

USES4HEAT

Underground Large Scale Seasonal Energy Storage for Decarbonized and Reliable Heat

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USES4HEAT Overview and Objectives

USES4HEAT aims to **demonstrate innovative, large scale, seasonal thermal energy storage solutions** enabling a future **decarbonized and reliable heating supply.**

Develop and demonstrate at TRL 8 two innovative large-scale cost-effective seasonal TES

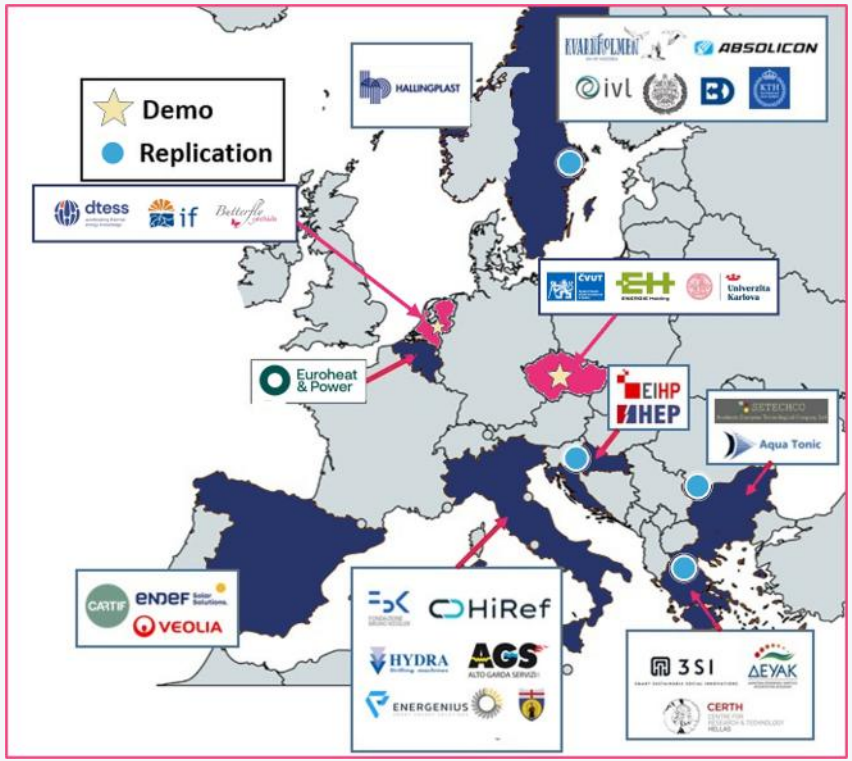
Develop and demonstrate **key enabling technologies for decarbonisation, flexibility, and robustness of the heating sector and integration with seasonal TES**

Develop and demonstrate **intelligent energy management systems and predictive O&M**

Assess the performance and sustainability of USES4HEAT including **circular economy, social, economic, financial and environmental** aspects

Promote USES4HEAT solutions across EU a non–EU and **facilitate market uptake and path to TRL9**

