

CONSORTIUM



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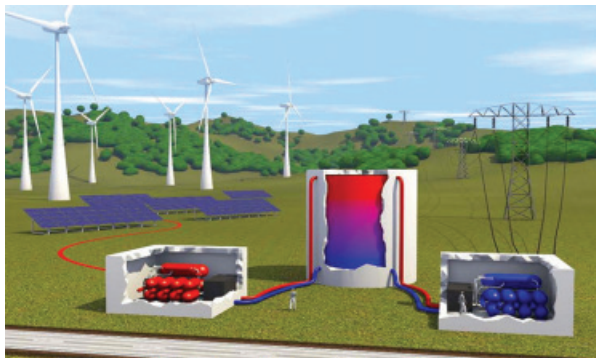


CHESTER

Compressed Heat Energy
Storage for Energy
from Renewable sources

THE PROJECT

Within the framework of energy consumption and 2020 targets for use of renewable energy sources in Europe, CHESTER project aims at developing a cost competitive innovative system that will increase the flexibility of the power grid by coupling electricity and heat. The CHEST system, combining high temperature Heat Pump and Thermal Energy Storage with an Organic Rankine Cycle units, provides a smart, dispatchable energy supply from different renewable energy sources.



OBJECTIVES

CHESTER project aims to build a standard solution for the CHEST concept by combining high temperature thermal energy storage and Organic Rankine Cycle units. The objectives thus far are:

- Assessing the integration of CHEST system into the smart boundary conditions of the future energy system through dynamic simulations.
- Creating the first-of-its-kind laboratory prototype to validate a large part of the theoretically performed research.
- Integrating CHEST system into a smart energy system to use the energy in a cost-optimal way and provide effective flexibility services to energy operators.
- Developing innovative business models for the new energy storage and management concept created by the high flexibility that the CHEST concept offers.

EXPECTED IMPACTS

The expected impact of developing and implementing the new CHESTER energy management system across Europe includes:

- *Socioeconomical:* Lowering costs through increase in the use of the installed renewable energy capacity and offering of energy resource alternative, which will benefit direct end-users and energy system.
- *Environmental:* Maximizing use of various renewable energy sources and, thereby, decreasing Europe's dependence on imported fossil fuels.
- *Market Transformation:* Strengthening European industrial technology base by creating growth and jobs in Europe in the energy storage and management market.
- *Policy:* Achieving the ambitious 2030 Energy and Climate targets through support of energy initiatives (that are still under R&D) in development and market entry.