



AISOP

AI-assisted grid situational awareness and operational planning

” In AISOP, we enable decarbonisation using advanced digital technology by creating AI-based decision support for operational planning in distribution systems

AISOP will create an AI-assisted decision support system for electric distribution system operators (DSOs) to drive decarbonisation that is underpinned by advanced digital technology. The decision-support system securely and privately acquires, processes, interprets, and exploits data for the benefit of DSO operational planning.

In this context, AISOP expands data-driven techniques for improved operational planning in distribution/local grids with high shares of DERs by exploiting AI/ML-based solutions for enhanced situational awareness and to generate targeted market incentives.

Within the project we combine (i) data access and ingestion (ii) distribution grid situational awareness, (iii) decision-support for distribution grid management (iv) dynamic tariffs, (v) digital platform integration with exploitation through test and training environments.

The developed solutions will be disseminated in national and international platforms and validated using demonstrations in Switzerland and Germany.

Project Duration

01.05.2022 - 01.05.2025

Project Budget

Total Budget: € 2,105,684.-

Funding: € 1,197,891.-

Project Coordinator

Lucerne University of Applied Sciences and Arts (Switzerland)

Project Partners

- Research Center for Energy Networks, ETH Zurich (Switzerland)
- Zentrum für Beratungssysteme in der Technik Dortmund e.V. (Germany)
- Westfalen-Weser Netz (Germany)
- Logarithmo (Germany)
- Arbeitsgemeinschaft für sparsame Energie-und Wasserverwendung (Germany)
- Depsys AG (Switzerland)
- Hive Power Sarl (Switzerland)

Project Website

www.aisopproject.com

[AISOP Project | LinkedIn](#)

Contact

Antonios Papaemmanouil

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.



Main Objectives

AISOP's overarching mission is to create an AI-assisted decision support system to drive decarbonisation in electricity distribution systems.

AISOP's solutions will acquire, process, interpret and exploit data for the benefit of DSO operational planning, integrating AI/ML-based solutions, enhanced situational awareness, and market incentives.

The project will:

- Increase grid observability by using data from multiple sources and in different time resolutions.
- Help DSOs operate the grid using data-driven decision support tools.
- Improve the efficiency of network operations.
- Improve options for tariffs for prosumers.
- Reduce curtailment of renewable energy and distributed energy resources

Main Results

AISOP aims to create actionable, tangible and applicable outcomes for distribution systems with the goal to improve operational planning and support decarbonisation. The outcomes will take the following forms while insuring reproducibility, replicability and interoperability:

Methodologies & Knowledge

- Accessing and combining heterogenous, dispersed datasets
- Developing grid situational awareness using edge and embedded network devices
- ML-based risk analysis and risk quantification
- AI/ML based identification of dynamic tariffs for congestion management

Technologies

- Data analytics (forecasting, local optimisation)
- ML-based anomaly detection and fault prediction
- Digital process twin for distribution systems
- Embedded and distributed sensors for LV and MV networks

Services

- Dynamic tariffs
- DSO congestion management and investment deferral
- Fault detection and prediction
- Operational risk management

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

www.eranet-smartenergysystems.eu

HSLU Lucerne University
of Applied Sciences
and Arts

ETH zürich

ZEDO

HIVE POWER

logarithmo

ASEW DAS EFFIZIENZ-NETZWERK
FÜR STADTWERKE

WW
Westfalen Weser