



## Guide to **NEW** Heat Project Solar



## Introduction

For more than 13 years the Heat Project has been helping households across the UK install cavity wall and loft insulation into their homes, saving them money and keeping them warm.



The Heat Project is now expanding its services and inviting its customers to explore a greater range of clean, green, energy solutions, in the form of solar thermal and solar photovoltaic (PV) renewable energy technology. We have found new ways to help you save money and join in the fight against climate change, by harnessing the power of the sun with **Heat Project Solar**.

## Why solar technology?

The sun is an inexhaustible natural resource that has the power to dramatically reduce our reliance on the exhaustible fossil fuels, which emit harmful greenhouse gases, such as carbon dioxide (CO<sub>2</sub>), into our environment. In addition these durable, low maintenance, effective technologies offer people the opportunity to make significant money savings and take responsibility for their own energy production, whether it be heat (with solar thermal), or electricity (with solar PV).

### The Myth about Solar Energy

Many people are under the common misconception that solar energy can only work in conditions of bright sunshine and high temperatures and is therefore unsuited to the British climate. However, the panels work based on intensity of radiation, rather than direct sunlight, meaning that they can still be effective even on cloudy days during the winter!

## Solar Thermal





The first of the solar technologies on offer to you through the Heat Project is a solar thermal hot water heating technology.

### How does it work?

Solar thermal uses the radiation from the sun to heat a liquid that flows through a solar collector (solar panel), often sited on the roof of a building. This in turn heats water contained within a storage cylinder via a heat exchanger for use at the taps/shower etc within a building.

A conventional boiler or immersion heater is generally used as a back up to heat water within the hot water cylinder in order to reach the temperature set by the cylinder's thermostat when the solar system is unable to heat water to that required temperature (for instance, during winter months).

### Why invest in a solar thermal system?

-  Produce 70% of your annual hot water needs from the sun
-  Save up to £170 on your annual hot water heating bills
-  Get a grant to help with the cost of your system installation
-  Cut your carbon footprint by reducing harmful CO<sub>2</sub> emissions

## How much will it cost?

Costs vary by size and type of system installed. The solar collectors (re. panels), usually fixed onto the roof, can be of the flat plate variety or evacuated tubes, each operating at slightly different efficiencies, and costing different amounts. The choice of which type to use is down to the householder and that decision is often determined by the householder's perception of how they will look.

Flat plate collectors have the advantage that they can be integrated into the existing roof if desired whereas evacuated tubes must always be fixed on top of the existing roof covering. Either type of system can be wall or ground mounted if the roof is considered to be unsuitable. A typical system for an average family is likely to be in the region of £4,000 - £6,000.

A grant of £400 is also available through the government's Low Carbon Building Programme (LCPB), to help with the cost of the installation. To qualify for this, a number of energy efficiency measures should already be installed in the property, such as loft and cavity wall insulation (where applicable) low energy light bulbs, and basic controls for heating systems such as timers and a room thermostat. This will ensure that energy wastage is minimized from the beginning, and the solar system can be used at maximum efficiency.





## Solar Thermal Assessment



On deciding that a solar thermal hot water heating system is the right choice for you and your home, an assessment of your property will be arranged, to confirm its suitability for solar thermal installation.

A number of requirements need to be met to ensure that you will get the most out of your solar thermal system.

The assessor will consider:

-  Whether you have a place that will be exposed to the sun where the solar panels can be fitted (i.e. ideally a south facing roof)
-  Whether you have space for a larger, or extra hot water cylinder
-  Whether your current boiler will be compatible with solar water heating and the feasibility of installing a new one if required
-  Whether you may require planning permission

The assessor will also take initial measurements and assess which systems would be most suitable for your property. The assessor will also be able to give an initial indication of the potential costs payable by you, should you choose to proceed with the installation. This, and other advice and information provided in your assessment should help assist you in your decision to proceed with the solar thermal installation.

## Solar Thermal Installation

Heat Project Solar uses only MCS (Microgeneration Certification Scheme) accredited installers. This provides protection for you, ensuring only products and installers that meet robust criteria and maintain consistently high standards, are used. MCS accredited installers must also be used in order for you to obtain the government grant.



Installation of the system can take between one and three days to complete, depending on the size and type of the system, and the number of installers working on the installation. You pay the installer the total cost of the works upon completion of the system installation.

You can help ensure the installation goes smoothly by being prepared for the installer's arrival. Simply making sure that the driveway is clear for the installation van and that there is space available for scaffolding to be erected, so the installers can access the roof, can really help the installation process.

### Did you know?

Most properties in the UK are suitable for a solar thermal or solar PV system.

## Following Solar Thermal Installation

The expected lifetime of a solar thermal system is at least 20-25 years. All solar collectors, also known as solar panels are guaranteed for 10 years, hot water cylinders for 5 years and all other parts, as well as labour, for 2 years.

Little maintenance of the system should be required, with a service by an accredited installer at 3-5 year intervals sufficient. However, it may be advisable to get a more regular service alongside your annual boiler service. Minor components of the system may need to be replaced within the 25 year lifespan of the system but nothing of significant cost should need to be replaced.

