NSW GOVERNMENT Office of Environment & Heritage

SAVE POWER WHAT CAN YOU DO IN YOUR WORLD?

SOLAR HOT WATER

FAST FACTS FOR HOUSEHOLDS

WHAT YOU NEED TO KNOW

Solar hot water systems use the sun's energy to heat water. Replacing your electric hot water system with a solar hot water system can reduce the electricity consumption of your hot water system by 70 per cent!

This could add up to thousands of dollars of savings over the lifetime of the system. Changing the power source for your home's hot water supply may be the single most effective decision you make to reduce your household power use.

Because solar hot water systems use a 'renewable' source of power – the sun – they also help to conserve our natural resources and the environment.

HOW SOLAR HOT WATER WORKS

New South Wales has the perfect climate for the production of solar power. With a greater amount of daylight hours than most other states or countries around the world, we have incredible potential to harness solar power.

Solar hot water systems use the sun's rays (solar energy) to heat the water circulating through flat, glazed panels (solar collectors) that are usually located on the roof of your home.

Most solar hot water systems are supported by a booster that kicks in when there isn't enough sunlight to heat your water. These boosters run on electricity, gas (natural or LPG) or solid fuel. Gas is the most environmentally friendly option. If you choose an electric booster, connect it to an off-peak tariff to minimise your costs. To do this your tank would need to have a 160 litre storage capacity or greater.

DID YOU KNOW? A solar or heat pump hot water system can pay for itself within 5 to 10 years depending on your household's hot water consumption.

SOLAR HOT WATER SYSTEM CHOICES

Solar hot water systems come in a variety of sizes and with different operating options to suit different households.

If you have a storage hot water system that is in good condition, it may be possible to add solar panels to make it more efficient. However if your system is more than seven years old, its lifespan may be limited and it may be better to replace it with a new solar hot water system.

Here are some of the solar hot water system types you can choose from:

Close-coupled Thermosyphon

This system consists of roof mounted solar collectors combined with a horizontal roof mounted storage tank, which operates off mains pressure and is located immediately above the collectors. It's the cheapest to buy and the easiest to install.

Remote Thermosyphon System

This system works on the same principle as the system above, except the storage tank is located within the roof space and supplies hot water by constant pressure (gravity feed) rather than mains pressure. The base of the tank must be situated at least 300mm above the collectors.

Forced Circulation System

With this system, the tank is located below the level of the collectors, usually at ground-level. Water is pumped from the tank to the collectors and back, by a thermostatically controlled pump. Pumps are not expensive to run, costing between one and two cents per hour.

HOW MANY PANELS DO I NEED FOR MY HOME?

The number of solar panels you'll need for your home will depend on the number of people in your household, the amount of water you use, your local climate and the location of the panels – whether they're facing north or in a shaded area.

A three person household with a 200 litre hot water tank in a hot climate is likely to only need one panel. In a more temperate climate such as Sydney this might increase to two panels, and for colder climates such as the Southern Highlands, it could be up to three.

For an accurate assessment of how many panels your household needs consult your solar hot water supplier for specific size and model specifications.

DID YOU KNOW? The great news about solar or heat pump systems is they have longer life expectancies than an electric hot water system, giving you greater savings in the long run. When you consider that power prices are likely to increase, the payback period will be shorter.

HEAT PUMP WATER HEATERS

Heat pumps are highly power-efficient systems that work like a refrigerator in reverse; pumping heat from the surrounding environment into the hot water tank.

Heat is extracted from the atmosphere using a compressor and used to heat water stored in a tank at ground level. Heat pumps operate during the day, night and even in freezing weather and only use a small amount of power to run. Special types of heat pumps are required for cold temperatures.

DID YOU KNOW? Heat pump fans can be noisy and there are penalties under NSW noise regulations for disturbing your neighbours with heat pump noise overnight. Contact your local council for advice. Consider noise when choosing your system and think about where you should position your heat pump to avoid any noise disturbance to you and your neighbours.

HOW TO GET THE MOST OUT OF YOUR SYSTEM

Before you install your solar hot water system, here's what you need to know to get the most out of it:

- Check the structural strength of your roof to ensure that it can support the weight of the solar hot water system. This can be assessed by a qualified installer.
- Position your collectors on an unshaded north-facing roof (within 20º east or west of north is ideal) at an angle between 15º and 50º (standard roof pitch is usually sufficient).
- Ensure the storage tank and solar collectors are close together to reduce the length of the connecting pipes and that the system is placed close to the bathroom and kitchen to reduce heat loss in pipes.
- Ensure that all components, including pipes, are well insulated. If you live in a cold climate, you'll also need to protect the collectors from frost.
- Do jobs requiring hot water early in the day to allow the water left in the tank to be reheated by the sun. This reduces the booster heating period.
- Install an override switch for the thermostat (or install a timer on the booster) to prevent boosting when there is sunshine available.
- Conserve hot water by using it efficiently (for example, install a 3 star WELS rated showerhead for maximum efficiency).

Follow the manufacturer's recommendations for maintenance of your solar hot water system and ensure all plumbing and electrical work is done by a licensed contractor.

DID YOU KNOW? Solar hot water systems and heat pumps are eligible for Small-scale Technology Certificates (STCs). Depending on the market price of STCs, this could result in more than $1000 discount on your solar hot water system or heat pump.

REBATES TO HELP YOU MAKE THE SWITCH

Households who replace an existing electric storage hot water system with a solar or heat pump hot water system may be eligible for a rebate under the Renewable Energy Bonus Scheme. Find out if you are eligible by visiting www.climatechange.gov.au/government/programs-and-rebates/solar-hot-water.aspx

Join the NSW homes that have pledged to save power by using the Power Pledge tool at **savepower.nsw.gov.au**

Choose from a list of energy efficient actions you can do to save power, money and our environment. Use the Power Pledge tool to track your progress and see how much you can save.

savepower.nsw.gov.au

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