

WHAT IS MINISTOR?

MiniStor (Minimal Size Thermal and Electrical Energy Storage System for In-Situ Residential Installation) is a project funded by the European Union's **Horizon 2020** research and innovation programme.

The MiniStor project aims at designing and producing a **novel compact integrated thermal storage system** for achieving sustainable **heating, cooling and electricity** storage that can be adapted to **new and existing systems in residential buildings**.

Eighteen partners across the European Union, Switzerland and the UK work together to **harness the large potential of EU buildings** to increase its energy efficiency performance by providing a **new and innovative solution**. MiniStor system optimizes the use and management of thermal energy by allowing it to be stored, levelling demand peaks and increasing the use of renewables affected by intermittency such as solar-based heating.

The MiniStor system is to be demonstrated and validated in **five demonstration sites** located in **Ireland, Spain, Greece and Hungary** to test its effectiveness at different local climatic conditions, facilitating market replication while offering an innovative, efficient and clean thermal and electrical energy storage solution for all Europeans.

WHAT DO WE DO?

The MiniStor concept will be demonstrated and evaluated in an operational environment of real-life conditions in one pre-pilot and five demonstration sites, following appropriate deployment guidelines and legislations. The demonstration sites are located in North-West Europe (Ireland), Southwestern Europe (Spain), Southern Europe (Greece) and Central Europe (Hungary). These pilot sites represent residential usage having diverse climatic conditions, thermal load needs, energy realities, expectations and regulations.

Deployment in these demonstration sites will be thoroughly planned, their stakeholders will be trained to maximize use of the MiniStor system. **Acceptance tests of the system will be performed, allowing to validate the human-centric HEMS (Home Energy Management System) pre vious to installation.**

KEEP IN TOUCH WITH MINISTOR

Progress and results of MiniStor will be available to researchers, academics, industry stakeholders and users, among others. Different dissemination activities and materials will be provided such as latest news, technical articles, handbooks, newsletters and many more!

Keep an eye on the project's website and do not miss out on all the resources this project has to offer. Do not forget to follow MiniStor on social networks.

-  www.ministor.eu
-  info@ministor.eu
-  [@MiniStorH2020](https://twitter.com/MiniStorH2020)
-  [MiniStorH2020](https://www.linkedin.com/company/MiniStorH2020)



**ENERGY
EFFICIENCY
INNOVATION
AT HOME**



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 869821

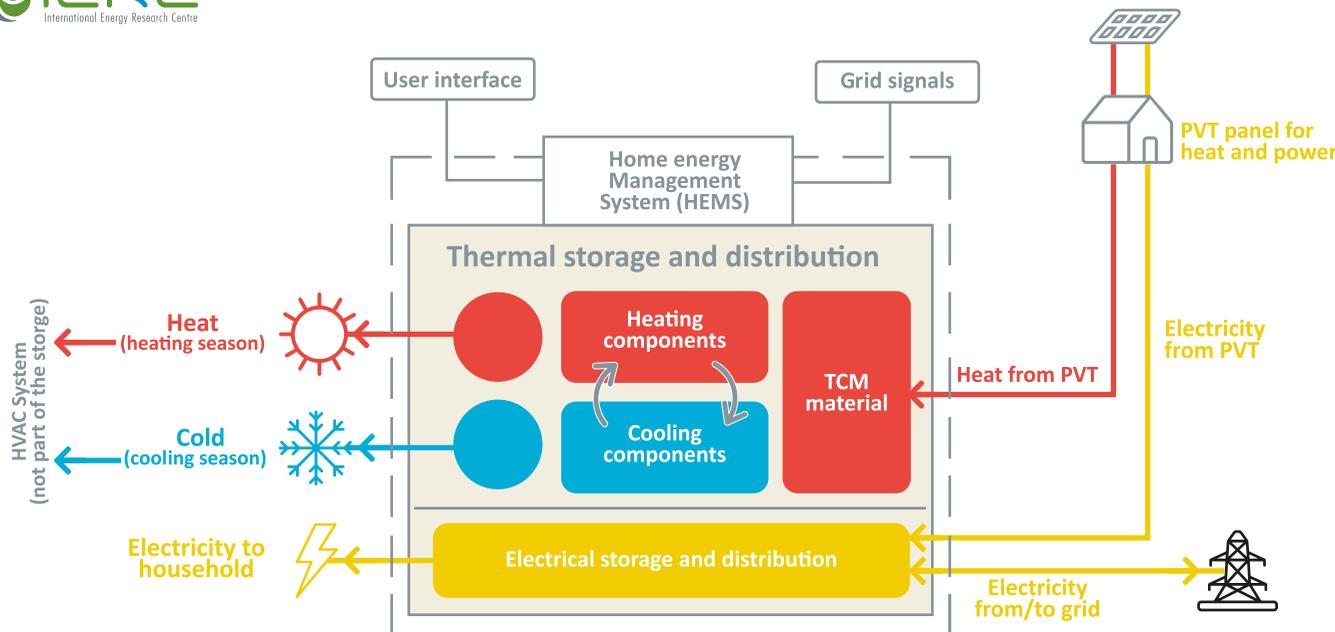
MiniStor system: Sustainability made minimal size

The MiniStor thermal storage system is based on a **high-performing thermochemical material (TCM) reaction**, combined with hot and latent heat storage based on phase-change materials (PCM). The electrical storage is a conventional system based on a Li-ion battery for flexibility and usage year-round. **The storage system allows for compact storing of RES-based energy using hybrid photovoltaic thermal panels (PVT).**

This **system includes a home energy management system (HEMS) that connects to the Internet of Things (IoT) to synchronise and efficiently manage the overall supply and demand at household level, responding for grid constraints and price signals.**

The MiniStor system **provides stability, performance and usage of at least 20 years with a minimal-size.** The estimated storage volume will be 0.72 m³. The overall **system storage density is extremely high**, up to 10.6 times higher than water-based storage systems for an operating heating temperature difference in the range of 15°C (around 182 kWh/m³). This system **reduces the net energy consumption of a building by at least 44%**, and will have an expected **return-on-investment period of 6.7 years.**

MiniStor integrated storage system concept



The MiniStor system is to be demonstrated and validated in five demonstrations sites located in Ireland, Spain, Greece and Hungary.

WHY MINISTOR?

1. Innovative and minimal-size storage solution for existing and new residential buildings
2. Thermal storage for both heating and cooling throughout the year
3. Electrical energy storage and management to increase profitability
4. Consumer at the heart of MiniStor: Efficiency and user-comfort
5. Reduction of the building's net energy consumption by at least 44%
6. Return-on-investment period of 6.7 years

OUR IMPACT

Minimal-size energy storage solution

Long-term energy security

Minimise environmental impact

Towards a decarbonised EU building stock

Support Europe's Energy Policy for a sustainable energy market