

IDP, Research Internship (2-3 people)

The Ultimate Energy Database: Developing a database for all aspects of energy research

Background

Our chair is advancing the energy transition by researching large- and small-scale energy systems. To facilitate all this research, we need to handle a lot of data of various types, granularity, and resolution. For better and faster data management, we have developed a rudimentary energy infrastructure database that combines static data with time series. However, this database is not finished yet as we need to include more types of data as well as other features such as scenario management. This project allows you to really dig deep and advance your database skills while also ensuring user friendliness to make the tool accessible to a broad audience beyond our chair. Depending on the project's progress you might become part of a paper about the database. So, if you're eager to apply your technical skills and contribute to the energy transition, we invite you to join this impactful open-source project!

Please send us your academic record, your CV, and your GitHub/GitLab handle in your application. Applications by groups are preferred but not

Goals

- Continuous development of the database to make it robust and scalable
- Integration of new features and data types (schemata) into the database
- Ensuring usability and a good user experience for a broad audience

Requirements

- Experience in our technology stack: PostgreSQL, TimescaleDB, FastAPI, Docker, [3DCityDB](#)
- Good command of Git and
- Knowledge about data management
- Knowledge about energy economics is helpful but not crucial

Learning outcomes

- Application of learnt computer science know-how in the realm of energy system modeling
- Becoming proficient in the entire process of database design and data management
- Hands-on software engineering in the following areas: software integration, database design and management, programming, software testing, version control, documentation

Contact

Patrick Buchenberg & Markus Doepfert
Patrick.buchenberg@tum.de, markus.doepfert@tum.de
Chair of Renewable and Sustainable Energy Systems
(Prof. Dr. rer. nat T. Hamacher)