RestoreGrid4RES

Strategies and operator tools for grid restoration with massive renewable energy sources

> *The massive installation of renewable energy sources will change today's grid restoration strategies significantly.*

Project background

The growing contribution of renewable energies and the liberalized energy market result in higher system stresses in terms of increasing system loadings and fluctuations.

Combined with a delay of grid enhancements this results in an increasing risk of wide-area blackouts and a threat for successful grid restoration.

Project summary

RestoreGrid4RES investigates new grid restoration strategies to ensure a fast, coordinated and stable system restoration.

In particular, RestoreGrid4RES gives recommendations whether and how renewable generators shall contribute to the restoration and which technical requirements must be met observing the fact that the vast majority is connected to the distribution systems without direct control by the transmission system operators.

To support grid operators during this difficult procedure, a demonstration tool is developed which shall guide the operators through the restoration process and give helpful information about possible next steps and their consequences.

Project Duration

01.05.2017 - 30.04.2020

Project Budget

Total Budget: € 977,859.-
Funding: € 877,713.-

Project Coordinator

University of Kaiserslautern
Chair for Energy Systems and Energy Management (Germany)

Project Partners

- TU Wien – Institute of Energy Systems and Electric Drives (Austria)
- KNG Kärnten Netz GmbH (Austria)
- Netz Oberösterreich GmbH (Austria)
- Siemens AG, EM SG PTI (Germany)

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ERA-Net Smart Grids Plus | From local trials towards a European Knowledge Community

Smart Grids Plus ERA-Net

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From Local Trials towards a European Knowledge Community

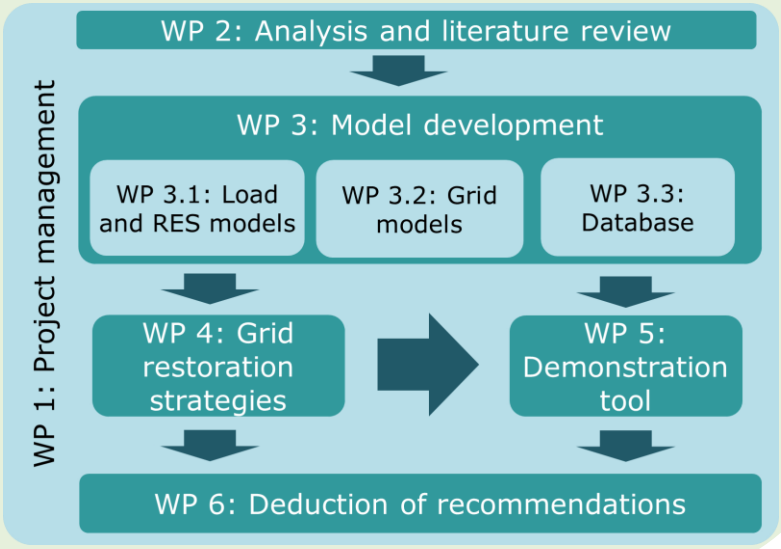
http://www.eranet-smartgridsplus.eu

Main Objectives

- Analysing the impact of renewable generation and new loads such as heat pumps and electric vehicles on grid restoration after a blackout.
- Developing strategies for grid restoration taking into account growing renewable generation.
- Prototyping supporting tools for system operators during the grid restoration process.

Main Results

- A summary of the legal framework and technical requirements during grid restoration on the basis of the ENTSO-E network codes.
- Steady state models of renewable generation, loads and storage facilities for restoration process studies.
- Description of future restoration strategies and their differentiation from today's strategies.
- Specification of awareness and decision support tools for grid restoration.
- A set of useful indicators and indices to guide the system restoration process.
- Recommendations and a roadmap for migration towards the proposed system restoration plan.
- Recommendations for a supporting tool for grid operators.



Technische Universität Kaiserslautern

ES+EM Energy Systems + Energy Management

TU Wien Technische Universität Wien

ESEA

Kärnten Netz Ein Unternehmen der Kelag

NETZOÖ Ein Unternehmen der Energie AG

SIEMENS

This project is part of the 2nd 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.

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