

# Solar Hot Water FAQs

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## What are solar hot water and solar thermal?

These are the same thing ~ the most common application is to heat the domestic hot water which is about 20-25% of your heat energy requirement. Supplying around two-thirds of your annual hot water demand by solar heating will typically need 2 or 3 square metres of collector.



## How does the system work?

An electronic controller constantly compares the temperature of the solar collectors with the temperature of the water in the cylinder. Whenever the collectors are hotter than the cylinder, the controller switches on the system's circulating pump. Glycol is then circulated through the collectors and the cylinder's heat exchanger, heating the cylinder in just the same way as a central heating boiler. A central heating boiler will still be required.



## Does it work all year round?

From March to September solar energy could provide all your hot water but will only partly heat the water during the winter months, when your boiler will need to be used to bring it up to temperature. Most homes will need to replace their current hot water cylinder, with a dual coil solar model.

## Is solar water heating a viable alternative to gas or electricity?

Solar should not be seen as an alternative to gas or electricity, but rather as a supplement. Solar cannot totally replace the need for gas or electric heating as there are sometimes days when there is little sunlight. When averaged over a year, a correctly-sized solar system can provide 60%-70% of a household's hot water needs. Providing more than this is unadvisable, as too much heat will be produced in the summer. The hot water system can easily be automated so hot water is guaranteed regardless of sunlight levels.

## **Will water be heated on a cloudy day?**

Yes. Although the heat output of the solar collector is reduced on overcast days it will still be able to provide heating. If it is a very cloudy day or raining, then more gas or electric boosting may be required to maintain water at the required temperature. This system will be automated so you don't have to worry about running out of hot water on a rainy day.

## **Are the solar collectors noticeable on the roof?**

If only the collector is mounted on the roof it should blend into the roof design quite well. Solar collectors are very thin and can be flush-mounted on a roof. From a distance they look somewhat like a skylight. You may have to check with your local council regarding building restrictions when installing your solar collector.



## **What happens if one of the solar tubes is broken?**

Tubes are very strong and not easily broken, but if the worst should happen, solar tubes can be replaced very easily. Solar collectors can operate with several broken tubes, but the efficiency will be reduced, so it is recommended that broken tubes be replaced immediately.

## **Will the solar collector be a fire hazard during hot, dry weather?**

No. The solar collector's components are all high-temperature rated and non-flammable so even during strong sunlight with the circulation pump turned off the system will not catch alight or give off any sparks. The majority of the solar collector's components are stainless steel, aluminium, glass or glass wool. The manifold outlet should be fitted with a temperature relief valve, which will prevent the manifold temperature from exceeding 99°C.

## **Can the solar collector heat water to a high enough temperature?**

Yes, in good weather the solar collector can bring water to boiling point. Generally this is not necessary and so the system should be designed to provide a daily temperature rise of around 25-30°C in the summer. Sizing a domestic system that can bring the cold water up to 60°C in a single day is not logical, because if hot water is not used for one day, the following day the system will be boiling and dumping hot water via the temperature relief valve. This is both a waste of energy and water!

### **What maintenance of the solar collector is required?**

Under normal circumstances no maintenance of the system is required. Due to the shape of the tubes regular rainfall and wind should keep the tubes clean. Should a tube break it should be replaced. Solar collectors can operate with several broken tubes however the efficiency will be reduced slightly.

### **Can solar collectors be used for a large scale hot water production?**

Yes. Solar collectors can be connected in series or parallel to provide large-scale hot water production for a commercial setting such as a school, hotel or office building. There is really no limit to the size of the system, however collectors must be installed in banks of no more than 150 tubes (in series), otherwise the water may boil.

