

# Energiewende: Energy Network Experts Pool Know-how

The Energiewende Works only with a Smart Grid – Storage Technologies and Their Integration Are Decisive for Stable Power Supply Conditions – KIT Coordinates European Research Project



KIT Energy Center: Having future in mind

**Monika Landgraf**  
**Chief Press Officer,**  
**Head of Corp. Communications**

Kaiserstraße 12  
76131 Karlsruhe, Germany  
Phone: +49 721 608-47414  
Fax: +49 721 608-43658  
Email: presse@kit.edu

**For further information,  
please contact:**

Kosta Schinarakis  
Science Scout  
Phone: +49 721 608 41956  
Fax: +49 721 608 43658  
Email: schinarakis@kit.edu

*European research partners pool their know-how of a variety of energy infrastructures, such as storage systems, solar power and biomass, for the Energiewende. (Photo: KIT/PCE)*

**Storage of renewable energies and smart integration of storage devices in decentralized grid systems are decisive factors for future stable energy supply. Under coordination of KIT, the SmILES project pools know-how in simulation, optimization, and use of such infrastructures throughout Europe. The objectives are building a platform to exchange data and best practices about the integration of heterogeneous energy resources and their storage technologies, and strengthening combined European research.**

The *Energiewende* gives rise to more and more decentralized power supply systems fed by a variety of energy resources. Their fluctuating contributions will be concentrated and balanced in this way by an intelligent overall supply grid in the future. “There is no longer the single energy source supplying everything,” explains Isabelle Südmeier, coordinator of SmILES (Smart Integration of Energy Storages in Local

Multi Energy Systems). Hence the demand for flexible and sustainable multi-energy systems ensuring stable supply conditions even if the share of renewable energies were to rise.

One of the challenges faced under these conditions is management of the fluctuating supply from renewable resources and consumption by means of smart storage technologies in such a way that there is an equilibrium, and that hybrid grids can be run efficiently and economically, for instance, for electricity and heat supply. True, there are a large number of research projects in Europe investigating how different energy resources and their respective storage technologies can be integrated in an overall grid system. However, they are based on different research approaches, tools, and heterogeneous boundary conditions.

This is the point of departure of SmILES. In the course of the project, the six research partners want to combine their existing methodologies and findings and analyze which simulations, models, and optimizations not only are comparable, but also can be generalized and extrapolated to other situations as part solutions. Research projects in urban quarters, a small town in a rural environment, an industrial plant, and the KIT research campus produce a variety of application scenarios and systems configurations to be fed into the project. On this basis, a generally accessible data platform is to be established which is to provide the research community with analyses and information about energy consumption and energy supply in a variety of contexts.

"As our long-term objective, this combination of European research projects is to be opened up to other partners and to be institutionalized," emphasizes Südmeier. SmILES is part of the European Common Research and Innovation Agenda (ECRIA) and is to support implementation of the objectives of the Strategy Energy Technology Plan (SET plan). Besides KIT as the coordinator, participants in the project are the Austrian Institute of Technology GmbH (AIT), Danmarks Tekniske Universitet (DTU), Electricité de France SA (EDF), the European Energy Research Alliance (EERA AISBL), and the Vlaamse Instelling Voor Technologisch Onderzoek N.V. (VITO). The overall budget is EUR 2,440,683, of which EUR 909,439 is used for the KIT subproject. SmILES will run until November 30, 2019.

Further information:

<http://www.sci.kit.edu/205.php>

More about the KIT Energy Center: <http://www.energy.kit.edu>

**Being „The Research University in the Helmholtz Association“, KIT creates and imparts knowledge for the society and the environment. It is the objective to make significant contributions to the global challenges in the fields of energy, mobility and information. For this, about 9,300 employees cooperate in a broad range of disciplines in natural sciences, engineering sciences, economics, and the humanities and social sciences. KIT prepares its 26,000 students for responsible tasks in society, industry, and science by offering research-based study programs. Innovation efforts at KIT build a bridge between important scientific findings and their application for the benefit of society, economic prosperity, and the preservation of our natural basis of life.**

*Since 2010, the KIT has been certified as a family-friendly university.*

This press release is available on the internet at  
<http://www.sek.kit.edu/presse.php>

The photo in the best quality available to us may be downloaded under [www.kit.edu](http://www.kit.edu) or requested by mail to [presse@kit.edu](mailto:presse@kit.edu) or phone +49 721 608-47414. The photo may be used in the context given above exclusively.