

Putting energy citizens at the heart of the Energy Union

“The Council of the European Union reaffirms the need to inform and empower consumers with possibilities to participate actively in the energy market and respond to price signals in order to drive competition, to increase both supply-side and demand-side flexibility in the market, and to enable consumers to control their energy consumption and to participate in cost-effective demand response solutions for example through smart grids and smart meters.” – Energy Council conclusions, June 2015.

What is an energy citizen?

Energy citizens, also referred to as “prosumers”, are active energy consumers such as individuals, non-commercial organisations, public entities and small enterprises that produce and sell renewable energy either individually or collectively through organisations such as cooperatives or associations. They can also contribute to energy efficiency and energy system management by providing demand response.

Why empower energy citizens?

- **Society:** Empowering energy citizens is about the **democratisation of energy**. It allows citizens to participate in and benefit from the energy transition. This is a significant shift away from an energy market in which consumers simply choose which supplier they purchase energy from. The greater the number of people involved in the energy transition, the higher **public acceptance** will be. Getting citizens more active increases their awareness of energy issues, which in turn can drive a change in social attitudes towards environmental issues, including climate change.
- **Local economy:** The transition to an energy system based on 100 percent renewables will require the mobilisation of all actors and investors. Empowering energy citizens would open up **new markets for renewables and efficiency** and unlock billions of euro in potential investments. Energy citizen investors generally accept lower rates of return because of their environmental, social or community objectives, thereby lowering the cost of the energy transition. As more people invest in local renewables, **the local economy benefits**. Instead of paying for imported energy, local energy projects employ more local tradespeople, create small businesses, support local financial institutions such as credit unions and increase local tax revenues. Empowering energy citizens can help **address energy poverty**. This can involve enabling people to reduce their demand in an easier, smarter way but also supporting them to produce and consume their own energy through schemes such as shared solar or projects aimed at low-income communities or social housing.
- **Energy system:** As energy citizens unlock more energy savings and renewable energy, **Europe will import less energy**, increasing energy security and lowering Europe’s multi-billion-euro energy import bill. In many cases energy citizens install renewables, such as rooftop solar, onsite or at nearby locations. This means that **more energy can be produced and managed locally**, improving local energy access and energy resilience, lowering transmission and distribution losses and reducing the need for transmission lines and associated costs. Energy citizens can also facilitate 100 percent renewables by **increasing market flexibility**. By offering demand response to the (local) market, energy citizens can help balance the market by better matching local demand patterns for electricity and heat, reducing or shifting peak demand and avoiding the construction of expensive peaking plants.

What is the potential of energy citizens?

A recent report [1] commissioned by Greenpeace and three other organisations¹ estimates the **number of energy citizens that exist today and that could exist in 2030 and 2050 in individual member states and in the EU as a whole if the right conditions are in place.** It shows that over 264 million European citizens or half of all citizens in the EU could produce their own energy in 2050. These energy citizens could produce 611 terawatt-hours (TWh) of electricity in 2030 and 1,557 TWh by 2050. This means that in 2030 energy citizens could deliver 19% of Europe's electricity demand and 45% in 2050. In Sweden 9,8 million Swedish citizens or four fifths of the Swedish population could be producing energy. These energy citizens could produce 25% of Swedish electricity demand by 2030 and 58% by 2050. This is a significant contribution to achieving the EU's 2030 renewable energy target and moving towards a 100% renewable future.

The report also looks at **what energy citizens can contribute in demand response.** It shows that in 2050, seven in ten European citizens could be engaged in demand response. Energy citizens could unlock 1,494 gigawatt hours (GWh) of electric storage in 2030 and 10,490 GWh in 2050. The study also shows that 9.3 million Swedish energy citizens could also unlock 252 GWh of electric storage in 2050. This electric storage would significantly reduce system peaks and ensure a clean and affordable back-up capacity.

What challenges do energy citizens face in Europe?

Spain: taxing the sun

In 2015 the Spanish government introduced a law to undermine energy citizens. The law imposes a tax on the consumption of self-produced electricity and on the storage of surplus electricity onsite. Instead of guaranteeing a fair price for electricity fed back into the grid (i.e. "net metering"), the law forces energy citizens to give this electricity away for free. The law also makes shared installations, such as for multi-residential buildings, illegal.

