

# uGRIP

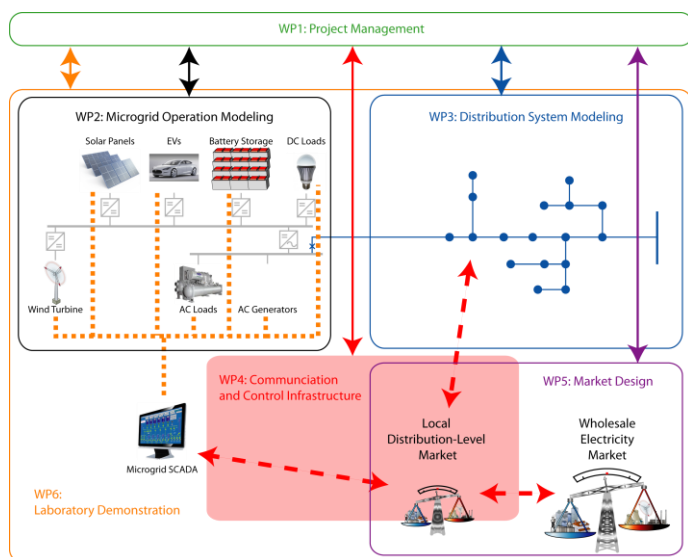
## microGRID Positioning

” *The smart grid concept will enable the proliferation of small-scale generation sources at the distribution level and the effective participation of end-consumers in the electricity market.*

### Project Description

The growing share of intermittent and partly predictable renewable energy sources (RES) requires a more flexible operation of the power system. Flexibility is a key to maximize the utilization of RES, while minimizing the negative impact of their associated variability and uncertainty. An effective way of increasing system flexibility is the integration of price-responsive microgrids. A real-life microgrid may perform arbitrage, provide flexibility thus increasing the utilization of RES, take part in corrective actions, provide voltage support, and defer investments in power lines and (distributed) generation. A structure of the local, distribution-level market will be defined and demonstrated within the project. The complex interactions between the microgrid, distribution network, transmission network, wholesale electricity market and local distribution level market will be investigated and a viable operation mechanism will be proposed.

### Project Structure



### Project Duration

01.04.2016 - 31.03.2019

### Project Budget

Total Budget: € 1,116,736

Funding: € 775,568

### Project Coordinator

- Faculty of Electrical Engineering and Computing University of Zagreb – FER UNIZG (Croatia)

### Project Partners

- Technical University of Denmark – DTU (Denmark)
- Institute for Information Technology – OFFIS (Germany)

### Associate Partners

- KONČAR Power Plant and Electric Traction Engineering Inc. – (Croatia)
- Croatian Power Utility – HEP Inc.

### Project Website

[www.ugrip.eu](http://www.ugrip.eu)

### Contact

Prof. Hrvoje Pandžić (FER UNIZG)  
hrvoje.pandzic@fer.hr

## Main Objectives

- Assessment of the role of storage and the price responsiveness on the consumer side.
- Assessment of microgrid business cases for different countries, i.e. Croatia, Denmark and Germany, based on their respective grid codes and incentive policies.
- Development and definition of standardized communication protocols between the elements and the central computer in charge of the microgrid operation, as well as the microgrid and local distribution electricity markets.
- Development and design of a local market to manage the microgrid at the FER UNIZG laboratory.
- Developing and executing simulation scenarios integrating the available hardware components and software models with the co-simulation framework.

## Main Results

- Furthering the pro-active role of consumers by the means of microgrids
- Developing methodological expertise for the optimal operation of distribution networks under a smart-grid paradigm.
- Building a decision support tool for DSOs and aggregators to efficiently interact with the wholesale energy and ancillary service markets and allocate local resources at the distribution level on both daily and real-time basis.
- Demonstrating the concept of "local markets" for maximizing the performance of microgrids and distribution grids within the laborator environment.
- Assessing the prospective social, technical and economic benefits derived from the actual implementation of these concepts and tools.

From Local Trials towards a  
European Knowledge Community

<http://www.eranet-smartgridsplus.eu>



This project is part of the 1st Joint Call for transnational RDD projects of the ERA-Net Smart Grids Plus initiative. More than EUR 31 million of funding have been made available to 21 projects from 19 regions/countries.

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Smart Grids Plus**