

# SOLAR HOT WATER AND HEAT PUMP FACT SHEET

## Why solar hot water?

Electricity prices have risen significantly in recent years, and will continue to rise 20-40 per cent over the next few years, so it pays to have the most efficient appliances you can<sup>1</sup>. And most people don't realise that heating up water – for bathing, cleaning dishes etc – accounts for up to 30 per cent of the average household's total energy consumption<sup>2</sup>. Solar hot water is the most energy efficient way to provide for your household water heating needs, which saves you money, and helps the environment.

## Are solar hot water and heat pumps different to solar PV panels?

Yes. Solar PV is a technology that converts sunlight into electricity. Solar hot water systems take heat from the sun to provide hot water. Heat pumps transfer heat from the air to heat the water, just like an air-conditioner but in reverse.

Solar hot water is a simple, well-established and reliable technology that has been available in Australia for many decades. Solar hot water technology was invented in Australia and we have an established solar hot water system manufacturing industry. Heat pumps were also first invented in 1855 and have been made in Australia for over 30 years.

## The sun doesn't shine all the time, so won't I run out of hot water at night?

No. Solar hot water systems have tanks for storing hot water for use when the sun doesn't shine, and they can also have gas or electric back-up. Air-source heat pumps do not need sunshine to heat water because they use heat from the air. This means they work at night and in all kinds of weather, even in freezing conditions.

## How do solar hot water systems work?

Solar hot water systems (excluding heat pumps) generally have solar collectors on the roof. They go through the following process to heat up your water:

1. Sunlight is absorbed by solar collectors
2. Cold water moves through the collectors and is heated as it passes through.
3. Hot water is then stored in a tank, ready for use
4. If sunlight isn't enough on its own, a gas or electric booster is used to make sure the water is hot when you need it
5. When you turn on your hot water taps, hot water runs from the tank, through your water pipes and out of your taps

**Heat pumps draw heat directly from the air to heat water. They follow this process:**

1. Heat from the air is used to heat a special liquid known as the refrigerant. The refrigerant boils at temperatures below freezing
2. The refrigerant passes through a heat exchanger and releases heat
3. The cold water passes through the other side of the heat exchanger and collects the heat becoming hot water. The refrigerant becomes a liquid again and is recycled back through the system
4. The hot water is usually stored in a tank just like an electric hot water heater
5. When you turn on your hot water taps, hot water runs from the tank, through your water pipes and out of your taps

<sup>1</sup> AEMC, Retail electricity price forecasts, Found at <http://www.aemc.gov.au/Media/docs/Information%20sheet-9110c5bf-385f-4ed4-8642-f9569133e97e-o.pdf>

<sup>2</sup> NSW Office of Environment and Heritage, Data Assumptions, Found at: <http://www.savepower.nsw.gov.au/about/data-assumptions.aspx>



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The Clean Energy Council (CEC) is the peak body representing Australia's clean energy sector. It is an industry association made up of more than 550 member companies operating in the fields of renewable energy and energy efficiency.

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## Are heat pumps and solar hot water systems expensive?

There are two ways to think about the costs of installing a heat pump or solar hot water system. The first is to look at the price of buying and installing your water heating system. Solar heat pumps and solar hot water systems are more expensive to buy and install than non-renewable alternatives, however a range of government support mechanisms from the federal and state governments help reduce the costs to householders.

Although heat pumps and solar hot water systems are more expensive to buy and install, remember to consider the running costs of your hot water system. Because most of the energy used to heat water in a solar or heat pump hot water system is free (from the sun and air) they have very low running costs. But if you have a full electric or LPG system you have to pay for the fuel and those costs can quickly add up making every energy bill more expensive. So while heat pumps and solar systems cost more to install, they pay for themselves over time through the savings you make on your power bill.

A heat pump or solar hot water system is one household investment that will pay for itself over time.

The payback period is typically five to 10 years for an average household.



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## What should I ask my installer?

Before signing a contract with your supplier/installer, be informed.

### Get a written quote

Your quote is the first step in your contact with the supplier/installer.

As well as specifying the price, the quote should state whether it includes:

- money received from small-scale technology certificates (STCs), and if so how many STCs and at what price for each STC
- money received from other government incentives
- an installation fee.

The quote for your solar hot water system should also provide specifications, quantity, size, capacity and output for the major components of the system, including the:

- solar collectors
- tank
- pipes
- insulation
- booster
- mounting frames
- structure
- travel and transport requirements
- other equipment needed
- system user manual.

## Installation checklist

A step-by-step process to installing your solar hot water system:

- You should conduct your own research into the benefits of having a heat pump or solar hot water system installed.
- You should contact several suppliers/installers to ask about the range of heat pumps and solar hot water systems that are most suitable for you and arrange for some quotes to compare.
- By asking informed questions, you can then select an appropriate supplier/installer. (See Questions to ask your supplier/installer)
- The supplier/installer completes the installation of your solar hot water system.
- You, or the supplier/installer, apply for any applicable rebates.
- Depending on what state you live in, your local government authority may conduct a safety inspection of your heat pump or solar hot water system.



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## Questions to ask your supplier/installer:

### Qualifications

- Are you licensed to install this kind of heat pump or solar hot water system? (Ask to see the installer's registration card or licence and check the expiry date to ensure it is current.)
- Many heat pump and solar hot water manufacturers provide training on how to properly install their products. Have you received this training?

### Experience

- How many heat pump or solar hot water systems have you installed?
- How many heat pump or solar hot water systems of this kind have you installed?
- When was the last time you installed a heat pump or solar hot water system? (New products are constantly entering the market. An installer who has completed recent installations will be more up-to-date on the latest products and regulatory issues.)

### Quality of products

- Does your system meet the Australian Standards and have a Watermark certificate? (Your installer should be able to produce documentation showing your system complies with Australian Standard AS/NZS 2712:2007)
- Is the system eligible to receive small-scale technology certificates (STCs)? (The system must comply with the relevant Australian Standards to do so. Also, STC prices fluctuate daily at market rates like share prices so make sure you get an up-to-date price quote.)
- Do the other system components (such as the pipes and the booster) meet industry standards?
- Have you got feedback from other customers about these products?

### Warranties

- What kinds of warranties come with the products?
- Which warranties are your responsibility and which are the manufacturer's?
- How long have the equipment manufacturers been in the heat pump or solar hot water industry? (Long warranties are meaningless if the manufacturers aren't around in five years.)
- Does the manufacturer have an Australian office?
- Do you provide a warranty on the installation of the system?

### Service agreements and performance

- How will I know if the system is working on a day-to-day basis?
- Do you provide some kind of optional service agreement?
- If problems arise with the system, what services will you provide and for how long?
- Will you be readily available to troubleshoot and fix problems?
- If something goes wrong, who is responsible for repair or replacement costs?

### Paperwork

- Do you apply for STCs and/or other subsidies?

### Quote

- Does the price quoted include or exclude money received from STCs and/or other subsidies?
- How many STCs will the installation be eligible for?
- If STCs are included in the price, what price are the STCs? (STC prices fluctuate daily at market rates like share prices so make sure you get an up-to-date price quote.)
- Is installation included in the quote?
- Does the quote include all labour, transportation and inspection charges?
- Do you give an estimation of system production (efficiency and capacity) with your quote?

### Payment terms

- What are the payment terms?
- Is there a deposit? When is it required? Is it refundable?
- Do I need to pay the whole amount or just the difference after the STCs and/or other subsidies?

### Timeframes

- How long will it take from placing an order to complete installation?
- How long will it take for you to receive your STCs and/or other subsidies?



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