Peak shaving district heating system for daily and seasonal demand

Publieke samenvatting / Public summary

Aanleiding
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. The proposed research is targeting a novel peak shaving system for the district heating application.

Doelstelling
The proposed research focuses on finding the optimized design and cost reduction potential of a novel thermochemical heat storage system for peak shaving in a district heating system. The project goals aligns well with MMIP4's two objectives; large scale heat storage and the cost reduction of the heat storage system.

Korte omschrijving
A complete process model will be developed by UT to find the performance characteristics of the proposed system. These results will be the precursor of the reactor design process which will be guided by COMSOL models. The design process will be led by UT with the support of FPsim. Based on this design (WP2) and the process analysis (WP1), De Kleijn will develop a technoeconomic model for the cost calculations and a roadmap for the further development and commercialization of this technology. The model and the roadmap will receive inputs from all the other partners.

Resultaat

Projectinformatie / Project information

Projectnummer / Project number
TKITOE1921402
Subsidiebedrag / Grant amount
€ 117.000,00

Algemene informatie / General information

Penvoerder / Secretariat
UT

Publicaties en materialen / Publications and attachments

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  Eindrapport Heat-land 2024 (TKITOE1921402)

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The following results are expected from this project. 1) An optimized design of the thermochemical heat storage system. 2) The optimal performance parameters of the thermochemical reactor. 3) A techno-economic analysis of the proposed system and a roadmap describing how this technology should be further developed and realized commercially.

De data in deze applicatie is afkomstig van de Rijksdienst voor Ondernemend Nederland (RVO) en wordt in samenwerking met de Topsector Energie ontsloten.
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