RELflex

Renewable Energy and Load Flexibility in Industry

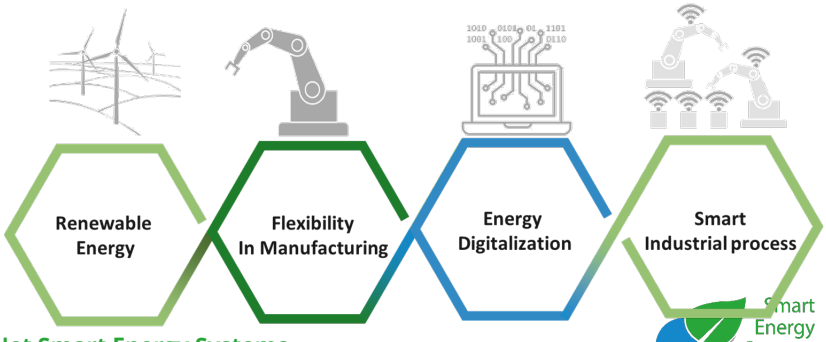
> *Full integration of renewable energy into the power system needs more flexibility options for reliable and secure power*

RELflex aims to develop, test and evaluate **new solutions and applications for flexibility of energy-relevant industry processes at SMEs** (Small and Medium Enterprises) through dynamic management of controllable loads, generation of renewable energies as well as energy storages.

RELflex focuses on technical development of methods, algorithms, business models and applications for optimal usage of flexibility options in operation of Dynamic Energy Management Systems (DEMS) in industrial processes. Through different options, which are regional market dependent, like aggregation of reserve generation units, renewables and storages it is possible to offer new forms of flexibility to the power system operators.

RELflex addresses economic potential and martekt's access options, which opens new business opportunities for the stakeholders. Technological and economic results will be fulfilled by socio-economic analysis of customers' active participation readiness, acceptance, and benefit for the society and group of interest.

A holistic view of the energy supply and consumption chain of industrial consumers, its dependencies to the operating processes and the consideration of external market and/or technical grid signals will be taken into account. The solutions developed within



ERA-Net Smart Energy Systems

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Project Duration

01.12.2018 - 30.06.2021

Project Budget

Total Budget: € 1,100,590.-

Funding: € 1,004,094.-

Project Coordinator

Fraunhofer Institute for Factory Operation and Automation IFF (Germany)

Project Partners

- AGH University of Science and Technology (Poland)
- Magdeburg University of Applied Sciences (Germany)
- European Copper Institute (Poland)
- Arte Moebel GmbH (Germany)
- Chowaniec Leszek, Pokoje Goscinne Na Olczanskim Wierchu (Poland)
- Bachledowka S.A. (Poland)

Project Website

www.relflex.eu

Contact

Dr. Bartlomiej Arendarski

Fraunhofer Institute for Factory Operation and Automation IFF

Sandtorstr. 22

39106 Magdeburg, Germany

Phone +49 391 4090 – 145

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Narodowe Centrum Badań i Rozwoju

Main Objectives and Results

Theoretical/ Scientific:

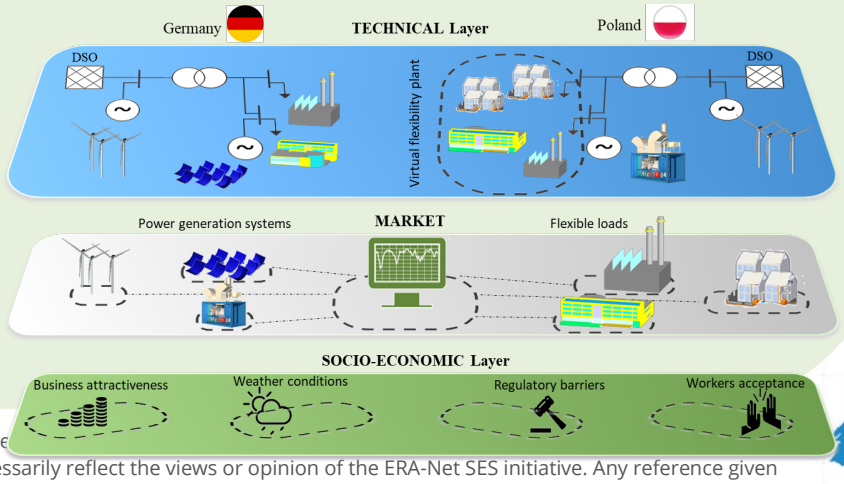
- Development of an innovative strategy and methodology for flexibility implementation in small industrial processes aiming to increase the integration of volatile renewable generation into the manufacturing process by controlling loads, using energy storage and ICT components.
- Identification of SMEs' industrial processes, their classification and modelling for further optimization.
- Development of algorithms for monitoring and optimal operation of energetic components via dynamic energy management system in SMEs.

Practical/ Technical:

- Adaptation and further development of DEMS tools for improved operation of electrical industry processes for more flexibility and increasing network capacity to support maximal RES integration.
- Implementation of operation strategies, DSM and DSR functions for energy-relevant and highly complex infrastructures.
- Pilot demonstrators of developed RELflex flexibility solution integrategrated in energy and production infrastructure of chosen SMEs
- Contribution to keep and improve level of power system supply reliability and security.

Socio-economic:

- Increasing SME industry competitiveness and sustainable development through new functions and flexibility offering and higher quality 'green' products and service for end-customer.
- Analysis and enhancement of social acceptance among stakeholders, operators, end-users and customers incl. their preferences, participation and interest for flexibility offering.
- Strengthen the market for flexibility through business application for economic use of a DSM/DSR and more system responsibility for energy balancing operators and aggregators.
- Developing new business models for the active participation of the SMEs to support the stability of the power grid.
- Contribution to decarbonisation or low-carbon technologies and greenhouse gas reductions of small industry.



Joint Programming for Flourishing Innovation from Local and Regional Trials towards a Transnational Knowledge Community

www.eranet-smartenergysystems.eu

Fraunhofer IFF

AGH University of Science and Technology

h2 Hochschule Magdeburg • Stendal

Europejski Instytut Miedzi Copper Alliance

artRTE möbel gmbh Möbel nach Maß

Na Olczańskim Wierchu www.olczanski.pl

Bachledówka

ERA-Net Smart Energy Systems

This project is part of the Joint Call 2017 for transnational RDD projects of the ERA-Net SES focus initiative SG+. EUR 3.9 million of funding have been granted to 4 projects from 7 regions/countries.