Energy Supply from the User's Point of View

New Helmholtz Alliance Studies Interfaces among Supply, Infrastructures, and Demand

The infrastructures of energy supply are in the focus of the new Helmholtz Alliance. (Photo: photocase.de)

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Germany has agreed to engage in a major energy transition. However, it will be an enormous challenge to make this transition become true. Society will experience major conflicts over new transmission lines, wind parks, and pumped storage power stations. Innovative infrastructures, such as smart grids, will require that people understand the connections between energy supply, energy security and demand and are prepared for required changes with respect to their own behavior and energy use. To what extent are the citizens willing to support and implement these changes? The new Helmholtz Alliance "Future Infrastructures of Energy Supply" coordinated by KIT will place the energy user in the center of interdisciplinary research.

Enhanced efficiency and a high share of renewable energies lie at the core of the energy transition They require a radical renewal of the infrastructure, the introduction of innovative technologies, and creative approaches to planning, control, adaptation, communica-

tion, and participation. The Helmholtz Alliance “Future Infrastructures of Energy Supply – On the Way towards Sustainability and Social Compatibility” has been established to investigate the interfaces between engineering, planning, and consumer behavior and will focus on the society’s demand and energy user perspective. Psychologists, economists, social scientists, systems theoreticians, and representatives of the humanities will analyze, together with technology experts, the conditions of the energy transition and its implications for infrastructure, demand patterns and user behavior.

Eight research institutions are involved in the Alliance: The Helmholtz Centers KIT, Forschungszentrum Jülich, Helmholtz Center for Environmental Research (UFZ), and the German Aerospace Center (DLR), the universities of Stuttgart, Magdeburg, and FU Berlin as well as the Center for European Economic Research, Mannheim. Work is coordinated by KIT. The Alliance is designed for five years and has a volume of EUR 16.5 million. Until 2016, activities will be funded by the Initiative and Networking Fund of the Helmholtz Association with a total amount of EUR 8.25 million. Professor Armin Grunwald, Director of the KIT Institute for Technology Assessment and Systems Analysis (ITAS), and Professor Ortwin Renn, Director of the Interdisciplinary Research Unit on Risk Governance and Sustainable Technology Development (ZIRN) of Stuttgart University will serve as spokespersons of the Alliance.

“Studying and Designing future energy infrastructures requires more than looking at technical innovations. The objective is to focus primarily on organizational, economic, and cultural contexts, including social and individual patterns of consumption, conduct and acceptance. Based on this approach, one can develop improved strategies as to how this transformation process can be designed in an efficient and a socially compatible manner,” explains Professor Armin Grunwald.

This will also require changes in consumer behaviour.. In addition, novel energy infrastructures, such as transport grids, stores or smart control units, might face public opposition and lack of understanding for envisioned energy efficiency methods. . A smart grid requires a close understanding between supplier and customer on the extent of control that a supplier can impose on individual consumption. Without mutual understanding, far-reaching conflicts or even the rejection of new supply models can be expected. Furthermore, the research team of the Alliance will investigate the conditions of conflicts and conflict resolution with respect to construction of new transmis-

sion lines, pumped storage power stations or wind parks.

“It is the explicit objective of the Alliance to develop not only scientific knowledge, but also policy advise to decision-makers from politics, industry, and society. Moreover, the team is destined to contribute to establishing a better understanding of the complex relationships in the energy sector and to facilitating a smooth transition towards a sustainable energy path,” emphasizes Professor Ortwin Renn from Stuttgart University.

Further information on the Helmholtz Alliance:

http://www.helmholtz.de/energieinfrastrukturen

Karlsruhe Institute of Technology (KIT) is a public corporation according to the legislation of the state of Baden-Württemberg. It fulfills the mission of a university and the mission of a national research center of the Helmholtz Association. KIT focuses on a knowledge triangle that links the tasks of research, teaching, and innovation.

This press release is available on the internet at www.kit.edu.