Lehrstuhl für Energiesysteme
TUM School of Engineering and Design
Technische Universität München

Bachelor- / Semester- / Masterarbeit

(Theoretical)

Set up of an Interactive Optimization Server for the Energy System Model of the Campus Garching

Description:

The Technical University of Munich has set itself the goal of having a climate-neutral heat supply by 2028 as part of its sustainability strategy. In order to achieve these extremely ambitious goals, it is necessary to use optimization models to find a cost-optimal transformation path, which is heavily influenced by user-made assumptions. The aim of this project is to implement an online server to run custom scenarios for an existing model of the campus' energy system. The model will potentially be exhibited at TUM's Sustainability Day. The graphical interface will give students and other stakeholders the opportunity to easily test different assumptions (costs, CO_2 budget, carbon tax, biomass availability, etc.) and thus understand their influence on the decarbonization path. Furthermore, it gives the possibility to view precalculated scenarios quickly and interactively.

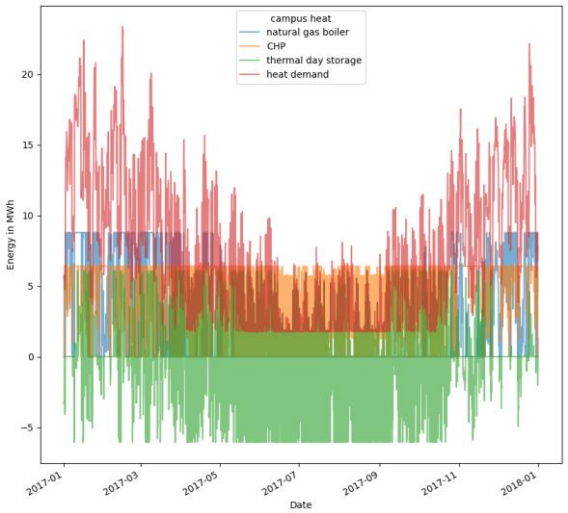
The existing model is based on PyPSA. For this optimization framework, there are already three different deployed servers with GUI, which can serve as a template.

Prerequisites:

- Interest in the transition of the energy sector,
- High motivation and independent, structured way of working,
- Knowledge and/or strong interest in Linux, HTML, Java, Python.

Work Packages:

- Getting familiar with the model
- Definition of precalculated scenarios
- Development of the server structure analogous to https://github.com/PyPSA/pypsa-server/ or https://github.com/PyPSA/PyPSA-animation/tree/master
- Documentation



Beginn ab: sofort

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