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OUR NETWORK

RES-TMO (Renewable Energy Sources - Trinational Metropolitan Region Upper Rhine) is part of EUCOR - The European Campus and a project of the Upper Rhine Cluster for Sustainability Research (URCforSR).



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Concepts for an Integrated, Efficient and Sustainable Energy Supply and Storage in the Upper Rhine Region

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OUR WORK PACKAGES



Potential Analysis

Researchers conduct a renewable energy (RE) potential analysis for the Upper Rhine using Geographical Information Systems (GIS). To this end, various datasets are used including land use and meteorological data, electricity load and fossil fuel use. In a further step, they assess the energy storage potentials in the form of gas in the region's geological subsoil.



Energy System Modeling

Researchers model the region's energy system, develop and test a set of representative scenarios using key parameters (e.g. 2030, 2050 policy goals), and derive policy recommendations. The goal is to use local renewable generation capacity, storage technologies and other flexibility mechanisms in the best possible way, while exploiting regional potentials.



Sociocultural Analysis

Researchers conduct an analysis of the socio-cultural framework conditions for a RES-based energy system, including acceptance issues. The investigation is based on a series of expert interviews and focus groups with cross-border citizen energy initiatives. In cooperation with other partners, they also ensure the integration of stakeholder perspectives into the project results.



Regulatory Analysis

Based on the hypothesis that regulation can be either a lever or a major brake for RE development, Researchers conduct a legal analysis and impact assessment of the RE legislation and its implementation in the Upper Rhine, with a focus on the challenges and opportunities linked to energy transformation in a cross-border context.



Economic Analysis

Researchers conduct an analysis of the economic framework and incentive structures for a RES-based energy system, incl. acceptance issues and the ability and willingness of private actors to participate in systemic change. This research is based on stakeholder interviews, economic laboratory experiments to model actor behavior, and a broad social survey.



Cybersecurity in Smart Grids

Cybersecurity is a prerequisite for the functioning of smart grids, which are needed in RES-based energy systems. Researchers conduct an analysis of cybersecurity issues linked to smart grids and meters, the applicable legislation, and possible technical solutions. The research is based on a survey with local network operators and other key actors in the Upper Rhine.

ABOUT THE PROJECT



Background

The EU "Clean Energy for all Europeans" legislative package calls for regional solutions to ensure energy security, energy efficiency and cost-effectiveness in the context of decentralized generation from RES. Resulting EU legislation includes measures to increase security of supply by increasingly integrating RES, managing risks, and improving cross-border cooperation.



Project Goal

The main goal is to examine the possible synergies resulting from complementary generation, demand and storage as well as energy initiatives in the Upper Rhine, with a view to making policy recommendations to accelerate the energy transition. The relevant framework conditions of an energy sector based on regional RES capacities and using cross-border potentials are investigated.



Project organisation

The project comprises more than ten specialized institutes and departments from science, industry, policy and administration. The coordination team ensures the internal and external event organization, financial management and reporting, communication and public relations, as well as output synthesis.

Duration: 01.02.2019 – 31.01.2022

New energy for the trinational area

Regional Energy Supply and Storage in the Upper Rhine Region