USES4HEAT in a few numbers…

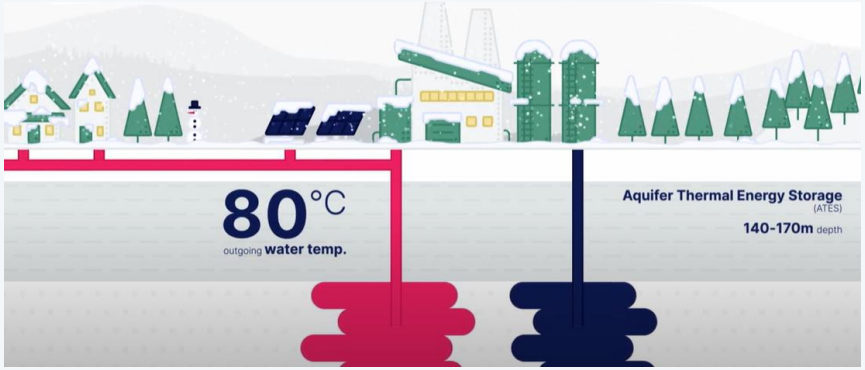


30 Partners	2 Demos
9 Countries	4 Replicators
Budget 12.4 M€ (EU 9.7 M€)	5 DHN operators

USES4HEAT Demonstrations

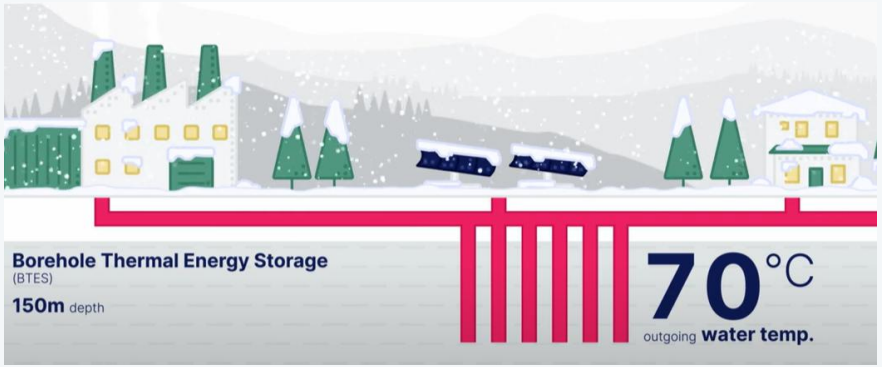
Andel





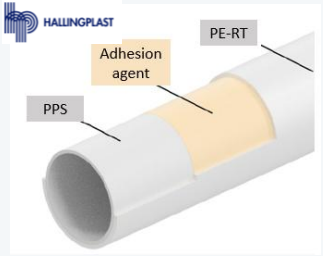
Litomerice





USES4HEAT Key technologies development



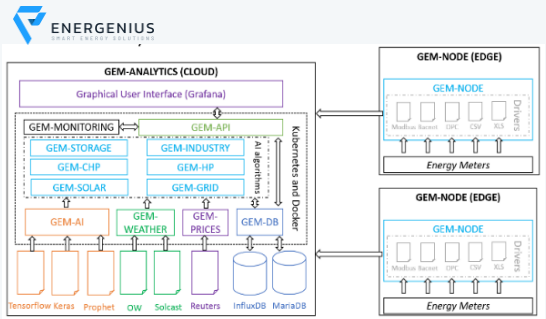








- **Advanced ATES drilling equipment** with **remotely controlled machines**
- **Innovative layered BTES collectors plastic piping materials** for high temperature (95°C)
- **Innovative high temperature groundwater heat pump (HP)** connected to ATES and DHN
- **Hybrid photovoltaic-thermal (PVT) solar panels with enhanced absorber**
- **Concentrated solar thermal collectors** integrated with seasonal UTES and DHN
- AI, big-data, cloud based **intelligent predictive energy management** and **predictive operation and maintenance (O&M) tools**



USES4HEAT Replicators



Large scale district heating networks



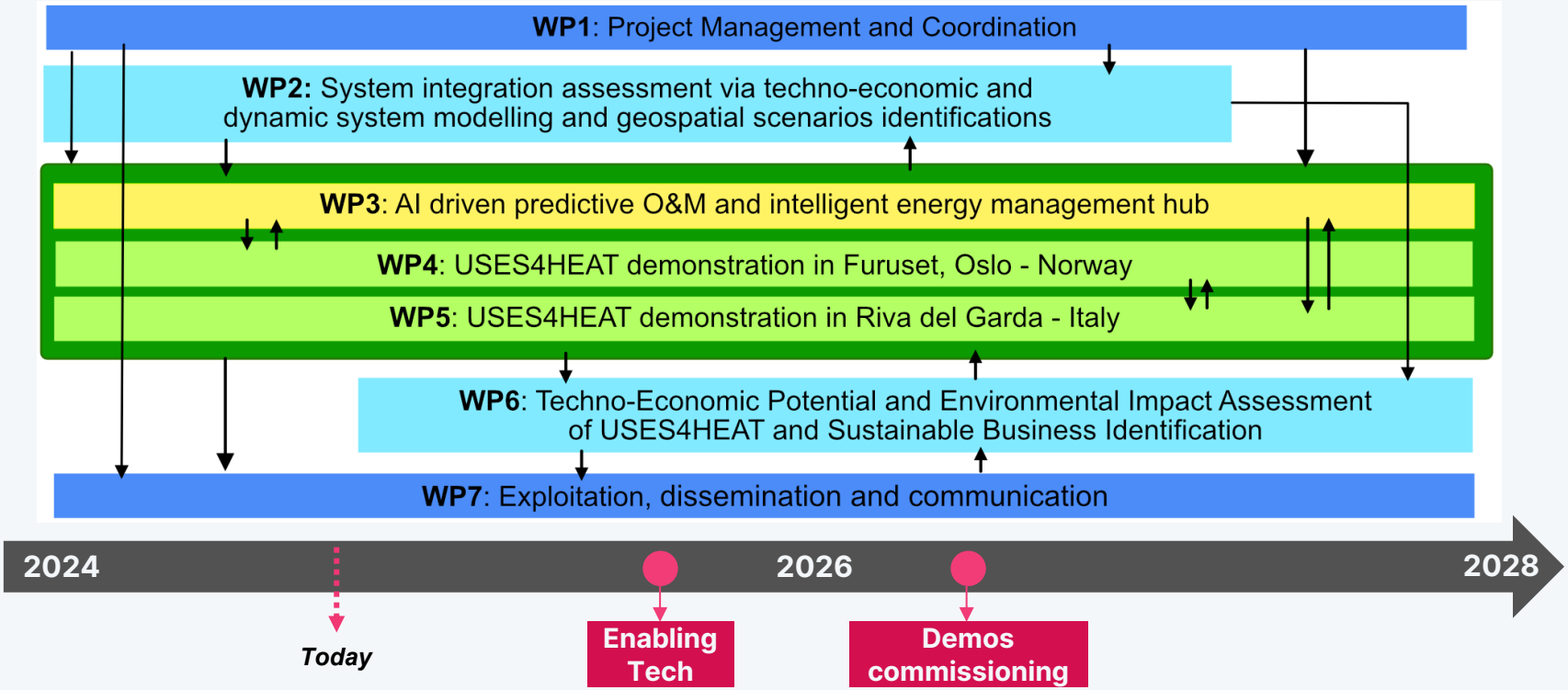


Cavern thermal energy storage (CTES)

Industrial waste heat recovery



USES4HEAT Overview and Implementation Plan



USES4HEAT

Scan me!

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