

GO SOLAR | ADVERTISING FEATURE

Getting into hot water

HEATING water accounts for 30 per cent of an Australian household's energy use, making it second only to transport as a household's largest cause of greenhouse gas emissions.

But a solar water heater can reduce your emissions by as much as four tonnes of CO₂ or more a year — the equivalent of taking one car off the road — by using the sun's energy to heat water at zero cost.

Depending on the climate in which you live, a solar hot-water system can provide between 50 to 90 per cent of your hot-water needs.

The initial purchase price will probably be higher than a similarly sized non-solar water heater, but the savings in energy bills will generally pay for this difference in fewer than 10 years (and in as little as four years in some cases). And a solar system generally has a longer lifespan than a conventional unit.

The federal and some state governments are encouraging the use of solar hot-water systems with renewable energy certificates (RECs) and rebates, which can save you a great deal on the cost of a solar water heater, making them more economically viable.

How solar hot water works

Most solar hot-water systems use solar collectors (in the form of panels or tubes) to absorb energy from the sun. Water is heated by the sun as it passes through the collec-



Savings all round: A solar hot-water system can provide almost all your hot water needs.

tors. It then flows into an insulated storage tank for later use.

The most common solar collector is the flat-plate panel. They consist of a dark-coloured, metallic absorbing plate to which a network of pipes is bonded. This is then placed in an air-tight metal box with a glass cover on the top and

insulation on the back and sides to reduce heat loss. As the sun shines on the collector panel, the water in the pipes becomes hot.

In the past few years, evacuated tube collectors have appeared on the Australian market. They consist of two glass tubes (one inside the other) that are bonded to each

other at each end to form a sealed space between them.

The space between the two tubes has most of the gas removed from it (hence they are evacuated), which provides a high level of insulation. As solar radiation passes through the outer glass tube and heats the inner tube, it is trapped

by the lack of gas. Evacuated tube collectors are suited to colder climates as they can perform well even on cloudy days.

Collector panels need to be placed on a north-facing roof. Ensure collectors are not shaded by trees or buildings, particularly in winter, when the sun is low in the sky.

Hot water flows into these tanks either by a passive or active system. In passive systems, the tank is placed above the solar collectors so that cold water sinks into the collectors, where it is warmed by the sun and rises into the tank. A continuous flow of water through the collectors is created without pumps.

In active systems, solar collectors are installed on the roof and the storage tank sits on the ground or another convenient location. Water is pumped through the solar collectors using a small electric pump. This option is good if you want to limit the visual impact of the system on the roof or if your roof can't support the weight of the tank.

The storage tank is usually fitted with an electric, gas or solid fuel booster that heats the water when there is not enough sunlight.

So start planning now for when your existing hot-water system gives up the ghost. Choose one best suited to your climate and your lifestyle. By reducing your hot-water demand (by taking five-minute showers and washing clothes in cold water), you can reduce the size and cost of the system you need.