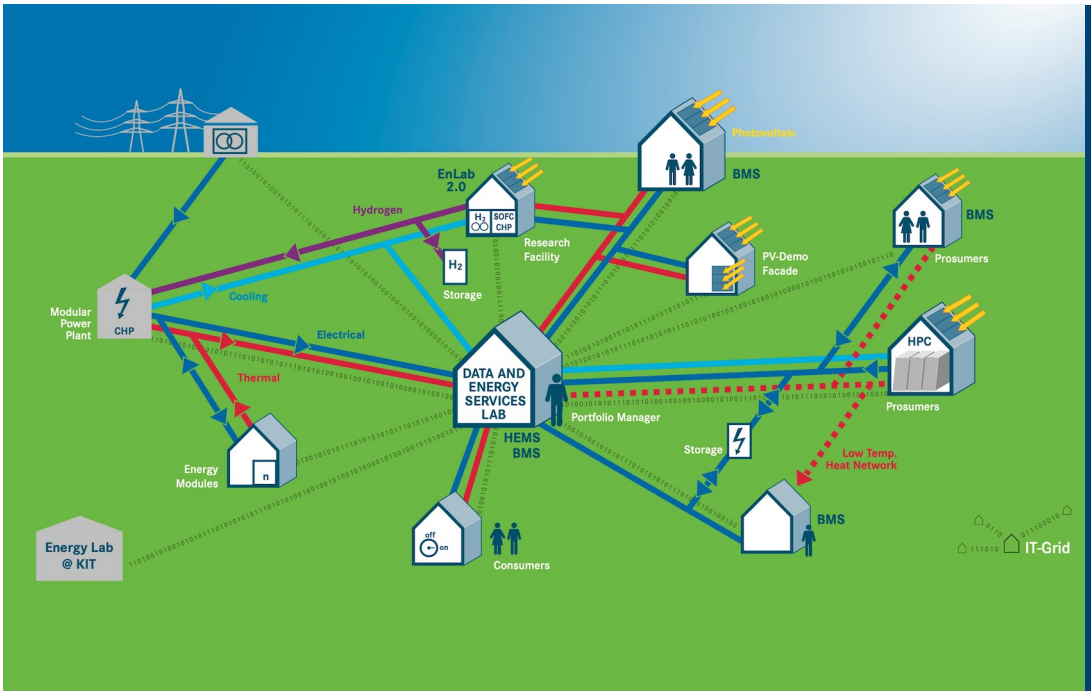

Conducting research for a changing society: This is what drives us at Forschungszentrum Jülich. As a member of the Helmholtz Association, we aim to tackle the grand societal challenges of our time and conduct research into the possibilities of a digitized society, a climate-friendly energy system, and a resource-efficient economy. Work together with around 7,500 employees in one of Europe's biggest research centres and help us to shape change!

The Institute of Climate and Energy Systems - Energiesystemtechnik (ICE-1) focuses on the optimal design and operation of integrated, decentralized energy systems with a high share of renewable energy. Computer simulation and numerical optimization are our essential tools to arrive at efficient, reliable and cost-effective solutions. We contribute both to the development of mathematical models and to the development of improved simulation methods and optimization algorithms. Our methods and software-tools are validated against operating data of real systems. Furthermore, we conduct comprehensive case studies in order to test and further improve the scalability and the performance of our models and algorithms. Specially adapted methods and codes enable us to exploit the potential of high performance computing with the aim of solving particularly large and complex problems.

We are looking to recruit a

Bachelor / Master-Thesis – Further development of heating network simulation tool - topology-based model creation interface

Your Job:

Electrification is a key strategy for reducing CO2 emissions in the heating sector, which still heavily relies on fossil fuels. One promising approach involves the use of low-temperature heating networks in combination with heat pumps. To design and operate these systems effectively, advanced simulation tools are essential for analyzing their thermal and hydraulic performance.

In this position, your main responsibilities will include:

- Gaining proficiency with the simulation tool HeatNetSim and the modeling framework uesgraphs
- Developing an interface to integrate HeatNetSim with uesgraphs

The job will be advertised until the position has been successfully filled. You should therefore submit your application as soon as possible. We look forward to receiving your application via our **Online-Recruitment-System!**

Questions about the vacancy?

Get in touch with us by using **our contact form.**

Please note that for technical reasons we cannot accept applications via email.

www.fz-juelich.de

- Designing a standardized heating network model to test the interface
- Conducting thorough analyses of the simulation results

Your Profile:
- Studying Mathematics, Physics, Computer Science, Electrical Engineering, Mechanical Engineering or a comparable subject
- Basic understanding of energy system modeling and simulation is preferable
- Basic knowledge of and some experience in Python and packages, e.g. NumPy, scipy, pandas, etc.
- Fluent in English (spoken and written)

Our Offer:
We work on the very latest issues that impact our society and are offering you the chance to actively help in shaping the change! We support you in your work with:
- Highly motivated scientists of different subject areas working together
- Interdisciplinary work combining physics, mathematics, computer science, and engineering
- Intensive supervision by one or more experienced and helpful colleague(s)
- Friendly and welcoming work environment
- The opportunity to prepare and work on your tasks independently
- Ideal conditions for gaining 3-9 months practical experience during your studies

In addition to exciting tasks and a collaborative working atmosphere in Jülich, we have a lot more to offer: https://go.fzj.de/benefits

We welcome applications from people with diverse backgrounds, e.g. in terms of age, gender, disability, sexual orientation / identity, and social, ethnic and religious origin. A diverse and inclusive working environment with equal opportunities in which everyone can realize their potential is important to us.

Further information on diversity and equal opportunities: https://go.fzj.de/equality