

## MSc Thesis

### Development and simulation-based evaluation of technical system solutions for cold district heating



#### AEE INTEC

AEE – Institute for Sustainable Technologies (AEE INTEC) is an independent research association which was founded in 1988. Currently over 70 employees from 14 different nations are working at AEE INTEC. The institute constantly contracts out dissertations, master theses and internships. The activities of AEE INTEC include:

- 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

Cold district heating is to be understood as a new district heating system in the temperature range  $<30^{\circ}\text{C}$  that can be used for heating and cooling and enable the use of low-exergy heat sources. In this project (DeStoSimKaFe) technical concepts for cold district heating systems are developed, simulated and evaluated. The aim is to increase the efficiency, flexibility and applicability of cold district heating through the development of system solutions (=combination of various heat/cooling sources, heat pumps and storages) and to adapt them to specific framework conditions.

#### Outline of the Master's thesis

The aim or content of this Master's thesis is:

- to work out various technical system solutions for cold district heating with the support of the project team
- to model individual system solutions with the support of the project team and building on existing model approaches (e.g. with EnergyPro, RIVUS, etc.).
- to carry out simulation-based technical, ecological and economic analyses and evaluations and to optimize them with regard to energy production costs, CO<sub>2</sub> emissions, etc.

#### We expect...

- interested, creative, exact, independent and solution-oriented working attitude
- Motivation and reliability
- Knowledge of district heating, renewable energies and energy supply
- Experience with scientific simulation environments in the field of energy systems (programming knowledge is advantageous)
- Very good written and spoken knowledge of German and/or English

#### 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, duration by arrangement
- *Contact:* Hermann Edtmayer, Tel 03112 5886-244, [h.edtmayer@ae.at](mailto:h.edtmayer@ae.at)