

Student assistant

Developing a Data Pipeline for Automating the Generation of Energy System Models



TECHNISCHE
UNIVERSITÄT
DARMSTADT

EINS

Energy Information Networks and Systems

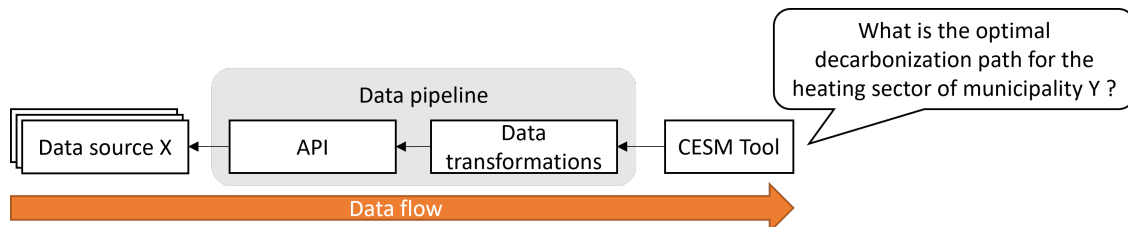
Start: As soon as possible

Job description

As part of the NEED project¹² (NEuE Daten für die Energiewende), we are looking for a student assistant to support the development of a data pipeline for generating input data for energy system optimization models of urban heating sectors using publicly available data.

The NEED project aims to create a platform that provides data for various energy planning tasks. Within this scope, we plan to develop a data pipeline that leverages publicly available data—in the future accessible via the NEED platform—to automatically generate optimization models. These models will help identify the optimal decarbonization pathways for urban heating sectors. The pipeline's output should be in a format compatible with our energy system optimization framework, CESM³.

We are looking for a student assistant to contribute to the development of this data pipeline and assist with general tasks related to the NEED project.



Responsibilities

- Literature Review: Identify the required data and available data sources.
- Theoretical Design of the Data Pipeline: Define data formats, necessary transformations, and compatibility requirements.
- API Design: Develop the interface specifications for accessing the data.
- Implementation of the Data Pipeline: Develop the data access interface, implement data transformations, and ensure proper data output.
- General Assistance: Support various tasks related to the NEED project.

¹<https://need.energy/>

²<https://dl.acm.org/doi/10.1145/3717413.3717435>

³<https://github.com/EINS-TUDa/CESM/tree/main>

Requirements

- Strong programming skills in Python, with the ability to write well-structured and well-documented code.
- Ability to work independently and in a structured manner.

Good to have:

- Experience with spatial data processing, including tools such as QGIS and GeoPandas.
- Basic knowledge of energy system modeling and optimization.

Duration and working hours

The position is initially limited to one year. Working hours are flexible and open to negotiation, with an anticipated workload of 30-40 hours per month.

Contact

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