**Techno-economic analysis of implementing the thermochemical energy storage in the district heating network in Enschede area**

**Location:** De Kleijn

**Type:** Internship project

**Hours a week** : Fulltime – 40

**Job description :**

Netherlands has set the goal to phase out natural gas by 2050 and replaced the gas by a sustainable heating system. District heating network is one of the most promising options for sustainable heating, and Enschede has been awarded as the most sustainable heat network in the country.

The baseload demand in a district heating system is usually satisfied by biomass/waste combustion. However, the challenge is how to fulfill the peak-load demand without using fossil fuels which is important for the heating supply reliability. In this proposed research, we like to accelerate the introduction of thermochemical energy storage technology in the district heating in Enschede area to increase the heat capacity in the network and to shift the peak load demand.

This internship tasks is focused on the investigation of the financial performance of the proposed thermochemical energy storage system. The work will include

1. Collecting information regarding thermochemical system that is necessary input for financial analysis

2. Preparing a techno-economic model to calculate investment and operational cost of the proposed system (for the early design phase)

3. Analyzing the financial feasibility and competitiveness against the other profitable alternatives

4. Cooperating with the design group of Heat land project in the University of Twente

<https://www.utwente.nl/en/et/tfe/research-groups/TE/research/projects/Mina/HEAT-LAND/>

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