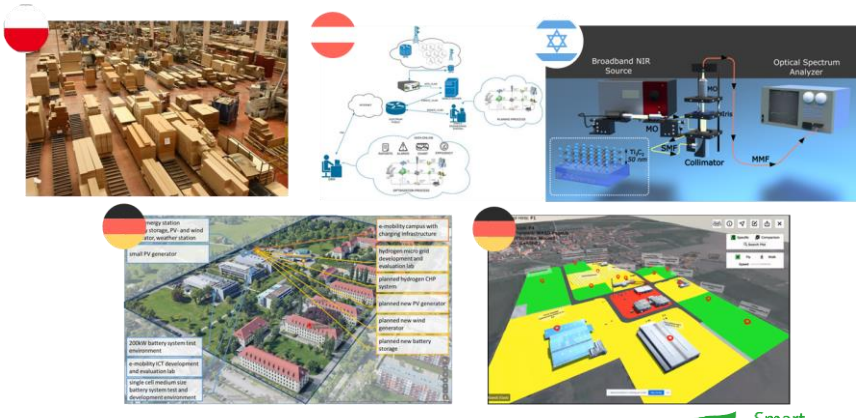
DIEGO

Digital energy path for planning and operation of sustainable grid, products and society

> *Integration of digital system and component networking in processes and infrastructures for the reliable and sustainable energy use.*

The aim of the DIEGO project is to develop digital tools for sustainable energy systems in an international consortium. To this end, the international partners will contribute their knowledge and expertise in their respective fields. The planned solutions of the digital tools and the methods for the planning, development and operation of sustainable energy systems and processes will sustainably promote society and identify possible new market models. The different expectations of customers and users will be analysed in order to take them into account in the project solutions and to meet the growing expectations of the beneficiaries, considering their specificities and requirements. Equality and inclusion of end-users in the energy system and market are essential for the successful transition and decarbonisation of energy infrastructures.

The main objective of DIEGO is to develop and test consistent methods and applications for digital integrated system and component networking of processes and infrastructures to provide reliable, cross-grid and sustainable industrial products. To this end, DIEGO solutions will be developed and validated on five different demonstrators at five different locations.



ERA-Net Smart Energy Systems

Smart Energy Systems ERA-Net

This project has received funding in the framework of the joint programming initiative ERA-Net Smart Energy Systems. The initiative has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreements no. 646039 and no. 755970.

Project Duration

01.05.2022 - 31.10.2024

Project Budget

Total Budget: € 2.757.515.-

Funding: € 1.925.885.-

Project Coordinator

- University of Applied Science Magdeburg-Stendal (Germany)

Project Partners

- LS Software & Engineering GmbH (Germany)
- Erdgas Mittelsachsen GmbH (Germany)
- Electrum Ltd (Poland)
- Warsaw University of Technology (Poland)
- Salzburg Research Forschungsgesellschaft mbH (Austria)
- meo Energy GmbH (Austria)
- Energie Kompass GmbH (Austria)
- Ben-Gurion University of the Negev (Israel)

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Ministry of Energy www.energy.gov.il
FFG Austrian Research Promotion Agency

Main Objectives and Results

Theoretical/ Scientific:

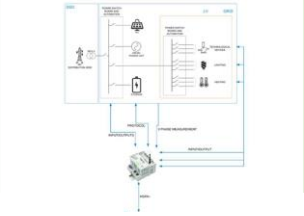
- Software components for planning multi-energy grids across multiple sectors and diverse types of consumers/producers/storages.
- Optimisation algorithms and prediction methods for real-time energy balancing in a micro grid comprising different sectors and consumption types.
- ICT architecture supporting (near-)deterministic data exchange.
- Digital tools for enhancing the design of photovoltaic cells.

Practical/ Technical:

- Use generated and integrated electric power by renewable energy sources in a more efficient way.
- Support industrial park designers to plan actions aiming to minimize the carbon footprint of the industrial site.
- Operate manufacturing systems more flexibly and efficiently allowing the direct integration into the manufacturing process of power generated by volatile renewable energy sources and other available flexibilities (households, e-car-charging, storages) to operate factory as Net-Zero Energy Systems.
- Design and develop of an encompassing and flexible ICT architecture incl. all steps and components (data models, interfaces, use cases) that integrates existing wired and wireless mixed traffic networks with time critical and non-time critical traffic incl. the utilization of 5G.
- Operate different kinds of energetic infrastructures (electric, thermal, gas and e-transportation) maximizing the integration of volatile renewable energy sources and minimizing the energetic losses in converting the energy in other forms (i.e. power to the grid, power to gas, power to mobility, etc.).

Socio-economic:

- Accelerating a sustainable, low-carbon and climate-friendly economy in the EU by 2050.
- Improving energy efficiency in industry (26% of total energy consumption in the EU) through digitization of processes and integration of sustainable technologies.
- Support increased integration of renewable energies through better monitoring and management of volatile green resources in combination with flexibility of processes and components with increased dynamics of the energy system (resilience, reliability, safety).
- Developing digital tools and modules for energy hardware components, manufacturing processes, industry and public infrastructure, planning and operation of industrial parks under new transition conditions.
- Involving planners, investors, manufacturers, RE operators, researchers, consumers and users in the testing of tools and components in the Living Lab.



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

www.eranet-smartenergysystems.eu

h² Hochschule Magdeburg • Stendal

LSE Software & Engineering

EMS Energie mit Service

electrum

Warsaw University of Technology

meo

energie.kompass

salzburgresearch

Ben-Gurion University of the Negev

ERA-Net Smart Energy Systems Joint Call 2020 (MICall20)

This project has been awarded funding within the ERA-Net SES Joint Call 2020 for transnational research, development and demonstration projects. 22 Mio EUR of funding have been granted to 21 projects active in 17 regions and countries.