Chair of Renewable and Sustainable Energy Systems
Department of Electrical and Computer Engineering
Technical University of Munich

Research Internship

Conceptualization and Development of a Graphical User Interface for Energy System Modeling Results within a Research Project

Background

The SEDOS project aims to improve sector integration in energy system models (ESMs). Thus, we develop a sector-integrated ESM for the Federal Republic of Germany by using the frameworks FINE, oemof and TIMES and apply it to analyze selected scenarios. We develop and implement a uniform model structure with clearly defined interfaces for the sectors electricity, heat, transport, industry and PtX to significantly improve the robustness and quality of quantitative energy system analysis. The development of an open reference data set and its publication on the Open Energy Platform (OEP) are central components of the project. As we put a special focus on the utilization of input and result data, an effective data management is developed, which together with an expandable graphical user interface (GUI) plays a central role in the project.
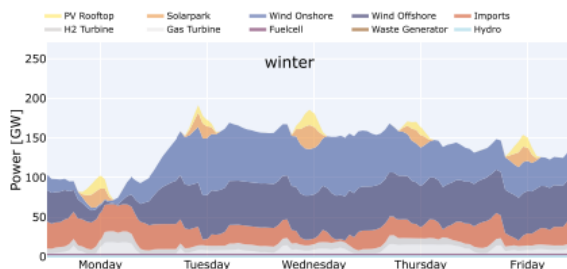
Objectives and learning outcomes

The focus of your work is to support the development of a GUI. This does not only include technical programming activities but also promotes you to understand ESMs and to evaluate relevant results to be visualized in the context of the SEDOS research project. Your tasks include to get first an overvies on state of the art in energy system modeling result visualization and a modular definition of relevant plotting functions and embedment into the existing backend. By completing this research internship, you will get acquainted with working together on research projects with partners from established University departments and with renowned research institutes like the Reiner Lemoine Institute. Further, you will get familiar with the energy system modeling domain and the relevant information to communicate to its stakeholders. Additionally, you will get time to gain and improve valuable skills like python web development with packages like Django (REST framework), Plotly and HTMX that could be helpful for your multiple future web development tasks.

Requirements

- Interest in supporting a research project in the field of energy system modeling
- Independent, neat, and structured way of working
- Essential: Experience with Python and git
- Nice to have: Experience with Django, plotly & HTMX

Contact

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