Project IES - Integrating the Energy System

Interoperability represents a key factor for the successful transition of the energy system. The research project *Integrating the Energy System (IES)* develops a modular process chain to ensure the interoperability of data exchanges in smart grids and smart energy systems.

The IES-approach
IES adapts and implements a vendor-neutral and cooperative method to achieve interoperability of ICT-systems in smart grids (see Fig. 1). It is based on an existing method from ICT in healthcare, where interoperability of systems has long been achieved. Integrating the Healthcare Enterprise (IHE) is a global non-profit organisation that engages actors in the health system to achieve interoperability of ICT-systems in healthcare. IHE developed a fair, cooperative and participatory method to engage vendors, manufacturers and users alike. By initiating a cross-sector knowledge exchange, the IES team draws from years of IHE-experience and know-how in the health system.

The three IES pillars
IES provides the framework for the development of integration profiles for the specification of the data transfer, based on real world use cases (pillar *profiles*). Vendors use IES software tools to test their software products for interoperability and conformity with relevant standards based on integration profiles (pillar *tests*). IES compiles integration profiles into implementation guides called 'Technical Frameworks' and publishes successful test results in an public available online results browser (pillar *results*).

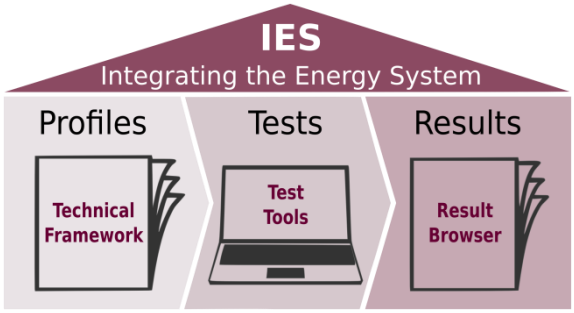

Fig. 1: IES process – the three pillars

Pillar *Profiles*: What is an IES integration profile?
Integration profiles specify the normalised use of existing IT- and communication standards (e.g. IEC 61850, IEC 60870-104) in conformance with the Smart Grid Architecture Model (SGAM) developed within the European Smart Grid Mandate M/490. Integration profiles are compiled into detailed technical implementation guides called Technical Frameworks.

Pillar *Tests*: What is the test event 'Connectathon Energy'?
IES provides a test tool for vendors to test their software prototypes and products for interoperability. Tests between different vendors take place once a year and are conducted peer-to-peer in a predefined and structured test environment called Connectathon Energy. IES uses an adapted instance of Gazelle, a test tool that was originally developed to test healthcare information systems for standards-based interoperability.

Pillar *Results*: What are the benefits?
Technical Frameworks are publicly available, which ensures their use for procurement processes and implementation activities. Successful test results are published in an online data bank following the example of the IHE Connectathon Results Browser. The result browser serves as a source of information for users and procurement operators.

The transparency of the process and the publicly available online data base for technical specifications ensure sustainable investment protection for vendors of interoperable products and services. Interoperability fosters competition, thereby increasing product quality and performance at lower costs.

Synergies achieved through cross-sector knowledge transfer with the e-health sector

- Worldwide reference for the successful method originated in the e-health sector
- Synergies through use of existing profiles, e.g. for security
- Use of an existing and reliable test platform for the energy sector

European Framework

The Basis for this project are the standards from CEN-CENELEC-ETSI, the Smartgrid Architecture Model from the Smart Grid Coordination Group (SGCG/M490) and the, on the ISO/TR 28380 based IHE-method for security of the interoperability.

The greater vision: IES Europe

IES aims at founding a European interoperability initiative *IES Europe* based on international cooperation. IES Europe defined the following objectives:

- Setup of a transnational organisational structure to coordinate the operative work throughout the IES process and organise annual interoperability test events
- Deployment of an annually recurring process that brings together vendors and users of ICT technologies to ensure interoperability in the energy sector
- Hosting of annual European interoperability test events, where users and vendors of interoperable products can test their software for interoperability and conformance with the relevant integration profiles

European Strategic Energy Technology Plan (SET-Plan),

Activity A4-IA0-5 of the SET-Plan Implementation Plan 2018; there, the vision of an IES-Europe is anchored as a Crosscutting Activity. Download: 'Increase the resilience and security of the energy system'

ETIP SNET Webinar of IES- Project

https://www.etip-snet.eu/events/etipsnet-webinars/

IES Connectathon ENERGY
SET-Plan Symposium on Interoperability
January 28-31 - 2019 - Vienna/Austria

Project partners

Technologieplattform Smart Grids Austria
Tiani Spirit GmbH, AT
FH Technikum Wien (eHealth und RES), AT
OFFIS e.V., D
AICO EDV-Beratung GmbH, AT
Sprecher Automation GmbH, AT

Qualifications

Head of consortium, R&I in smart grids, policies
IHE, EIF, software/data exchange, ICT sec./privacy
IHE, interoperability, EnergyLab, renewable energies
SGAM, smart grid standards, interoperability, IHE, EIF
Software, platforms for testing, ICT standards/security
El-Equipment manufacturer, ICT standards, security

Project duration

01.03.16 - 28.02.19

Project details

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