



InnoGrid 2023

‘Between urgency and energy transition: getting the balance right’

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FLEXi:GRID

INTEROPERABLE SOLUTIONS FOR IMPLEMENTING HOLISTIC
FLEXIBILITY SERVICES IN THE DISTRIBUTION GRID



FLEXIGRID: Project overview



OBJECTIVE:

The main goal of FLEXIGRID is to provide **tools for distribution networks** to be operated with **security and stability** in scenarios with high penetration of variable **renewable electricity generation** sources connected to LV and MV systems

EXPECTED IMPACTS:

- ✓ Improved **stability** and **flexibility**
- ✓ **Curtailment** decrease
- ✓ **Reduction of the reinforcements** needed to maintain the quality and stability of the grid
- ✓ Improve the capability to manage **future energy loads (increase of electrification)**
- ✓ **CO₂ emissions reduction** due to the larger penetration of RES



- Coordinator: CIRCE Technology Centre
- 17 partners (DSOs, technology centres, universities, big companies, SME, aggregator, association)
- 5 countries (Spain, France, Italy, Croatia, Greece)
- IA -Innovation action (Budget: 8.5 M€)
- 1/10/2019 – 30/09/2023



FLEXIGRID: Contribution for Electrification



Development of HW and SW technology solutions aiming:

- To improve the power system flexibility
- To increase hosting capacity of renewable energy sources (RES)
- To increase the observability, controllability and automation of the electric networks for the improvement of both the security and resilience of the grid
- To mitigate short-term and long-term congestions in the distribution grids
- To ensure the interoperability and compatibility of the developed solutions with the different platforms used by the European DSOs

UC 1: Secondary Substation upgrading for higher grid automation and control

UC 2: Protections functions operating with large RES share penetration in the distribution grid

UC 3: Holistic energy system optimization & emulation for commercial and residential customers

UC 4: Microgrid congestion management and peak shaving

UC 5: Coordinating distribution network flexibility assets & protections schemes in urban districts

UC 6: Virtual Energy Storage for urban building

UC 7: Dispatching platform for MV generation

UC 8: Mountainous valley grid operating in island mode

SPAIN



GREECE

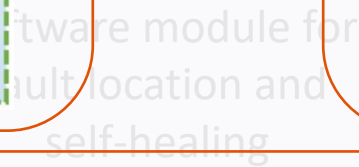


CROATIA



ITALY





- As a smart hub, it can be used to bundle equipment for domestic applications.
It can also be used as a hub for aggregator applications allowing easy incorporation as a flexibility provider.

It can be used as an RTU, as a gateway for protocol conversion or as a controller. The retrofit function allows the incorporation of old transformer centres into SCADAS.

