




eneuron

Optimising the design and operation of local energy communities based on multi-carrier energy systems



A woman with brown hair in a bun, wearing a light blue sweater, stands on the left side of the image. She is looking towards a complex network of colorful lines (blue, green, yellow, purple, orange) that represent energy infrastructure. The lines are interconnected in a grid-like pattern with various junctions and curves. The background is white.

Local energy communities (LECs) offer a decentralised and bottom-up approach to **producing, managing and using energy**.

They are set to play a **significant role in the energy transition**, integrating multiple energy carriers such as electricity, gas, heat, cooling, hydrogen, mobility and water. Not only do LECs aim to efficiently self-provide for the community users – under the concept of energy islands – but they also aim to **provide support for neighbouring systems** such as balancing and ancillary services.

Despite these benefits, LECs can be complex and conflicting in their design and operation. **Business models, infrastructure, and divergent objectives** among community members all need to be addressed, balanced and managed.

The Project

Drawing on the concept of **micro and macro energy hubs**, eNeuron will develop a range of cloud-based tools to seamlessly integrate multi-carrier energy systems and simulate peer-to-peer energy trading in local, real-time markets.

The wide range of project partners will apply a **multi-objective approach** to address economic and environmental aspects of local energy communities, thus ensuring short- and long-term sustainability of the energy supply system. These new configurations will be tested at four pilot schemes in **Italy, Norway, Poland and Portugal**. The aim is to increase their replication potential for other settings across Europe.

Benefits

Through eNeuron's optimisation solutions, prosumers will benefit from **clean affordable power**, energy companies will avoid grid congestion and policy makers will enjoy clearer insights into **making communities sustainable**, both economically and environmentally.



17

PARTNERS

8

COUNTRIES

4

SHOWCASES

4

YEARS



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