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# FACT SHEET for the research project Thermal storage

### SHORT TITLE / ACRONYM

Thermal storage

### LONG TITLE

Caverns as large-scale thermal storage systems

### DESCRIPTION

The FFG-funded project, running from January 2022 to January 2023, investigates the economic feasibility of using rock caverns for intermediate and seasonal heat storage in urban areas. It considers the specific requirements for large-scale heat storage in district heating networks. Large-scale heat storage will play a central role in future district heating systems, as it enables the integration of renewable energy sources and industrial waste heat. These storage systems provide the necessary flexibility between production and consumption and contribute to achieving energy and climate goals.

The two main areas of investigation are a cost analysis of the stored energy based on optimized cavern planning, taking into account losses and lifecycle costs over approximately 90 years of operation of this infrastructure, and a detailed numerical simulation of heat propagation in the rock, including an analysis of heat losses and the potential activation of the surrounding rock mass for heat storage.

Due to the geological conditions, existing expertise in rock and underground construction, and resource-efficient use, the technology of storage caverns can become a significant component in the thermal energy transition and enhance Austria's international competitiveness.

### PROJECT COORDINATOR

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