

## 1 Lower costs with a heat pump hot water system (HWS)

Most standalone dwellings, duplexes and townhouses in strata can save money by switching to a heat pump – where space allows.

The savings by upgrading to a heat pump from an electric hot water system could typically average **\$459 per dwelling per couple**, annually. Faster payback for larger families.

The payback period of a heat pump system is between 3-5 years while the lifespan of this system can be up to 15 years.

## 2 A heat pump system is more environmentally friendly

Heat pumps have reduced life-cycle greenhouse gas emissions (GHG) compared to gas or electric resistive HWS when all things are taken into account.

## 3 The heat pump system is more efficient than a conventional hot water system

All HWS can be compared by considering the efficiency measured by the Coefficient of performance – COP.

Typically, the higher the COP the better the efficiency. Typical COP's are:

- Gas boilers - COP of approximately 0.75
- Resistance electric HWS – COP of 1.0
- Heat pumps – COP from 3 to 6 (Note: the COP is slightly lower in winter and slightly higher during summer)

## 4 Two types of heat pump hot water systems

Heat pump systems are configured in one of two ways:

- Integrated (Evaporator and fan mounted on top of the water tank)
- Split (Evaporator and fan separated from water tank)

The integrated heat pump system has greater weight and needs a larger space for installation than a traditional gas hot water plant. The location for the heat pump needs to have sufficient ventilation so that the heat pump can suck in warm air and doesn't end up sucking in the cold air which it emits.

The split heat pump system provides more options for installing a heat pump next to a strata building, as the evaporator and fan (which looks like an air conditioner) can be mounted on an outside wall of the apartment building or in a courtyard and the hot water storage tanks can be installed in an enclosed room.

## 5 Heat pump system manufacturers

There are over 20 different heat pump system brands available in the market. Read the Australian Energy Foundation (AEF) [Heat Pump Hot Water Guide](#) to get recommendations on the best heat pumps to install for your dwelling.

Note: Many plumbers are not aware of the benefits and reliability of modern heat pumps and would rather sell a gas HWS due to familiarity. Also, plumbers typically won't care how much gas costs residents, after installation. Check online for quality reviews of systems and plumbers.



## What is a heat pump and are they common?

"Every fridge and freezer on the planet has a heat pump inside it. There are billions of them. A heat pump moves heat from a cool or cold place, and moves and concentrates it where you want it - either for home heating with a reverse cycle air conditioner on heating mode, in your fridge where it dissipates the heat outside the fridge, or in your hot water system tank."

Further information can be found on the Facebook group "My Efficient Electric Home" by clicking [here](#)

<https://www.facebook.com/groups/996387660405677/search/?q=heat%20pump%20hot%20water%20systems>

## 6 Government rebate

There are now two rebates that apply to heat pumps in NSW, being the Federal STC rebate and the State ESC rebate.

Ensure that your plumber applies both of these rebates and passes the full value onto you.

## 7 Long warranty period of heat pump systems

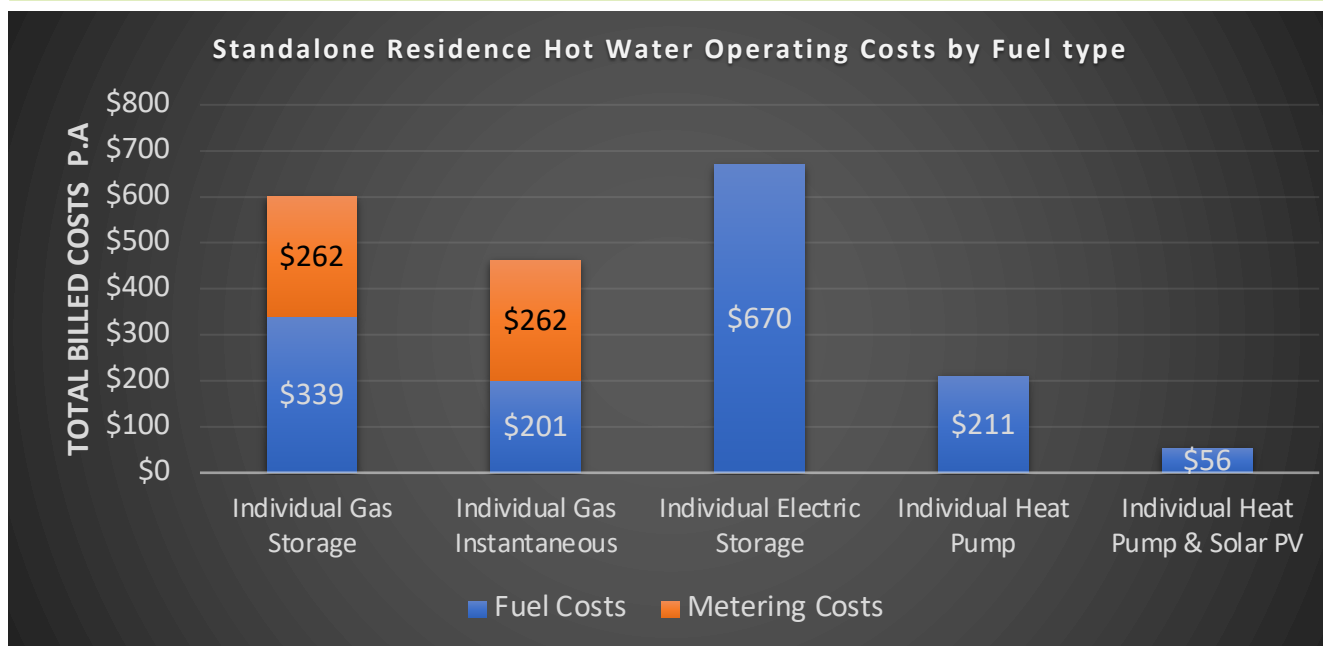
Warranties vary by manufacturer. Read the conditions carefully, especially those concerning labour. Some warranties require professional installation, regular servicing, and adequate water quality. Generally, the warranty period of a split heat pump system is 5 years for the evaporator/fan and up to 10 years for the water storage tank.

