TARGET AUDIENCE

- System Operators and Energy Suppliers
- Manufacturers of Energy Technologies and Software Operators
- Research Institutions and Universities
- Regulatory Authorities and Standardization Bodies

WHY TESTING INTEROPERABILITY?

By identifying potential issues early in the development and deployment process, integration costs can be significantly reduced. This proactive approach minimizes delays and complications, ultimately accelerating the implementation of sustainable and intelligent energy solutions.

Standardized interoperability testing plays a crucial role in enhancing the efficiency and reliability of energy systems by ensuring that different components and technologies can work seamlessly together. This supports the broader goals of the energy transition by enabling more effective system integration but also strengthens the overall innovation capacity within the energy sector.

CONTACT

Scientific Lead:
Dr.-Ing. Mathias Uslar
mathias.uslar@offis.de
+49 441 9722-128

Project Coordination:
René Kuchenbuch

Dissemination Lead:
Dr.-Ing. Jirapa Kamsamrong

OFFIS e.V.
Escherweg 2
26121 Oldenburg
Germany

Scan to Learn More about the Project:

InterOpEnergy

TESTING INTEROPERABILITY IN THE ENERGY SECTOR.

InterOpEnergy is accelerating the interoperability of energy systems by adapting the IHE Gazelle testing infrastructure, originally used in healthcare, to detect and resolve integration issues early through test and events, particularly Connectathons. For selected use cases, InterOpEnergy develops Technical Frameworks that lay the guidelines for interoperable solutions together with experts and stakeholders. These frameworks focus on:

- EV CHARGING INFRASTRUCTURE
- DYNAMIC ELECTRICITY TARIFFS
- STANDARDIZED DATA EXCHANGE

By addressing these challenges, InterOpEnergy supports seamless integration, drives efficiency, and contributes to energy sector standardization.

Use Case #1 : Smart EV Charging with Time-of-Use Tariffs

RELEVANCE

With the increasing spread of electric vehicles, the load on the power grids increases with energy-intensive devices. At the same time, the energy transition requires a more precise coordination of energy supply and demand. By aligning EV charging with dynamic price signals, we can actively support grid stability.

This use case focuses on four key actors: Energy Broker (EB), Delivery Broker (DB), Custom Energy Manager (CEM), and Electric Vehicle Charging Station (EVCS). The Technical Framework will define the use of standardized interfaces for data exchange: communication between EB, DB and CEM is primarily based on the EEBUS specification for Time-of-Use tariffs, while the interaction between CEM and EVCS follows the IEC 63380 standard. Both communications are implemented and validated through dedicated interoperability testing within the scope of the project.

Use Case #2 : Seamless Data Exchange with the Common Grid Model Exchange Standard (CGMES)

RELEVANCE

Reliable grid operation requires precise and standardized data of the electricity grid. The Common Grid Model Exchange Standard (CGMES) enables the interoperable exchange of such data between grid operators and further stakeholders, e.g. software vendors, system providers.

This use case focuses on the four key actors: Transmission System Operators (TSOs), Distribution System Operators (DSOs), Regional Coordination Centres (RCCs), and further System Operators (SOs). Network Code (NC) profiles, particularly the Grid Disturbance Profile are envisioned, to better analyze and respond to grid events through standardized data exchange, grid operators can identify bottlenecks at an early stage, improve stability analyses, and ensure a secure energy supply. This exchange is defined within a dedicated Technical Framework and is accompanied by targeted interoperability testing to ensure consistency and reliability across systems.

OFFIS

JOIN US IN SHAPING THE FUTURE OF ENERGY INTEROPERABILITY!

Supported by:

Federal Ministry for Economic Affairs and Climate Action

on the basis of a decision by the German Bundestag

This project is funded by the Federal Ministry for Economic Affairs and Climate Action based on a resolution of the German Bundestag, under funding reference number 03EI6066E.

ptj projektträger jülich