The government is applying these new measures retroactively, which means existing energy citizens must register and adapt their renewables installation to comply with new technical requirements or face fines of up to €60 million – twice the penalty for mislaying radioactive materials in Spain. Some projects may close or be forced to convert from self-consumption to production. This is already the case, for example, with the Canary Islands' wind-powered desalination plants.

Energy citizens: the heart of the German *Energiewende*

The German shift away from fossil fuels and nuclear energy towards renewable energy has been built on the foundation of investments by individuals, cooperatives and small businesses in renewables. These energy citizens have been empowered to take a more active role in the energy market through supportive policies, including financial support such as grants and loans and simplified administrative procedures that guarantee priority grid access and dispatch for renewable energy, including community energy projects.

Today, renewables deliver a third of Germany's electricity and nearly every second kilowatt-hour of this renewable electricity is generated by a broad range of energy citizens [2].

Energy citizens are not like other energy market participants. They are likely to have less technical expertise and capacity to work on issues like grid connection and planning applications. They also face challenges in some energy markets, such as balancing markets, because these markets were not designed with smaller or non-corporate participants in mind.

This has led to a wide range of experiences for energy citizens across Europe. A small number of countries have policies in place to support energy citizens but they are the exception rather than the rule. In Germany energy citizens own almost half of the installed renewables while the traditional energy suppliers own as little as 12 percent [3].

In many countries, energy cooperatives and other forms of citizen energy, such as co-ownership are almost non-existent. This can be due to limited national experience in such projects and the absence of supportive policies. Often energy

¹ Greenpeace, the European Renewable Energy Federation, Friends of the Earth Europe and the European Federation for Renewable Energy Cooperatives.

citizens face challenges securing grid connection and burdensome administrative procedures that are designed for larger developers or utilities.

However, other European governments actively curb the opportunities for energy citizens to participate in the energy market. These measures can include explicit restrictions on the right to self-produce, self-consume and store energy. They can also take the form of punitive taxes, fees and tariffs or the lack of a fair price for electricity sold back into the grid. Governments can also establish disproportionately burdensome administrative and planning barriers for energy citizen projects.

What should the Swedish government do?

The Swedish government should create a framework to protect, support and promote energy citizens as the core of the Energy Union. This means establishing specific policies and measures in key legislation that will be proposed in 2016, specifically the revised Renewable Energy Directive and the Market Design Initiative.

The **Renewable Energy Directive** should:

- Enshrine the **right to self-produce, self-consume, receive fair payment for excess electricity fed into the grid, store energy and engage in demand-side management.**
- **Guarantee priority grid connection** for energy citizen projects.
- Continue to **allow exemptions for state aid to energy citizen projects**, regardless of project size.
- **Simplify administrative procedures**, such as the creation of one-stop shops for energy citizens.
- Encourage **innovative financing solutions** including third-party financing, on-bill financing by distribution system operators and joint purchasing programmes.
- **Provide opportunities for low-income communities** to become energy citizens through obliging member states to design targeted measures.
- Ensure that the **true benefits of energy citizens** are communicated transparently, and included in impact assessments.
- Member states should **plan for and report on increased shares of energy citizens** and set targets for energy citizens in their 2030 national renewable energy action plans.

The **Market Design Initiative** should:

- Ensure energy citizens have **access to generation and demand response markets** individually, collectively, or via a third party enterprise.
- Regulate and incentivise distribution system operators to act as **neutral market facilitators** for distributed renewable energy generation, storage and demand response.
- **Ensure that taxes, fees and network tariffs are set in a transparent way.** Benefits of active participation should be reflected and taxes, fees and network tariffs should be designed to encourage active market participation of energy citizens.
- **Regulate for dynamic retail pricing** with sufficient variability to incentivise demand response.
- **Discourage member states from establishing capacity mechanisms** as they can hamper investments in renewable generation and demand response.
- **Encourage member states to retire polluting, inflexible coal and nuclear plants** to make room for energy citizens in the market.

References:

[1] CE Delft, 2016. [The Potential for Energy Citizens in the European Union.](#)

[2] Lödl et al., 2010. [Abschätzung des Photovoltaik-Potentials auf Dachflächen in Deutschland.](#)

[3] Leuphana University, 2013. [Definition und Marktanalyse von Bürgerenergie in Deutschland.](#)

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