Universität Basel

Research Project

Synergies from an Integrated Renewable Energy Supply and Storage System in the Upper Rhine Region: An Interdisciplinary Analysis

Third-party funded project

Project title Synergies from an Integrated Renewable Energy Supply and Storage System in the Upper Rhine Region: An Interdisciplinary Analysis
Principal Investigator(s) Köhrsen, Jens ;
Organisation / Research unit
Zentrum für Religion, Wirtschaft und Politik
Zentrum für Religion, Wirtschaft und Politik / Religion und Wirtschaft (Köhrsen)
Department
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Renewable Energy (RE) is still linked to inflexible old systems, as renewables are often produced far away from demand, without adapted transportation facilities and flexibility to buffer volatile supply and demand through interlinked energy mix concepts and storage capacity1. Barriers are related to technical, economic, legal and sociocultural issues. There is a need for policy-makers to understand these issues in order to develop tools to use and increase the synergy potentials of RE regions. Flexibility in the RE market could be enhanced through better use of transnational RE regions, and notably through:
- decentralized RE production,
- shared regional contributions of flexible power plant parks for better adaptation to jittering RE production,
- shared use of regional storage capacity (power to gas, pumped storage power plant, compressed air storage, e-cars) to balance RE fluctuations, and
- improved European energy subgrids for a better and flexible linkage of prosumers.

The goal of this project is to develop a model of the URR as a cross-border RE region and analyse the frame conditions for increased efficiency and flexibility in RE production, distribution and buffering, with a view to reaping RE potentials and developing concepts for increased coherence in energy policies and markets. As compared to existing studies, this study takes a multidisciplinary approach.

Keywords energy transition, renewable energy, Upper Rhine Region, sustainability, climate change
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