility and in the end slowed down the market for photovoltaic systems in Europe.

As a preparation for COP21 in 2015, the European Council meeting on 23-24 October 2014 set a legally binding target for the European Union to reach 27% of its energy consumption from renewable energy sources by 2030. To realise this target, the European Commission presented a package of measures called "Clean Energy for all Europeans" (Winter package) with the aim to keep the European Union competitive when clean energy transition is changing the global energy markets on 30 November 2016. During the current recast of the Renewable Energy Directive, the relevant committee of the European Parliament already called for an increase of the 27% target to 35%.

To reach this target electricity generation from Renewable Energy Resources has to reach 1,800 – 2,000 TWh in 2030, more than twice the value in 2014. The largest share of this renewable energy, about 1,300 TWh will have to be supplied by solar and wind power. Compared to the electricity production of about 410 TWh (approx. 300 TWh wind and 110TWh PV) in 2016 an increase by more than 3 times is needed.

To realise such a target, the annual installations of solar photovoltaic systems from currently 6 to 7 GW have to be increased threefold. The winter package calls for the implementation of measures to reduce the existing barriers for self-consumption, storage and selling of electricity produced by consumers. To do so the whole electricity system should become more flexible and responsive to the way how consumers produce and consume electricity. To open new markets, new models to increase the consumption of local produced electricity in multi-apartment buildings are discussed or already implemented.