

## ContainerPower Energy Solutions

# Home Energy Storage Temperature



## Overview

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What temperature is used for TES storage?

A default temperature of 51 °C is used for the TES storage temperature, but higher temperatures of up to 500 °C are considered in the simulations, and up to 1500 °C in initial material and system comparisons.

Why is a high temperature a good choice for energy storage?

For DEH although the high temperature allows high energy storage densities, at the higher U values there are more losses and so there is little benefit until around 0.8 W/m<sup>2</sup> K, below this point the heat can better be retained to more efficiently use off-peak low emissions grid electricity.

Why is thermal energy storage important?

Thermal energy storage can provide great flexibility, especially for low heating demand dwellings. Low investment cost thermal energy storage is one of the most important factors to improve its uptake. Heat pumps couple best with hot water tanks but have potential with low-cost latent heat storage that melts around 50°C.

What is the thermal equivalent of energy storage for batteries?

The thermal equivalent of energy storage for batteries depends on which heater it is coupled with: if this is coupled with DEH this is near identical to the electrical values shown as DEH efficiency is close to 100 %.

What is latent heat storage (LHS)?

In addition to SHS, latent heat storage (LHS) technologies have begun commercialisation by storing thermal energy from the phase change of salt hydrates without the need for higher temperatures .

Which TES technology is best for domestic heating?

Currently, water tanks are the most used domestic TES technology, but water storage suffers from low energy density, so the storage usually only provides domestic hot water that is about 15 % of domestic heating demand .

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