



# Low Carbon Technology Guide

*Heat storage*

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# 1. What is it?

Heat storage (also referred to as thermal energy storage) is a type of energy storage system which allows you to store heat that can be used later when needed. Heat storage is commonly used to make the most out of renewable electricity generated by technologies such as solar PV and wind turbines, while some heat pumps and solar thermal systems require heat storage to operate.

There are two types of heat storage systems available:

- **Thermal stores** – These are standard hot water cylinders already installed as part of the boiler systems in many homes. They are highly insulated and can store heat as hot water for several hours. When needed, the water can be used for hot taps and heating your home. Thermal stores are often able to receive heat from multiple sources, such as solar thermal and heat pumps, and some also contain an immersion heater that can heat up the water using electricity.
- **Heat batteries** – These are a relatively new and usually more expensive technology for home energy storage. Unlike thermal stores that use water to store heat, heat batteries use a ‘phase change material’ (PCM) which can hold more heat than water. This allows the heat batteries to be smaller and lighter than thermal stores, and because they have better insulation, they can also store heat for longer periods of time. Similar to thermal stores – heat batteries can also provide both hot water for the taps and heating for your home. They can also be charged by both electricity and directly by heat sources (such as heat pumps and solar thermal).

# 2. What should be considered before installation?

Generally, electricity from the grid is the most expensive way to heat your home. Therefore, in most cases, installing heat storage would only make sense if you were also planning to install a renewable energy system, such as solar PV or solar thermal, or if you want to add hot water storage to your gas boiler.

# 3. How much does it cost?

According to Energy Saving Trust, the cost of installing a single heat source thermal store is usually around £450, while a multi heat source thermal store is usually around £1,900. The cost of the heat battery varies depending on the manufacturer and the capacity and can range from around £1,700 to several thousand pounds, excluding the installation costs. It is generally recommended to get quotes from at least three installers to get a good idea of how much the system would cost you.

## 4. What is the maintenance like?

Once installed, both thermal stores and heat batteries require minimal maintenance, but a qualified heating engineer should occasionally inspect your entire heating system to ensure that it is working properly. A qualified engineer would advise you on the recommended frequency of these inspections. Under the right conditions and with regular maintenance, thermal stores could last over 10 years, while some heat batteries could last up to 50 years.

## 5. How can I get it?

An increasing number of renewable energy technology installers now offer heat storage.

The [Microgeneration Certification Scheme](#) (MCS) is currently the standard and quality assurance organisation for renewable energy technologies. Their website provides the most up to date list of accredited installers in the UK.

## 6. What funding help is available?

### 6.1 HOME ENERGY SCOTLAND LOAN

If you live in Scotland and considering a heat storage for your property, you could be eligible for an interest-free [Home Energy Scotland Loan](#) of up to £6,000.

### 6.2 ADDITIONAL FUNDING INFORMATION

Depending on where you live, below are some organisations that can advise you on the funding options that could be available to you.

England and Wales: [Simple Energy Advice](#)

Scotland: [Home Energy Scotland](#)

## 7. Useful websites

For more information on the heat storage systems, please visit the following websites:

[Energy Saving Trust – Storing energy](#)

[Energy Saving Trust – Is home energy storage right for me?](#)