### **Can I heat my swimming pool or spa using a solar collector?**

Yes, if the system is designed correctly. Please see our Swimming Pool FAQ at <http://www.RainWindSun.com/faqs/solar-swimming-pool.html>

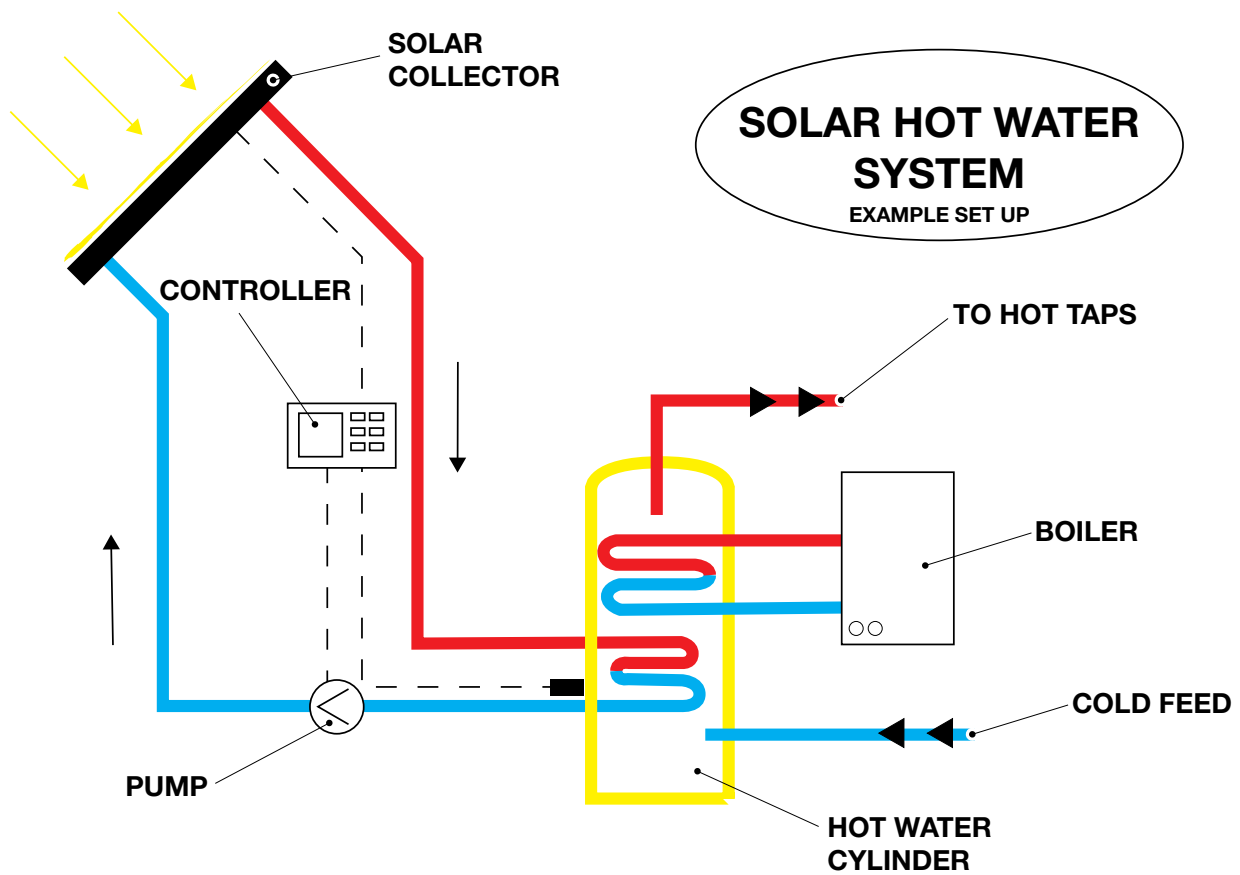
### **What does the price depend on?**

Prices vary, depending on whether a vacuum tube collector, which is more efficient in winter, or a flat plate collector is used and whether mains pressure hot water is required, as well as the specific requirements of your building.

### **How long will it take to recoup my investment?**

Solar collectors are much more affordable than many other hot water heaters. For a household of four, the price of a full system may not be too much more than a new electric or gas system. Depending on your location (solar levels) and current hot water usage, the annual electricity or gas saving will differ. However in a normal household that spends 25% of its electricity bill on hot water heating. You will definitely make savings during the life of the solar hot water heater.

# How It Works...



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