## 8 Sound level of a heat pump system

Modern heat pumps are generally quiet with the sound level of a heat pump system is between 25dB (noise level inside a library) to 50 dB (quiet suburban traffic). Like the outdoor unit of an air conditioner, heat pumps do make some noise. Modern heat pumps are usually quiet enough to fade into the background of a quiet suburb. Make sure you always check the decibel level of a particular model before purchase - to ensure a quiet heat pump.



## 9 How do heat pumps compare with other methods of heating water for standalone residences on cost?



## 10 Looking after your heat pump

Heat pumps are low maintenance. The main task is to clean the dust and cobwebs off the fan coil unit. The other task is to release the Pressure Release Valve (PRV) on an annual basis, which is easily done by any homeowner.

## 11 Heat pumps harvest renewable energy

Heat pumps extract the heat from ambient air, even down to -20 degrees C, though become more efficient in warmer air. Some heat pumps extract heat from a body of water or from the ground to transfer this heat into a domestic hot water system or a pool. The ambient air temperature is a renewable source of energy in its own right.

Heat pumps are generally seen to be more cost-effective than the traditional rooftop solar hot water systems, especially in cooler and mixed climate areas.

Heat pumps use a small amount of electricity to operate in 1 to 2 cycles daily.

## 12 Heating your pool with an electric heat pump

Heat pumps are also the most efficient way to heat the water in your pool or spa. A separate heat pump system is required for a pool/spa heat pump from the heat pump for your domestic hot water system. While many pools already have solar thermal heating on the roof to heat the pool, the best way to optimize heating of your pool is to decommission this solar thermal pool heating system and move to a heat pump. A heat pump for a 4m x 8m pool might cost between \$4,000 and \$6,000. Freeing up the roof space which was previously used for solar thermal pool heating can make it available for the installation of solar photovoltaic panels. Generating local electricity can reduce pool heating costs to effectively \$0 p.a. for 12 months of heating.

## 13 Rooftop solar electric panels – perfect for heat pumps

Having 2 types of renewable energy system working together is a perfect combination!

Using solar electricity to operate the heat pumps provides the cheapest hot water available.

NOTE: It is important to have your installer disconnect the Off-Peak meter to utilise solar electricity for hot water. Connect the HWS directly to the main meter circuit and utilise the timer on the heat pump, or in the switchboard - to ensure the HWS only comes on during peak sunny times – say from 9 am to 2 pm. By disconnecting the gas supply to your home, further annual savings through not duplicating energy services, amount to around \$262 annually.

Even with an existing electric element HWS, large annual energy savings can be achieved by utilising rooftop solar electricity.

## 14 When to get one?

The ideal time to arrange to get a heat pump is *well before* your existing system conks out, as it nears the end of its life, especially if considering home renovations.

Take a look at your existing one and check the condition and installation date, and plan ahead to avoid the inconvenience of losing hot water unexpectedly.

For further information visit North Sydney's Futureproofing Apartments [website](https://www.northsydney.nsw.gov.au/Environment_Waste/Get_Involved/Futureproofing_Apartments):  
[https://www.northsydney.nsw.gov.au/Environment\\_Waste/Get\\_Involved/Futureproofing\\_Apartments](https://www.northsydney.nsw.gov.au/Environment_Waste/Get_Involved/Futureproofing_Apartments)