

# Development of mobile sorption thermal energy storage system

**Status:** Filled

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## Project Description

A research project is underway in collaboration with major industrial and municipal partners to develop new mobile thermal energy storage (M-TES) technology with enhanced energy storage density and efficiency of district energy network in City of Surrey.

Low-temperature heat demands of buildings are widely met by consuming high-grade natural gas (boilers) and/or electric energy, while abundant low-grade thermal energy is available in the form of industrial waste heat, geothermal, and solar energy. Limited local resources and lack of economic and efficient solutions for thermal energy transportation from the available heat sources to the demand site are the main reasons for lack of proper low-grade thermal energy utilization in the buildings. Development and integration of M-TES in district energy network, driven by waste heat or renewable energy sources to the district energy systems is key in the development of smart, sustainable thermal grids that utilize various energy sources to provide heating, cooling, and air conditioning at urban scale.

This research is in collaboration with the City of Surrey's Engineering Department and entails data collection from the Surrey's district energy network, prototyping, control and system modeling, test-bed set up, and experimental study of M-TES system. In addition, new sorbent material will be developed and characterized for the M-TES system.

## **Required Skills**

Required:

Professionalism; being committed, punctual, and detail-oriented

General knowledge of SolidWorks

General knowledge of MATLAB

General knowledge of LabVIEW

Ability to establish and work with the industrial partner

Asset:

Machine shop skills/experience