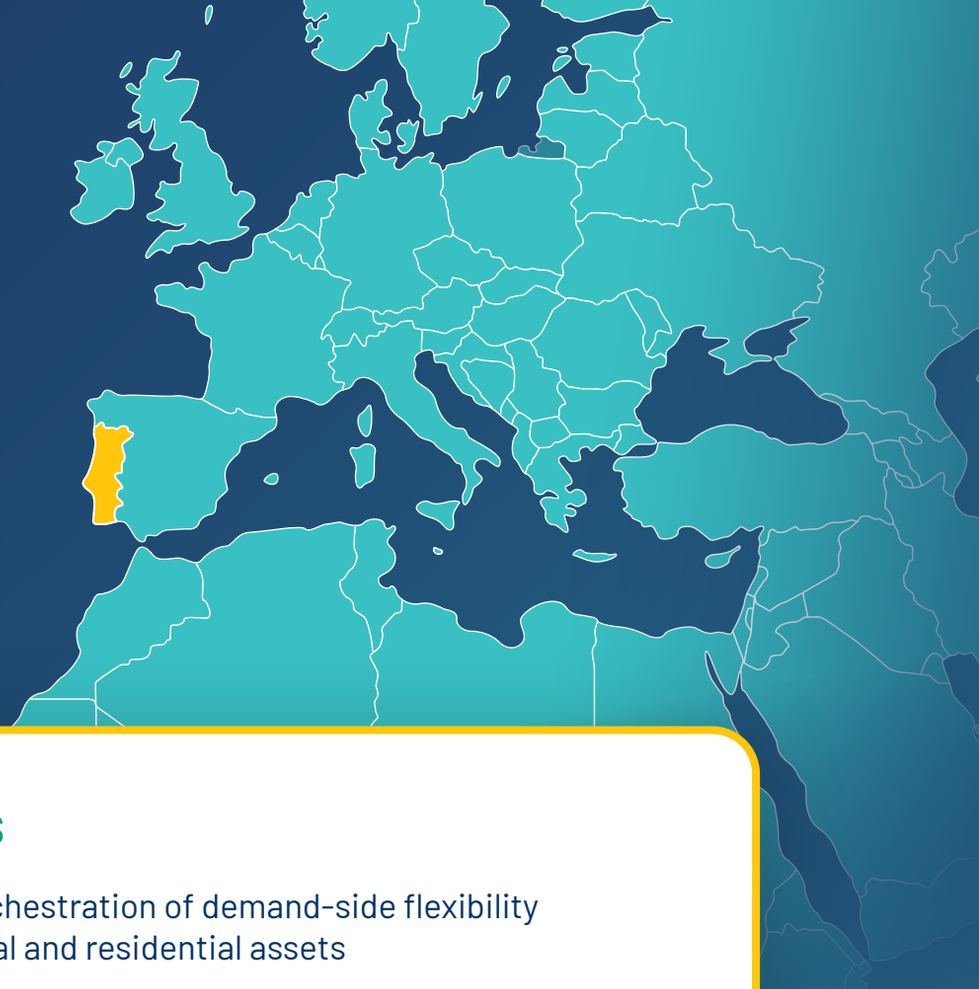
DEMO 5

Portugal

Focused in Metropolitan Porto area, across commercial buildings, energy communities, and residential users.

"Through HEDGE-IoT, the Portuguese demo is turning residenial users and commercial buildings into active players in the energy system, showing how digital tools can unlock flexibility and drive a more intelligent, connected, and sustainable grid."



Technology

The Portuguese demo revolves around the EdgeConnect platform, which enables real-time coordination of flexibility services through integration with building and energy management systems (BEMS/EMS), smart meters, and PVs.

Semantic adapters and interoperable data layers facilitate smooth communication between assets and stakeholders while digital twins are used to model flexible resources and predict system behavior, supporting multi-market participation and advanced demand-side flexibility activation.

Key Use Cases

- Activation and orchestration of demand-side flexibility across commercial and residential assets
- Integration of multiple flexibility value chains (balancing, congestion, market trading)
- Interoperable data exchange across actors via data space infrastructure
- Intelligent forecasting and valorisation for grid and market-based services

HEDGE-IoT Tools Involved

- EdgeConnect platform for edge-cloud orchestration
- OptiFlex tool for flexibility asset scheduling and valorisation
- EnergyBox for asset-level monitoring and control
- Semantic interoperability connectors for standardized data exchange

Target Audience/Beneficiaries

- Energy communities and building managers participating in coordinated flexibility aggregation
- Commercial and industrial prosumers accessing value through dynamic flexibility valorisation
- DSOs and market operators integrating BEMS/EMS systems into multi-market orchestration
- Technology providers contributing with semantic adapters, forecasting tools, and digital twins

Expected Outcomes

The Portuguese demo showcases how digital platforms can connect residential users, commercial buildings and system operators to unlock the value of flexibility. By integrating edge intelligence, interoperable data, and smart asset orchestration, the pilot enables real-time coordination between consumers, aggregators, and grid operators.

The objective is to illustrate how local flexibility can be activated, valued within a market, and translated into direct benefits for users and system stability. The pilot demonstrates the potential of residential participants and commercial actors to play an active role in the energy transition through data-driven participation and collaboration.

Partners involved

CEVE · MC Sonae · elergone energia · INESCTEC · R&D NESTER CREATING A SMART ENERGY FUTURE · REN

Co-funded by the European Union

This project has received funding from the European Union's Horizon Europe research and innovation programme under the Grant Agreement number 101136216. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Climate, Infrastructure and Environment Executive Agency. Neither the European Union nor the granting authority can be held responsible for them.