ESP ENERGY

The Renewable Energy Experts

Solar Thermal

Solar thermal systems use the heat produced by the sun to heat the hot water used within the property. They work by pumping a fluid around the panels or pipes which are heated by the sun. This heated fluid will then pass through a heat exchanger within your hot water tank.

There are two different types of thermal systems, Flat Plate Panels or Evacuated Tubes. Flat Plate is a flat rectangular panel with a glass front and thin pipes which contain fluid within the panel. The evacuated tubes are long glass tubes which have an element inside which heats up the fluid in the manifold at the top of the array. They are mounted in groups of 10 onto a frame attached to the roof.

System Options

The size of the system you have installed will depend on the hot water requirements of the property, and also the roof space available. The panels or tubes achieve their maximum yields when installed facing due south, but panels facing east and west can also produce adequate returns. If panels are chosen, these can be mounted either onto the roof, or set into the roof.

Roof Type

A solar thermal system can be mounted on most roof types. To obtain the optimum performance they need to be south facing at a pitch of 30 degrees. The most important factor is to ensure they are not affected by shading.
A thermal system can also be mounted on freestanding frames on the ground.

Inside the Property

Once the collector fluid has been heated within the panel or tubes, it passes down within the property to the hot water cylinder. Depending on your existing tank, it may be necessary to replace it as part of the installation. Alongside the tank will be the expansion tank, pumping station and control panel.

Renewable Heat Incentive

Solar thermal systems are eligible for the Renewable Heat Incentive which came into force in April 2014. Please see our information sheet on the RHI for more information.

Solar PV
Solar Thermal
Biomass Boilers
Ground Source Heat Pumps
Air Source Heat Pumps

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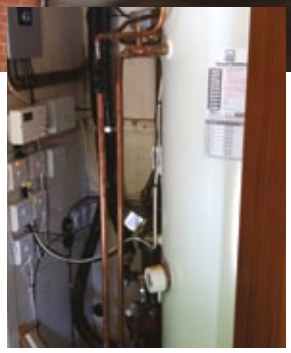
Case Study

Thermal working with PV in Shropshire



ESP Energy were asked to install two renewable systems at this property in North Shropshire. PV panels were installed to produce free electricity to the property and thermal panels were installed to produce the hot water.

A 4kW PV system comprising 16 Hyundai 250w panels was installed onto the concrete tile roof in two blocks of 8. The appearance of the final system was an important factor for this customer so we made sure the panels were mounted symmetrically on the roof.

There was enough room on the roof to mount the two thermal panels in the middle of the PV system. Two Schuco CTE319 panels were fitted in a landscape orientation. This meant a different fixing system had to be used. The team were able to complete the installation swiftly and the customer is now benefitting from free electricity and hot water.

The thermal installation comprised the 2 panels on the roof, a 300L Telford Tempest solar cylinder, Schuco Pump Station and control panel. The cylinder that was installed contains three coils in order to receive heat from the thermal panels, the wood burner or the oil fired boiler. By having a cylinder with three coils it means that each of the three heat sources can be programmed to heat the hot water independently. The oil fired boiler will only heat the water when the solar thermal and wood-burner have failed to do so.

This customer is now able to use the sun to produce free electricity and heat their hot water. They also benefit from the feed-in-tariff payments, qualify for the Renewable Heat Incentive and have contributed to a greener environment.