

Master Thesis: Simulation study of innovative technical concepts for urban district heating systems



AEE INTEC

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- fundamental as well as applied research
- national and international R&D projects
- cooperation with universities, technical colleges, other research facilities and industry

The three major departments of AEE INTEC are “Thermal Energy Technologies and Hybrid Systems”, “Buildings and Renovation” as well as “Industrial Processes and Energy Systems”.

Research project

In the research project *Urban district heating extended*, we develop and evaluate new technical concepts for the extension of urban district heating systems. Our goal is here to integrate large-scale thermal storage, heat pumps and large-scale solar thermal collector fields and increase by that flexibility in the heat supply as well as the share of renewables and furthermore enable an increase of waste heat from industry and other sources.

Outline of the Master-Thesis

District heating is considered one core technology for a future sustainable energy supply. Thermal storage, heat pumps and solar thermal offers great potential to be key components in these systems. To assess and quantify their potential and to investigate potential challenges in their implementation, we want to perform a simulation study on different possible network configurations. The aim of this MSc thesis is

- to perform simulation studies for individual district heating networks and potential extensions
- technical, economic and ecologic analysis and evaluation of simulation results

We expect...

- a motivated, independent, solution-oriented and creative working attitude
- Knowledge in the field of renewables and energy supply
- Experience with scientific simulation tools and programming

We offer...

- Salaried position with a master-thesis embedded in a current international research-project
- Supervision by experienced researchers and highly qualified technical support
- *Period:* Starting now, lasting for 6 months

Contact: Ingo Leusbrock, phone 03112 5886-261, i.leusbrock@aee.at