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Putting citizens at the heart of the energy transition

Report on the potential of energy citizens in Europe

“Most importantly, our vision is of an Energy Union with citizens at its core, where citizens take ownership of the energy transition, benefit from new technologies to reduce their bills, participate actively in the market, and where vulnerable consumers are protected.”

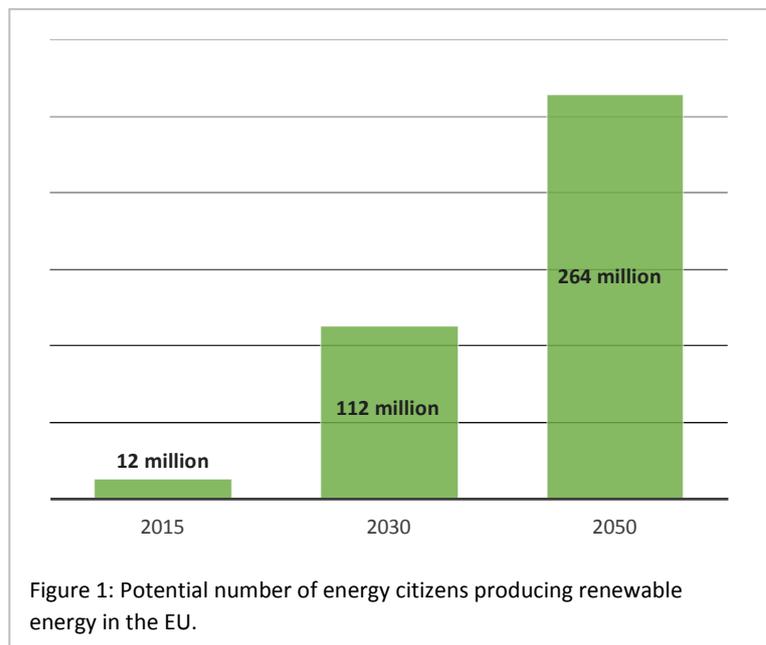
– European Commission 2015 [1]

Introduction

Europe’s energy market is undergoing a fundamental transition from a system based on fossil fuels and nuclear power towards one based entirely on renewable energy. It is also transforming from a centralised market dominated by large utilities to a decentralised market with millions of active energy citizens or “prosumers”. **Without energy citizens, the energy transition is not possible.**

Empowering energy citizens to produce their own energy is about democratising the energy system. However, energy citizens still face significant legal obstacles throughout the European Union including explicit legal restrictions, disproportionate administrative and planning procedures and punitive tariffs. With the right EU legal framework, energy citizens could flourish and deliver a significant share of Europe’s renewable energy and provide important flexibility to the energy system through demand response.

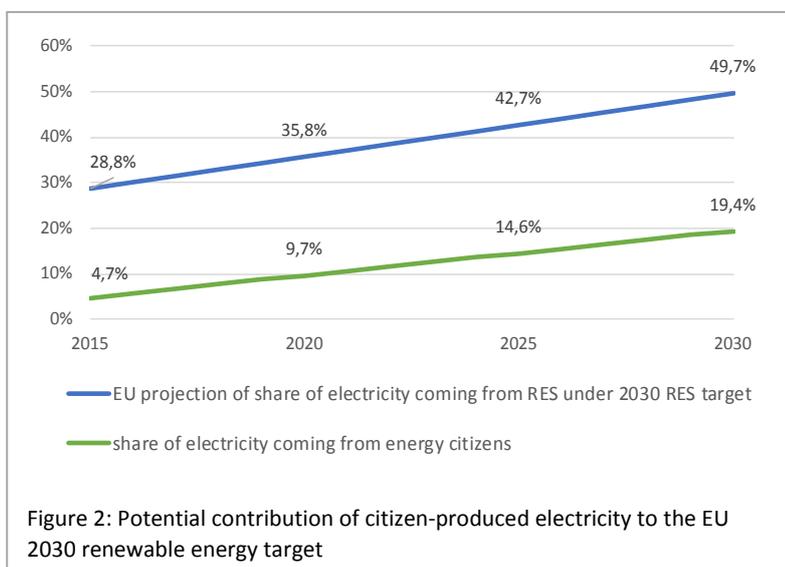
Already today, energy citizens such as communities and cooperatives have transformed the energy market in many European countries while contributing significantly to revitalising the local economy and creating local jobs. Energy citizens deliver a significant share of renewables investment and promote their local development and public support. In Germany for example, renewables deliver a third of Germany’s electricity and nearly every second kilowatt-hour (kWh) of this renewable electricity is generated by a broad range of energy citizens [2].



