Action Surrey
SURREY'S LOW CARBON COMMUNITY

Solar Hot Water (SHW)

Installed cost: ~£4,000
Annual Fuel bill saving: ~£60 per year (more for those using oil)
Carbon saving: ~275kg per annum

Grant available: No grants available but you now get paid for generating renewable heat (see Action Surrey website for more details on RHI)

Renewable Heat Incentive: launched 9 April 2014, you can earn 19.2p/kWh of generated heat (paying up to £500 per annum on top of annual savings) plus your heating bills savings

What is Solar Thermal and how does it work?

Solar thermal systems use energy from the sun to heat your hot water supply. Domestic systems are made up of 4 main components:

1. Solar panels or collectors which collect heat from the sun's radiation;
2. A heat transfer system which uses the collected heat to heat the water including a pump and controller;
3. High temperature Glycol or similar which is the fluid that runs round the pipes in the collectors to the heat exchange coil in the hot water tank;
4. A hot water cylinder which stores the hot water that is heated during the day and supplies it for later use;

The water that flows through the solar collectors on the roof enters the hot water tank via a heat exchange coil, heating water that then flows to the hot water taps and shower.

What different systems are available?

There are 2 main types of solar thermal collectors:

1. Flat plat collectors - These comprise of copper pipes that have a dark conductive material moulded to them which are then encased in a glass or Perspex box.

2. Evacuated tubes - these comprise of a row of vacuum (double glazed) glass tubes that collect the suns energy and transfer it to special liquid flowing through the tubes.

Evacuated tubes and flat plate collectors both have their advantages and disadvantages:

Evacuated tubes tend to retain their heat for longer but tend to be more expensive and have lower start-up efficiency than flat plate collectors. The vacuum has been known to fail in some of the individual tubes on evacuated tube systems however; these can be replaced with ease and relatively cheaply.

Flat plate collectors have a higher start up efficiency which can make them more suited to the UK climate of intermittent sunlight (as they can collect solar energy quickly in a short spell). Flat plate collectors can be integrated into the roof and are cheaper but are not as well insulated as evacuated tubes. They are thought to be more reliable than evacuated tubes.

How much of my hot water will a solar thermal system provide?

Approximately 50% of your hot water demands could be met during the winter, and potentially all your hot water requirements during the summer.

What will they look like?

Evacuated tube collectors are more prominent than standard flat plate collectors. In addition, systems can be designed to blend into the building, for example through use of roof-integrated collector panels. Panels can also be mounted on out buildings rather than your house.

Is my house suitable and what should I consider before installation?

- Collectors should be installed on unobstructed roofs, ideally facing south, southeast or south west.
- Ideally, your home should be insulated thoroughly before investigating solar hot water
- Collectors should be located so that they can be safely accessed for maintenance.
- The roof structure will need to be assessed to accommodate the load of the collectors. A structural engineer should be consulted – this normally involves a surveyor conducting a site visit provided by the installer.
- Additional space may be required inside your house to accommodate a 'dual heat-exchanger' hot water tank. The floor will also need to be assessed to ensure it can withstand the additional load of the larger tank.
- Planning permission is not required for solar collectors; however your local council planning department should be consulted. If you are in a conservation area, you can mount solar panels on a pitched roof without planning permission, however if you wish to mount them on a vertical wall, planning permission is required.

Cost & cost saving

- The average domestic system can save you approximately £60-£100 a year on your hot water bills, when installed in a gas heated home[1]. For an oil or electricity heated home the financial saving can be greater.
- In April 2014 the government is launched the Renewable Heat Incentive which enables homeowners and private/social landlords to be paid for all the renewable energy they generate on-site, including heat from solar hot water systems. For an average system this means being rewarded £350 a year.
- An approximate installation cost for a domestic system is £3,500 - £5,000. Evacuated tube systems tend to be more expensive as they are more advanced in design than flat plate designs.
- Solar water heating systems generally come with a 5-10 year warranty and require almost no maintenance. The high temperature glycol or similar fluid may need replacing after 3-5 years depending on how often you leave your system idle for during very cold or hot periods. This can be serviced for you by the installer.

Grants

No grants available. However SHW that generate renewable heat are eligible for the government's RHI Tariff. This will pay homeowners/private/social landlords 19.2p/kWh heat generated.

If you would like further information on solar hot water systems or like a recommended installer; please contact Action Surrey on 0800 783 2503 or email info@actionsurrey.org.

[1] EST http://www.energysavingtrust.org.uk/Generate-your-own-energy/Types-of-renewables/Solar-water-heating