## Solar Photovoltaics ('PV')

The second of the solar technologies on offer to you through the Heat Project is a solar photovoltaic (PV) technology.

### How does it work?

Solar PV generates electricity from daylight. Light shines on PV cells, which make up a solar panel, causing electricity to be generated across the two semi-conducting silicon layers of the cell. An inverter then converts the electricity from direct to alternating current, for use in the home.

When the solar energy system is producing more power than is needed within the home it is exported to the grid. At night, when the solar system is not producing any electricity, or at a time when more electricity is required within the home than is being produced by the solar system, electricity is imported from the grid in the normal way.

## Why invest in a solar PV system?

- ☀️ Reduce your energy bills by generating your own electricity
- ☀️ Earn an income - you will be paid for the electricity you produce, and for the electricity you sell back to the grid. A new feed-in tariff to be introduced in April 2010 will ensure that householders will get paid at above-market rates for the renewable electricity they generate, for a period of 25 years. The rates are set by the government and all fuel utility companies will be obliged to purchase renewable electricity at these rates
- ☀️ Get a grant to help with the cost of your installation (to be phased out in 2010 so apply now to qualify)
- ☀️ Cut your carbon footprint by reducing harmful CO<sub>2</sub> emissions

## How much will it cost?

Costs vary by size and type of system installed, with the slightly more efficient PV panel tending to come in at a slightly higher cost. A typical 2kWp\* system which will produce approximately 50% of an average household's electricity needs will cost around £12,000 (less any grant). This is based on current industry rates which indicate an average cost of approximately £6,000 per kWp installed. This investment will of course be offset by the significant financial rewards generated by the feed-in-tariff you will be entitled to.

A grant of up to £2,500 is also available through the government's Low Carbon Building Programme (LCBP), to help with the cost of the installation. To qualify for this, a number of energy efficiency measures should already be installed in the property, such as loft and cavity wall insulation (where applicable) low energy light bulbs, and basic controls for heating systems such as timers and a room thermostat. This will ensure that energy wastage is minimized from the beginning, and the solar system can be used at maximum efficiency.

Currently the government plans to phase out this grant in 2010 and replace it with the new system of feed-in-tariffs, that will give customers a greater return for their electricity than has previously been the case.

## Solar PV Assessment



On deciding that a solar PV system is the right choice for you and your home, an assessment of your property will be arranged, to confirm its suitability for solar PV installation.

A number of requirements need to be met to ensure that you will get the most out of your solar thermal system.

The assessor will consider:

- ☀️ Whether you have a place that will be exposed to the sun where the solar panels can be fitted (i.e. ideally a south facing roof)
- ☀️ Whether your roof is strong enough to take the solar panels
- ☀️ Whether you may require planning permission

The assessor will also take initial measurements and assess which systems would be most suitable for your property.

\* kWp is a 'kilowatt peak' and refers to the peak performance of a solar panel working under ideal conditions.

The assessor will also be able to give an initial indication of the potential costs payable by you, should you choose to proceed with the installation. This, and other advice and information provided in your assessment should help assist you in your decision to proceed with solar PV installation.



## Solar PV Installation

MCS accredited installers will complete the installation of your solar PV system (see 'Solar Thermal Installation'). A typical domestic solar PV system can be installed within two to three days. You pay the installer the total cost of the works upon completion of the system installation.

As part of the installation, the system will be connected up to the national grid. Permission will be required to connect the system, but this is normally granted without problem for systems up to 4kWp. You can help ensure the installation goes smoothly by being prepared for the installer's arrival. Simply making sure that the driveway is clear for the installation van and that there is space available for scaffolding to be erected, so the installers can access the roof, can really help the installation process.

### Did you know?

The whole of humanity's energy use in a year is equal to the amount of radiation provided from our sun hitting the earth in just 40 minutes.

## Following Solar PV Installation

Most solar PV panels have a manufacturer's warranty of 25 years with an expected lifetime of up to 40 years. It is estimated that the performance of the PV system will decrease by less than 1% per year and the manufacturers guarantee that the PV system will still perform at 80% of its installed efficiency 20 years after installation. Inverters are generally guaranteed for at least 5 years, although this is extendable, and workmanship for 2 years.

Little system maintenance should be required as solar PV systems are silent in operation and have no moving parts. However, during the lifetime of the system, the inverter (which converts the DC electricity produced to AC electricity) may need to be replaced.

As the system will be connected to the grid, it is also important to note that any power cuts will automatically switch off the solar PV system, as a safety precaution.

**So why not make use of our most powerful resource, and harness the sun's energy in your home, with NEW Heat Project Solar...**

For more information about Heat Project Solar, or to find out how you can harness the power of the sun in your home with solar thermal or solar PV technology call the Heat Project free on

**0800 093 40 50**

Email

[solar@heatproject.co.uk](mailto:solar@heatproject.co.uk)

Or Visit

[www.heatproject.co.uk](http://www.heatproject.co.uk)