Innovative. International. Responsible.

The Institute of New Energy Systems (InES) is a research centre for applied energy research at Ingolstadt University of Applied Sciences. At InES, six professors and more than 40 research associates are currently working on pioneering technologies in the field of renewable energies and rational energy utilisation. The focus is on industrial energy systems, building energy systems, energy system technology as well as technology transfer and international co-operation. Details on current InES research projects in a national and international context can be found at: www.thi.de/go/energie. Excellent Bachelor's and Master's students find outstanding development opportunities at InES.

Bachelor thesis or master thesis
Development of a tool for creating electricity price scenarios

Research project/background:
The energy transition depends heavily on the decarbonization of the energy supply, with the heating sector playing a central role, accounting for almost 50% of final energy consumption. With only 18.8% renewable energies in heat generation, Germany has still a long way to reach its climate targets. Heating grids offer great potential for decarbonization, as they enable the integration of a flexible energy mix and can create flexibility in the electricity sector through power-to-heat technologies. The emerging coupling of the electricity and heat sectors makes the electricity price a highly important factor for the choice of the optimal technology combination. The aim of this work is to develop a tool for creating electricity price scenarios that can be used in the planning of innovative heating grids.

Research question/aim of the work:
Which parameters influence the future electricity price and how can these be integrated into a tool for creating electricity price scenarios? The aim of the work is to develop such a tool, which can then be integrated into the planning and optimization of heating network projects.

Tasks:
- Literature research on the main factors influencing future electricity prices
- Analyzing the identified parameters regarding their relevance for the creation of electricity price scenarios
- Development and programming of a tool for generating electricity price scenarios based on the analyzed parameters
- Validation and testing of the tool using various scenarios/case studies
- Evaluation of the practical suitability of the tool for use in the planning of heating grid projects

Target group:
Students in the field of engineering and computer science as well as comparable courses of study with good programming skills and an interest in energy-related topics.

Start: immediately
Duration: 3 months – 6 months

Contact: abschlussarbeiten_ines@thi.de