

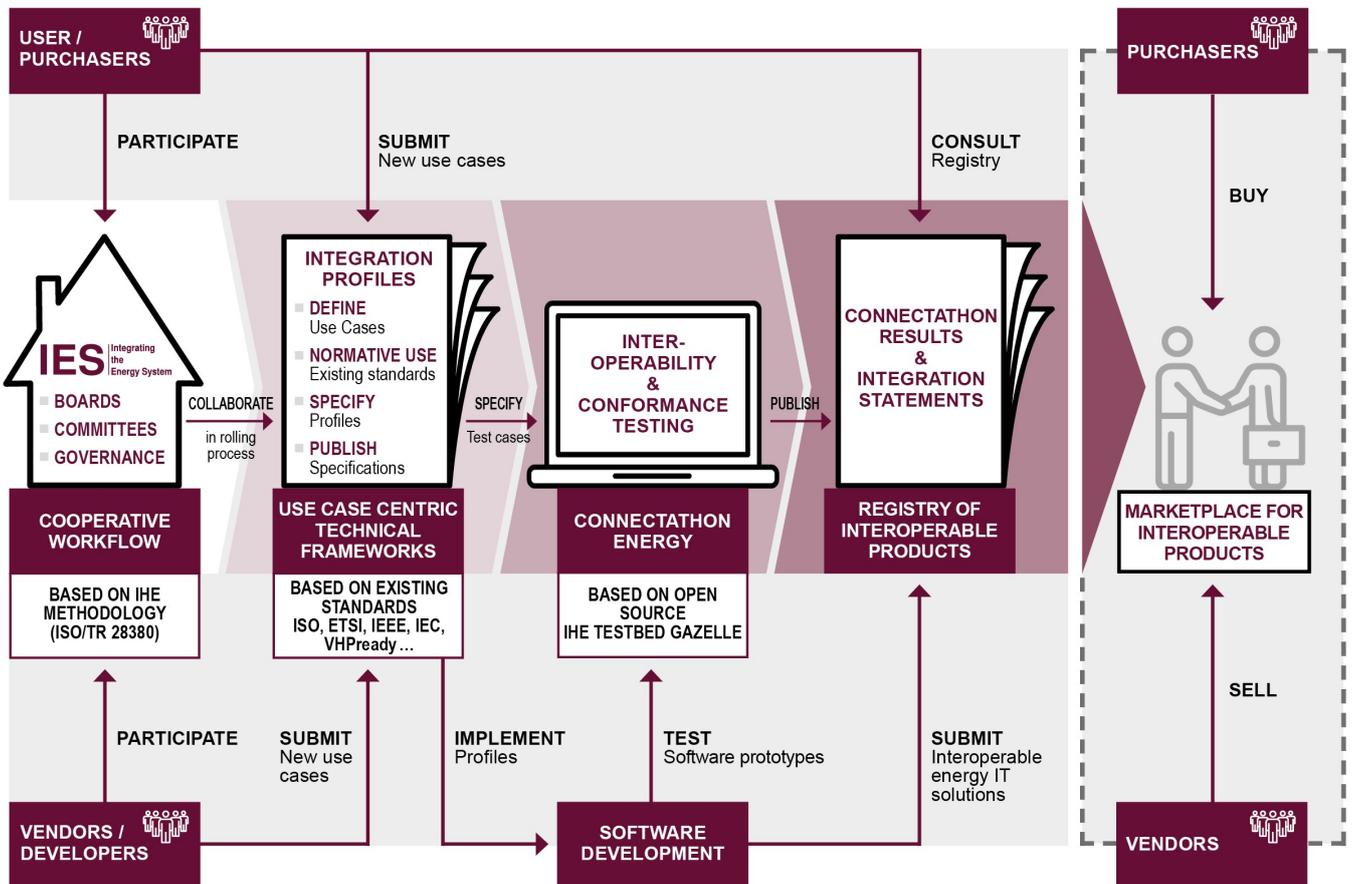
IES | Integrating the Energy System

ENABLE A SEAMLESS AND SECURE ENERGY TRANSITION

The research project **Integrating the Energy System (IES)** implements a vendor-neutral method based on the standardised **Integrating the Healthcare Enterprise (IHE) methodology** (details see next page) to achieve interoperability of ICT systems in smart energy systems. In a cooperative process (Figure 1), vendors and users specify the normative use of existing IT standards for interfaces and communication protocols, e.g. IEC 61850, to address well-defined use cases illustrating real-world interoperability issues.

Integration Profiles provide complete technical specifications that cover all interoperability issues (e.g. data formats, transport protocols, vocabularies, security methods). While vendors implement the Integration Profiles in software prototypes, the IES project team provides *test tools* for the annual European interoperability test events **Connectathon Energy**. Vendors can publish their successful test results in the online *IES Registry of Interoperable Products*.

IES | Integrating the Energy System | WORKFLOW BASED ON GOOD EXPERIENCE



www.iesaustria.at

Figure 1: The IES process for ensuring interoperability in the energy system at a glance (based on IHE process, available at www.ihe.net)

Defining the Interoperability Challenge

A step-by-step integration of new stakeholders, devices, services and products into the European power system represents one of the great challenges of the energy transition. Increasingly interconnected smart energy systems (Figure 2) require a large number of interfaces to process the growing amounts of available data from distributed energy resources. A central requirement for cost-effective system integration is the **normative use of technical standards for interfaces, data models and communication protocols**, i.e. **interoperability** of systems from different vendors.

