

## **HECTAPUS: Heating and Cooling Transition and Acceleration by use of Latent Heat Storage"**

Heating and cooling represent half of the world's total energy demand. With the SDGs in focus, better and more effective use of renewable energy sources is given substantially more attention. Availability of renewable energy sources in relation to increasing demand creates a need for solutions for load displacement through technologies such as thermal energy storage. These technologies thereby show a big potential for scientific, technical and commercial development and implementation.

The "HECTAPUS" project aims at investigating the potential for use of Phase Change Materials (PCM) storage. Among the thermal energy storage technologies, use of PCM is a promising technology for short term storage of heat or cold for periods of hours or days. The phase change of a medium, for example ice to water, requires large amounts of energy with very small temperature change.

Despite the potential both for short term storage of cold and heat, PCM storage has not had a commercial breakthrough yet.

The project will be carried as a collaboration between Norway, Sweden and Turkey. The Project consortium consists of research institutes and industry partners from Sweden, Turkey and Norway.

In order to develop PCM storage "HECTAPUS" project will investigate:

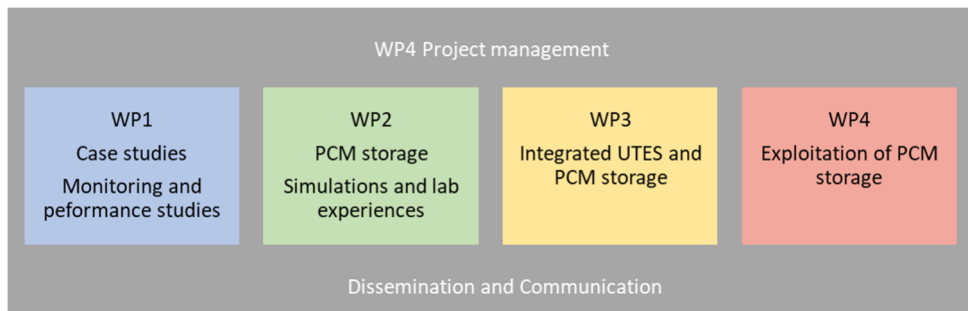
- 1 Performance data of energy systems with PCM storage used for short term storage of heat or cold
- 2 Need for better understanding of the performance of the PCM storage like storage capacity, charging and discharging process, aging and deterioration
- 3 Efficient design and operation of combined seasonal underground thermal energy storage (UTES) and short term PCM storage
- 4 Exploiting the potential and application of PCM storage.

HECTAPUS will cover the whole range from simulations to dedicated laboratory experience, full scale tests of existing energy systems with PCM storage.

The main project objective is to develop flexible, energy- and cost-efficient energy solutions using PCM storage.

HECTAPUS will cover the whole range from simulations to dedicated laboratory experience, full scale tests of existing PCM tanks to monitoring and performance analyses of energy system with PCM storage.

To address the four knowledge gaps the project activities will be grouped in four scientific work packages.



The project is strategically important for improving knowledge that promotes energy efficient thermal energy supply and reducing demands for non-renewable energy sources, for the benefit of society on its way towards climate neutrality.