

Solar thermal hot-water systems



The Benefits

- Generate free hot water to use on site
- Reduce gas and electric water heating costs
- Effective even in temperate climates
- Opportunity to communicate your environmental commitment



Optimal return on investment

System size can be matched to the hot water demand of the building and backed up with conventional gas or electric water heating to ensure a constant supply.

It is important to match the size of the installation to the average demand in order to avoid over heating the storage tank. For this reason they are particularly effective where hot water is required for an industrial process or swimming pool for example where excess heat that is generated can be stored.

The system

The collector unit is situated to catch the optimum energy from the sun and there are broadly two types. Flat plate collectors are the simplest with water pipes running behind thick black glass that collects and traps the heat like a greenhouse, this is then transferred to the hot water tank by a pump. The second type consist of evacuated tubes that collect the heat from the sun which is then transferred to a collecting manifold where a high specific heat capacity fluid is pumped in a circuit to heat the hot water tank. The evacuated tube type is more efficient.

Installation

Installation can be carried out on a wide range of roof types including flat and pitched roofs however it is important that a full structural evaluation is carried out to ensure the roof's integrity will not be compromised.

While planning is not normally an issue with solar thermal installation it can be refused in conservation areas, so it is important to ensure that all permissions are secured before proceeding with any installation.

Estimated savings for a small camping shower block

Estimated annual hot water demand	11,000kWh
Overall system size	8.4kWtp
Estimated annual hot water generation	6,730kWh
Annual estimated savings	£ 942
Annual Carbon Savings	3.9 tCO ₂ e
Estimated payback period	5 years
Est. payback with 30% BEEA grant	3.5 years

Further information is available on...

www.carbontrust.com
www.energysavingtrust.org.uk
www.beeanglia.org

