

The role of renewable energy prosumers in the new energy system

Introduction

Over the last couple of years, the share of solar electricity in the European grid has increased rather rapidly, with Germany and other western and central European countries witnessing the highest increase in new capacity. These high have led to similarly rapid cuts in remuneration regimes in Spain, Czech Republic, Germany, and lately also in the UK. Since 2012, Germany, the most developed market, has had remuneration levels below the average household price.

These developments have led to a surge in self-consumption, which allows consumers of electricity to lower their electricity bill by directly using the energy produced by solar panels installed on their roofs. By using batteries and managing demand, the percentage of self-consumption can be further increased and the costs incurred by purchasing utility-generated electricity can be lowered. Furthermore, due to the high average consumer prices on the German market, the only viable way of running a PV system is to make use of self-consumption.

Self-consumption has evident benefits for the prosumers. However, it also benefits the energy system and thus consumers who do not self-consume: By putting less strain on the grids, it can become a pillar of demand side management and also accelerate both businesses' and households' acceptance of the European energy transition.

Benefits of self-consumption

By using self-produced energy, European consumers and businesses can keep their energy bills low for decades to come. They are thus protected against ever-increasing electricity prices. Self-consumption, especially in combination with storage, can also "relieve" the grid. If the PV system is set up to benefit the grid or the supply system as a whole, i.e. by shaving generation peaks and consuming predominantly while the solar resource is available, prosumers can enhance grid stability and contribute to limiting costs by preventing new power lines. Self-consumption can also reduce transmission losses, which amount to 4-8 percent of electricity produced¹, as well as limit congestion and bottlenecks.

In terms of system development, prosumers will play an important role in driving forward flexibility. Self-consumption will trigger the design and deployment of solutions such as storage and smart appliances. Furthermore, if the policy framework allows it, self-consumption also has the potential of increasing the flexibility of consumer electricity contracts. This, in turn, will reduce the peaks of production and consumption for the benefit of the grid, and make the system more efficient as a whole.

As regards retail competition, prosumers will increase competition, leading to a transformation of the market. New business models are already emerging that allow a larger number of consumers to access on-site generation.

¹ http://iea-retd.org/wp-content/uploads/2014/06/RE-PROSUMERS_IEA-RETD_2014.pdf

Last but not least, self-consumption transforms consumers into active players in the energy transition, which is also a key objective of the Energy Union. Decentralized, renewable generation is a fundamental factor in building a clean, robust and competitive European power system. In addition, it attracts an additional source of funding for the energy transition in the form of individual investment and increases public acceptance of the project as a whole.

The role of prosumers at the European level

In its Communication “Delivering a New Deal for Energy Consumers”, the European Commission stresses the importance of decentralized renewable energy production and consumption for increasing system flexibility. Thus, it is key that the Commission sets the right foundation for Member States to allow residential and industrial consumers to freely use the energy they produce.

This includes removing regulatory barriers, such as requirements to feed electricity into the grid, rules concerning installation sizes, etc. It also includes not limiting the definition of self-consumption to single entities. In order to reap the full benefits of self-consumption, the definition should allow for the inclusion of all local, direct consumption, above all including tenants, who should also be allowed to benefit from the cost-effective, locally-generated solar electricity. Striving to reap the above mentioned benefits and to avoid potential hurdles at the national level, the right to self-generate and self-consume electricity should be anchored in legislation, for example in the revised Renewable Energy Directive.

As with energy saved through energy efficiency measures, self-consumption should not be taxed and particularly not based on the volume of consumed electricity. Private investment in self-consumption systems contributes to achieving the binding national renewable energy targets, and should thus not be subject to any charges at all, including the payment of renewable energy surcharges.

Recommendations for integrating prosumers into the market

For allowing prosumers to play an important role at the European and national level, we propose the European Commission and Member States address the following issues:

1. The European Commission should push for **removing administrative barriers and introducing simplified grid connection procedures**, such as a simple notification, thereby minimizing investor risks.
2. Member States should **encourage new business models** – such as joint purchasing or leasing models – which make on-site renewable generation accessible to a larger number of consumers. These models should address tenants as well as businesses.
3. The European Commission should **facilitate policies that reduce generation peaks and allow for demand side flexibility**. Demand response technologies and battery storage should be encouraged, not hindered.

4. Where necessary, the European Commission should allow and/or encourage Member States to **temporarily launch incentive schemes that aim to bring new technologies into the market.**
5. The Commission should encourage national regulators to **design distribution grid tariffs fit for the energy transition.** There is currently a wide variety of tariff models across the EU. We believe that, given the differences, there is no 'one size fits all' solution. However, all tariffs should be designed in a manner that encourages self-consumption and energy efficiency.
6. The European Commission should **ensure that market rules provide for remuneration of surplus electricity fed into the grid.** Different sectors have to be coupled and surplus electricity must be put to use. Aggregation services should be made possible, as they should also be fully accessible to prosumers.
7. The Commission should **encourage the use of net metering schemes** and compile best practice examples from other regions in order to assist Member States with the design of such mechanisms.
8. **The introduction of smart meters for residential consumers on a large scale is not necessary.** Where necessary, respectively once necessary – for example, after reaching RE deployment figures well above current levels, even in countries such as Germany that already have high shares of RE – the Commission **should make sure that collection and access of this data by third parties is not possible without the consent of prosumers.**
9. Last but not least, the European Commission should encourage Member States to **avoid retroactive measures**, as they can negatively impact the industry and hinder its future development.