



# LarGo!

## Large-Scale Smart Grid Application Roll-Out

*” LarGo! aims at rolling out smart grid applications both on DSO and customer level and thus enables large-scale deployment of already developed smart grid solutions.*

LarGo! supports the mass roll-out of smart grid software applications for energy and grid management. LarGo! tackles the challenge of stable and resilient system operation in a setting where communication systems are used for both smart grid run-time operation (e.g. monitoring, controls) and ICT maintenance (i.e. application deployment & patching, remote configuration).

LarGo! defines a seamless deployment process in the grid and customer domain and implements a utility-scale and highly accurate emulation of the required ICT systems and processes to assess large-scale effects of software deployment, system maintenance and operations. Suboptimal operational states in energy management (e.g. by aggregators) and grid management (by DSOs) are analyzed in-depth.

Appropriate measures for resilient system operation are designed and tested. In local testbeds on DSO-level and customer-level, selected smart grid applications are rolled out to demonstrate and verify the roll-out process.

### Project Duration

01.05.2017 – 30.04.2020

### Project Budget

Total Budget: € 2,473,534.-

Funding: € 2,099,032.-

### Project Coordinator

AIT – Austrian Institute of Technology GmbH (Austria)

### Project Partners

- Siemens AG Österreich (Austria)
- Wiener Netze GmbH (Austria)
- OFFIS e.V. (Germany)
- Fraunhofer Institute for Solar Energy Systems ISE (Germany)
- KTH Royal Institute of Technology (Sweden)

### Project Website

[www.largo-project.eu](http://www.largo-project.eu)

### Contact

Friederich Kupzog

[friederich.kupzog@ait.ac.at](mailto:friederich.kupzog@ait.ac.at)

## Main Objectives

- Preparation of the mass roll-out of smart grid software applications to facilitate energy-related service market-places in the customer domain (energy management, aggregation, flexibility) and renewable integration in the grid domain (monitoring and control, efficiency, hosting capacity increase) based on experience of preceding projects' national demonstrators.
- Technical analysis of the side-effects of roll-out, updating, patching and operations over common communication infrastructure, using highly accurate but large-scale system emulations. Results are verified by Controller Hardware in the Loop (CHIL) and Power Hardware in the Loop (PHIL) experiments.
- Support of the adoption of smart grid approaches by designing a secure infrastructure and robust applications that enable fail-safe system operation. LarGo! will take software applications developed within former projects, analyse their scale-up towards a utility/large-scale deployment and further improves these technologies by incorporating learnings gained in own and other European roll-out activities.
- The proactive use of the ERA-NET Knowledge Community's expert groups and other channels to disseminate the findings among relevant stakeholders, show the advantages of open and standardized approaches for smart grid application provisioning and reach a wide adoption and impact.

## Main Results

LarGo! will propose a resilient system and controls design that tolerates the reduced availability of ICT components, which occur as a result of application deployment processes, technical failures or even malicious actions. With its large-scale application deployment process, the designed infrastructure and the developed applications, LarGo! provides key solutions to the operational challenges of active grid control, focusing on the important need to perform novel application deployment, functionality updates and software patching. Therefore, the project is in line with the 2050 target of ENTSO-E "to determine and develop an optimal asset management strategy for equipment on a cost-effectiveness basis."

From Local Trials towards a  
European Knowledge Community

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

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**SIEMENS**

**WIENER NETZE**

 **Fraunhofer**  
ISE

 **OFFIS**  
INSTITUT FÜR INFORMATIK

 **KTH**  
VETENSKAP  
OCH KONST

This project is part of the 2<sup>nd</sup> Joint Call for transnational RDD projects of the ERA-Net Smart Grids Plus initiative. EUR 13 million of funding have been made available to 9 projects from 8 regions/countries.

**ERA-Net  
Smart Grids Plus**