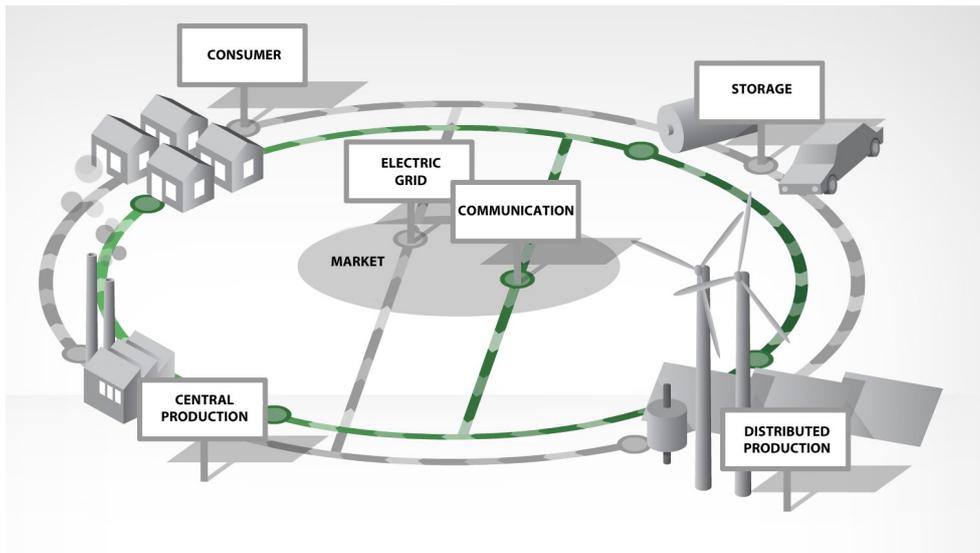


Figure 2: Smart Grid Infrastructure

Smart grids are power grids that provide energy-efficient and cost-effective system operation for future requirements.

Due to coordinated management, they use real-time two-way communication between grid components, producers, storage, and consumers.

(www.smartgrids.at)

Best Practice Example: Healthcare IHE - Integrating the Healthcare Enterprise



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Integrating the Healthcare Enterprise (IHE) is a global non-profit organisation with the objective to achieve interoperability of ICT-systems in healthcare. It leads an initiative by the healthcare industry to improve the way computer systems share information. Since its foundation in 1998, IHE has generated a strong record of hands-on solutions for interoperability challenges.

The initiative developed a fair, cooperative and participatory method to engage vendors and users of ICT systems alike. From IHE **Technical Frameworks** users draw basic knowledge about available technical specifications. Implementers use the IHE integration profiles to quickly develop interoperable software without the need to refer to complex base standards first. The online free-access **IHE Connectathon results database** allows users and procurers to find vendors of interoperable products.

IHE is the leading resource for interoperability in the healthcare domain. By initiating a cross-sector knowledge exchange, the IES project team draws from many years of IHE-experience and know-how. IES aims at realising significant synergies between the two sectors. This includes the extended use of already specified communication protocols, especially with regard to security and privacy.

The Greater Vision: IES Europe

IES strives to set up a joint transnational structure for a European initiative based on the model of the healthcare sector. In collaboration with partners from other European countries the initiative **IES Europe** pursues, among others, the following objectives:

- ▷ **IES Process**
Deployment of an annually recurring process that brings together vendors and users of smart energy system technologies to ensure interoperability.
- ▷ **European Organisation**
Setup of a transnational organisational structure to coordinate the operative work throughout the IES process and organise the interoperability test events.
- ▷ **Connectathon Energy**
Hosting of annual European interoperability test events, where users and vendors of interoperable



IES Europe is listed as activity A4-IA0-5 in the European Strategic Energy Technology-Plan (SET-Plan) Implementation Plan *'Increase the resilience and security of the energy system'*.

Three Good Reasons for Driving Interoperability

- ▷ **Active Market Participation (Market Actors)**
Interoperability increases product quality and performance at lower costs. Interoperable interfaces enable users to become active market participants by facilitating the provision of data to their grid operator, their energy supplier and to other market actors.
- ▷ **Ensuring Security of Supply (Grid operators)**
Interoperability of ICT systems supports security of supply and helps to reduce control problems in increasingly interconnected power systems with high shares of distributed energy resources. Interoperable solutions facilitate interfacing among grid operators as well as with aggregators, customers and public authorities.
- ▷ **Fostering Innovation and Growth (Vendors)**
Interoperability in the energy system fosters innovation through competition and stimulates growth through cooperation. Growing markets for interoperable solutions open up business opportunities. Decreasing integration costs facilitate innovative business models.

Call for Action

*To drive interoperability in the energy sector, we need a strong and dedicated community.
What can you do to become part of the IES community?*

- ▷ **Get inspired:** Visit www.iesaustria.at to learn about the IES method
- ▷ **Understand the IES method:** Download our first Technical Framework at www.iesaustria.at
- ▷ **Share your interoperability challenge:** Contact the team at ies@smartgrids.at
- ▷ **Become an active contributor:** Participate in IES committees, bring in new use cases, develop Technical Frameworks and solve interoperability issues
- ▷ **Participate in the unique IES interoperability test event Connectathon Energy:** Work together with other developers and test your software prototypes for interoperability and conformity with specifications and existing standards
- ▷ **Publish your test results** for greater visibility and gain a competitive advantage
- ▷ **Deploy an IES branch in your country** and multiply the interoperability vision

Project Details

Name Integrating the Energy System (IES)

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