

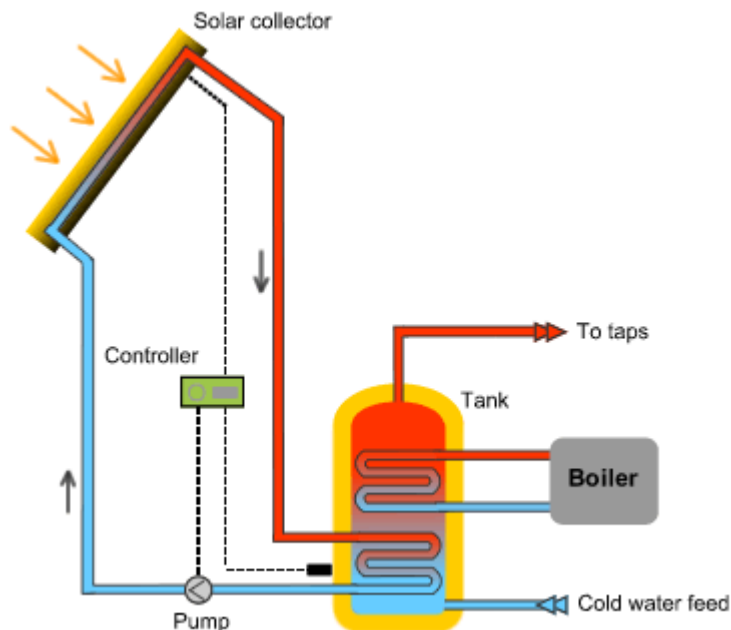
Solar Thermal

We supply and install advanced technology solar thermal systems which are able to reduce the carbon footprint and running costs of homes, offices, hospitals, prisons, leisure centres, swimming pools, schools and businesses throughout the UK. Solar thermal heating is the most realistic renewable energy solution for buildings of all kinds, new or old.

For most local applications, therefore, solar thermal energy is an extremely viable form of renewable energy.

We supply a robust lightweight flat panel collector or by special order can supply evacuated tube systems. The panels come in standard sizes but can be custom made to fit size requirements of the mounting location if required.

Solar water heating systems work using solar panels, called collectors to capture the sun's radiation working on both clear and overcast days warming your domestic hot water. A pump and controller circulates the warmed fluid from the collector to a suitable heat exchanger. A secondary heat source is then used to maintain or increase water temperature when solar energy is unavailable.



A system controller compares the temperature of the solar collectors with the temperature of the water in the cylinder. When the collectors are warmer than the cylinder the system activates.

There are several types of heat exchangers on the market and the type used will affect the time taken and overall cost of an installation.

- External heat exchangers
- Twin coil cylinders
- Thermal stores

Is solar water heating suitable for my home?

To tell if solar water heating is right for you, there are a few key questions to consider:

- **Do you have a sunny place to put solar panels?** You'll need 3-4 square metres of roof space that faces roughly south and receives direct sunlight without shading for the main part of the day. Alternatively, if you have space, you could install two panels, one facing east and one facing west - but this will make installation more complex and costly.
- **Do you need to have space for a larger, or an extra hot water cylinder?** You will need to allow room if you use a twin coil or thermal store as these are usually larger than a normal single coil cylinders. If an external heat exchanger is used only a small amount additional space will be required around an existing cylinder, this can also reduce the supply and installation cost as the existing cylinder may be able to be retained.
- **Is your current boiler compatible with solar water heating?** Most conventional systems are compatible with solar water heating. If your boiler is a combination boiler (combi) and you don't have a hot water cylinder then a solar hot water system may not be immediately compatible.

Do you need planning permission? In England most solar water heating systems don't need planning permission, but exceptions apply for Listed Buildings, and buildings in Conservation Areas and World Heritage Sites. If you live in Wales, Scotland or Northern Ireland you will need to consult your local authority.

The benefits of solar water heating

- **Hot water throughout the year:** the system works all year round, though you'll need to heat the water further with a secondary heat source during the winter months.
- **Cut your bills:** sunlight is free, so once you've paid for the initial installation your hot water costs will be reduced.
- **Cut your carbon footprint:** solar hot water is a green, renewable heating system and doesn't release any harmful carbon dioxide or other pollutants

System maintenance

Most solar water heating systems come with a 5-10 year warranty and require very little maintenance. A clean and visual inspection of panels should be carried out every year and they should be inspected via an approved installer every 3-5 years

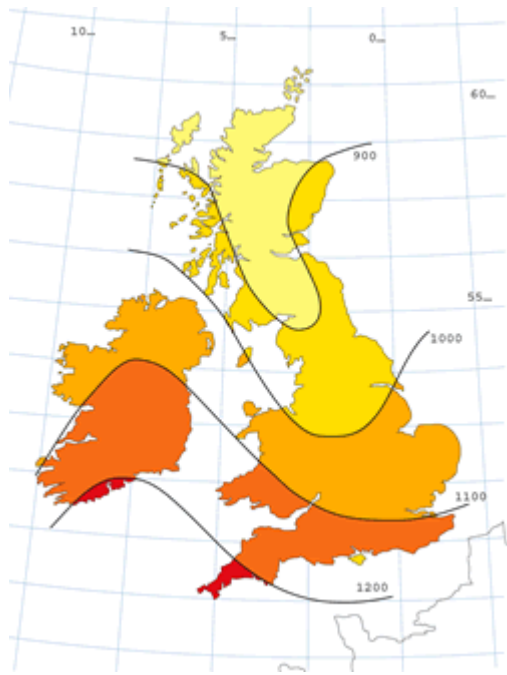


Fig 1.: map showing average solar radiation on a 30° incline facing due south