

SOLAR WATER HEATERS

Frequently Asked Questions

ENERGY OUTPUT AND RUNNING COSTS

Q. How much energy can Solar Water Heaters supply?

A 7.5m² Flat Plate Solar water heater from **Pure Energy** can provide up to 3000 kilowatt-hours of energy annually. This is equivalent to having a 3kW Hot water Immersion heater switched on for almost 3 hours EVERYDAY 365 days per year – a significant saving. **Pure Energy** can provide simulations using the Irish Weather data to show the energy obtainable for any size of solar system.

Q. Do solar water heaters work in Winter?

Yes, solar water heaters will heat water to a certain degree almost every day of the year. Even on a day in December a solar water installation can typically heat a 150-litre body of water from 8°C to approximately 20°C. In late January it is even better. The amount of energy depends on the ambient temperature, the number of hours of light and the intensity of light.

Q. How much Hot Water?

A solar water heating system can provide between 95 to 100% of all your hot water needs during the summer provided the size of the system is matched to the household demand. In the Spring and in Autumn 60% -70% of the hot water usage can be attained and in winter 10-20%. This of course depends on the system being correctly sized with respect to the hot water consumption. The optimum installation will provide approximately 65% of the hot water needs. In addition solar water heaters can heat water to beyond 60°C

Q. Does Ireland get enough solar energy to make solar feasible?

Ireland has the solar energy equivalent to Paris. This energy is provided by both direct sunlight (40%) and indirect sunlight (60%). So, even when the sky is overcast, its radiation (sunlight) is available at ground level and can be converted into useful heat by solar water heaters.

Q. What are the running costs?

The running cost of solar water heaters is virtually zero. The only energy consumed by the whole system is a small circulation pump. If the solar system was providing hot water to the hot water cylinder for 10 hours per day, every day of the week, then a typical circulation pump would cost approximately 20 cents per week to run.

SIZE AND PLACEMENT

Q. What size hot water heating system to install?

The number of occupants and their individual requirements determines the size of the hot water heating installation. A rule of thumb would be 1.3 to 1.5 m² of flat plate collector per person and 0.7 to 1.0m² of Vacuum tube per person. Contact **Pure Energy** and we will help you to calculate the size the solar water heating system.

Q. Where can I place solar water heaters?

Solar water heaters can be placed (i) On a roof, (ii) On a wall or (iii) on the Ground. The roof is the most common location used for solar since it is normally unused space. Wall mounting is often utilised if there is not enough suitable roof space.



Q. What Direction should they face?

South is best, BUT there is virtually no reduction in energy output from South-east to South-west. There can be as little as a 15% annual decrease if they face directly East or West when compared with South facing installations.

Q. Can they be fitted to an existing house?

Yes. The Solar may be mounted on the Roof or may be mounted on a frame and placed at ground level outside the house, or on a suitable wall. The existing hot water cylinder can be used but it is often advisable to install a bigger one, with two heating coils.

HOT WATER CYLINDER

Q. Is The Type of Hot water cylinder important?

Yes, in fact it is very important. It must be large, well insulated and must have two heating coils, one for solar and one for an alternative heating system. **Pure Energy** can supply suitable Hot water Cylinders. The larger the cylinder, the more FREE hot water can be stored. The better the insulation, the longer the storage period. Stainless steel cylinders are better than glass lined steel and stainless steel is maintenance free.

OPERATION

Q. I have a Heat Pump, are solar water heaters of any use to me?

Yes, heat pumps and solar water heaters do different things. A Heat Pumps primary function is to heat space but it can heat water cheaply, much cheaper than oil, but only to approximately 55°C. Solar water heaters heat the water to full temperature virtually FREE and will do so for many decades with virtually no cost apart from the installation cost. Solar water heaters can heat water to 80°C and above.

Q. Can I supplement my heating system using solar water heaters?

Yes, it is possible. However we don't particularly recommend this at least on the initial installation. The supply of solar energy reaches its maximum in the Summer months when heating demand is at a minimum. The supply of solar energy reaches its minimum in the Winter when heating demand is at a maximum. **Pure Energy** believes that payback may be somewhat longer than with a system that is installed for domestic hot water purposes only. Supplementing a heating system with solar water heaters, in addition to providing domestic hot water means that the solar water installation will need to be significantly bigger. This increases the cost but, as is the case with providing domestic hot water, energy taken from the solar water system will essentially be at zero cost.

Q. Is planning permission needed?

Planning permission is no longer required for solar installations on domestic buildings provided that the installation is 12m² or less. Further information can be found on the Department of the Environment website at...
<http://www.environ.ie/en/Publications/DevelopmentandHousing/Planning/FileDownload,1486,en.pdf>

Q. What is the life span and Warranty?

Solar water heaters have a long life span due to the lack of moving parts. The outer casing of the panels is made of aluminium, which does not degrade over time. The only moving part (i.e. more likely to wear and break) is the circulation pump that should last typically 15-20 years and it is a common, low cost item that is easily replaced by any plumber or handyman. All Flat Plate solar panels have a 6 Year Parts warrantee covering weathering resistance and functionality.

Q. Does the solar heating system require maintenance, and do you provide maintenance contracts?

Solar systems are very reliable but **Pure Energy** can provide you with Maintenance Contract if the additional peace of mind is required.

Q. How much space do solar panels need?

The solar panel size depends on the amount and type of installation. As a guideline, at least 1.5m X 1.5m is needed as a Minimum. The more space available the more solar that can fit and therefore the more Free energy that can be obtained. Please contact **Pure Energy** for exact measurements.

