



**STOREDGE: A long duration and cutting-edge thermochemical heat storage and upgrading technology for heat and power applications**

**1st Press Release**

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**Launch of STOREDGE Project: A Groundbreaking Innovation in Long-Duration Thermal Energy Storage**

The European-funded **STOREDGE** project has officially launched with a mission to revolutionize thermal energy storage through the development of a **novel thermochemical storage and upgrading system**, targeting **cost-effective, high-efficiency heat storage** and **long-duration solutions** for the energy transition.

Funded under the Horizon Europe programme, STOREDGE brings together a multidisciplinary consortium of leading industrial, research, and academic institutions to **develop and validate an innovative thermal storage system at TRL 4**, based on **structured metal hydroxides**, primarily **calcium hydroxide**.

The STOREDGE system stands out for its ability to:

* Store **medium-temperature heat** from various sources, including industrial waste heat, solar energy, and off-peak green electricity;
* **Upgrade stored heat** to high temperatures suitable for supercritical power cycles and industrial applications;
* Provide **scalable, long-duration storage** from days to seasonal timescales with **negligible thermal losses**;
* Ensure **cost-effectiveness** through long system lifespan, simplified design, and compatibility with a wide range of power blocks and heat sources.

Unlike conventional thermal storage, the STOREDGE technology stores energy in **chemical bonds** rather than as sensible heat, allowing for **indefinite storage at ambient temperature**. By manipulating the **water vapor pressure**, the system enables dynamic adjustment of the equilibrium temperature, a key feature for effective heat discharge and process integration.

Over the next four years, the consortium will focus on:

* Designing a **first-of-its-kind compact prototype**;
* Conducting validation tests in relevant laboratory environments;
* Demonstrating the feasibility of **continuous discharging** and **periodic charging** tailored to industrial needs;
* Exploring additional applications and use-cases for the technology’s future scaling.

The project is coordinated by **Twente University (Netherlands)** and is implemented by a strong consortium of eight partners from across Europe, including **Thermal and Material Engineering center LLC (Ukraine)**, **Technische Universität Wien (Austria)**, **IZNAB (Poland)**, **Institute of Entrepreneurship Development – iED (Greece)**, **Deutsches Zentrum für Luft- und Raumfahrt – DLR (Germany)**, **Danish Technological University – DTU (Denmark)**, **COWI A/S (Denmark)**, and **COBRA Instalaciones y Servicios S.A. (Spain)**. This diverse team ensures comprehensive expertise across thermochemical engineering, advanced materials, system integration, and exploitation of results, enabling robust innovation from lab-scale validation to future industrial deployment.

The STOREDGE project not only aligns with Europe’s decarbonization goals but also opens new avenues for innovation in the **thermal energy storage market**, potentially supporting grid flexibility and industrial decarbonization alike.

For more information, please visit: <https://storedge-project.eu>