Calculating the potential

The available data on energy citizens is limited. In order to help remedy this, the European Renewable Energies Federation (EREF), Friends of the Earth Europe, Greenpeace and the European Federation for Renewable Energy Cooperatives (REScoop.eu) commissioned environmental research institute CE Delft to calculate the potential of energy citizens [3] in Europe to produce renewable electricity and demand response.

The report [4] uses Greenpeace's Energy [R]evolution scenario [5], which models a global energy system based entirely on renewable energy by 2050, and draws on existing data on energy citizens in European member states.



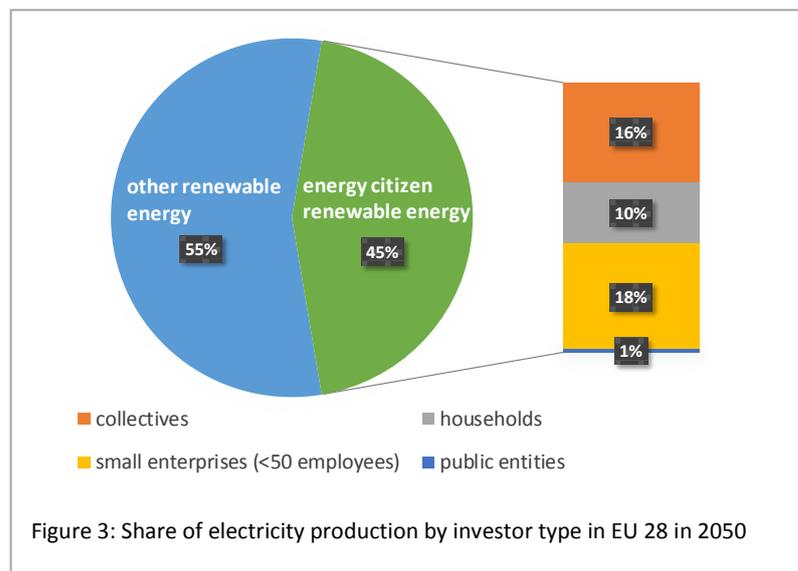
Powering the transition to 100% renewables

The report 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 European Union 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. This is a significant contribution to achieving the EU's 2030 renewable energy target and moving towards a 100% renewable future.

The report also shows the **potential of different types of energy citizens.** In 2050, collective projects such as cooperatives could contribute 37% of the electricity produced by energy citizens, while micro and small businesses could contribute 39%, households 23% and public entities 1%. These groups could own as much as 45% of Europe's renewable electricity production in 2050.

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. This electric storage would significantly reduce system peaks and ensure a clean and affordable back-up capacity.



The results show that energy citizens are capable of delivering a large share of the renewable energy and demand-side flexibility needed to decarbonise Europe's energy system.

Realizing the potential

The scale of the potential shows that without empowering energy citizens, Europe's transition to a sustainable energy system is at risk through missed investments in renewables, efficiency and demand response, missed benefits for the energy system through greater flexibility and much lower public support for a transition from which people feel disengaged.

However, the enormous potential and benefits of energy citizens demonstrated by the report will only be realised with the right legislative framework in place. The European Union should create a framework to protect, support and promote energy citizens as the core of the Energy Union. This means establishing targeted 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] European Commission, 2015. [A Framework Strategy for a Resilient Energy Union with a Forward-Looking Climate Change Policy](#).

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

[3] For the purposes of the report, energy citizens are defined as individuals or households producing energy or managing their demand flexibly either individually or collectively. The definition also includes public entities such as cities and municipal buildings, schools, hospitals or government buildings as well as small businesses with fewer than 50 employees.

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

[5] Greenpeace, 2015. [Energy \[R\]evolution 2015 World Energy Scenario](#).

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