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Synergistic Approach of Multi-Energy Models for an European Optimal Energy System Management Tool

The main goal of the energy-turnaround is the decarbonization of the energy system. The increasing demand for flexibility in the market and in grid operation, caused by the expansion of volatile renewable energies, and the coupling of different energy sectors as well as new technical requirements arising from these aspects, lead to an increased complexity of energy system analysis.

The general objective of the project is to fill the gaps between the increasing complexity of future energy system planning and operational problems and the currently available system analysis tools. Enhanced end-to-end planning and operational tools dealing with technological and market uncertainty, emerging technologies, and increased coupling between multi-energy sectors such as electricity, heat, transport and gas will be developed in a synergistic approach to support European system planners, operators, decision makers, regulators to find the optimal solutions to those problems.

This goal will be achieved by solving technical, mathematical and computational challenges. It will be addressed via a combination of technical innovations in the way that the mathematical models are constructed, moving away from the "monolithic" approach that has been prevalent in all previous attempts. The goal is to strive towards a system where a multiplicity of models, properly organized in a functional hierarchy, all synergistically contribute to the analysis of such a complex phenomenon.

Project Information



Partner

- Électricité de France
- RWTH Aachen
- Siemens AG
- Zuse Institut Berlin
- Imperial College London
- Cray
- ICOOR

Facts

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Contact

Daniel Beulertz, M.Sc.

beulertz@ifht.rwth-aachen.de