

# HEAT PUMP HOT WATER IN STRATA



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

Most strata schemes that have a common Hot Water System (HWS) or pool heating use gas to heat water. Some use electric hot water heaters and some have solar thermal panels backed up by gas or electricity. High-efficiency heat pumps can do the same job with hot water heating costs of approximately **\$216 per apartment per year**. The saving by moving to a heat pump hot water system from a gas metered system can be approximately **\$468 per apartment per year**. The payback period of a heat pump system is between 5-10 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. This is because most of the energy is extracted from the surrounding air.

The latest green rating systems for buildings don't allow the building to achieve the highest rating if gas is connected to the site.

## 3 Heat pumps are more efficient than a conventional HWS

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

Typically, the higher the COP the better 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. However, when a gas HWS is removed, space savings can be found in removing the flume exhausts.

The split heat pump system provides more options for installing a heat pump in 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 and the hot water storage tanks can be installed into an enclosed plant room.

## 5 Heat pump system manufacturers

There are over 20 different heat pump system brands available in the market. Ask industry consultants to recommend the best options for centralised HWS replacements while getting quotes.

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 the installation. Check online for quality reviews of systems and plumbers.

## 6 Government rebate

There are now two rebates available for heat pump hot water systems. They are the Federal Government 'STC' rebate and the State Government 'ESC' rebate.

The plumber/installer will arrange both rebate discounts at the time of purchase, which simplifies the process.

## 7 Long warranty period of heat pump systems

Warranties vary by manufacturer. Read the conditions carefully, especially those concerning labour warranties from your installer. Generally, the warranty period of a split heat pump system is 2-5 years for the evaporator/fan and up to 10 years for the water storage tanks.

## 8 Sound level of a heat pump system

In general, 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 sound. Modern heat pumps are usually quiet enough to fade into the background of a quiet suburb.

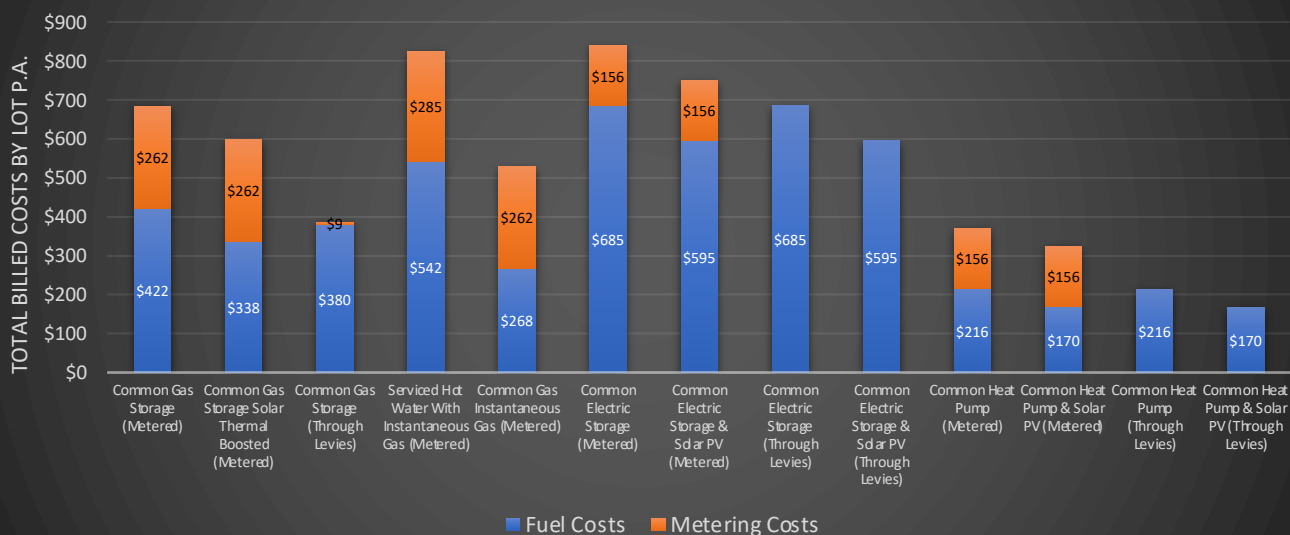
Many systems also have a programmable timer which you can use to keep noise levels down at night. It's also best to keep the installation location away from bedrooms, unless the heat pump is only set to run during the day.

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 strata on costs?

Common Hot Water Plant Operating Costs per Lot p.a.



## 10 Regular servicing costs for heat pumps

All HWS require regular checks and maintenance including heat pumps. There are ongoing maintenance costs for heat pumps to maintain their peak operation, similar to servicing of a reverse cycle air conditioning unit.

A reputable heat pump installer might charge \$1,300 p.a. for two 6 monthly service calls to check the operation of the heat pump system in a typical apartment complex of 40 apartments.

## 11 Metering challenges after heat pump retrofit

When planning to retrofit a heat pump and disconnect from the hot water meters, it is important to have the consent of each resident to change the meter before proceeding.

After retrofitting an electric heat pump to a strata apartment building, the strata committee will need to inform Jemena that it wishes to disconnect the hot water meters. If this is not done, the residents will continue to get billed by their energy retailers "as if" they were still using gas to produce the hot water as the hot water meters will continue to measure the flow of hot water through the meters.

There may be a disconnection fee of ~\$165 per lot in the strata scheme paid for disconnecting the meters.

If there are no gas cooktops, gas BBQ outlets or gas heating bayonets at your strata scheme, you may completely disconnect gas from the premises. Some strata schemes have even dug up the gas pipes to disconnect them entirely. There may be a ~\$1,100 one off disconnection fee for the boundary gas meter. The annual savings per apartment by not having a gas connection will be ~\$262 on top of the gas cost savings.

If you are paying for phone lines for remote meter reading, make sure you also cancel these accounts with your telco.

If there are any issues with ongoing billing, contact the Energy and Water Ombudsman NSW (EWON) or you can lodge a complaint on their [website](https://ewon.com.au): <https://ewon.com.au>

## 12 Heat pumps are renewable energy systems

Heat pumps harvest heat from the air (or in some unique situations temperature in the ground or in a water reservoir) to transfer this heat into a domestic hot water plant or a pool. The ambient air temperature is a renewable source of energy in its own right.

Heat pumps for hot water differ from solar thermal hot water panels which have been installed on many Australian rooftops since the 1950's and physically pipe water through the roof panels to heat the water. Heat pumps use a small amount of electricity, usually during two cycles of about 4.5 to 6 hours each day, depending on whether it is summer or winter.

The most cost-effective way to heat water in Australia today is to pair an electric heat pump with solar photovoltaic panels generating electricity locally on the roof. This can then power one of the two daily heating cycles run by the heat pump.

## 13 Heat pumps are resilient

During a power outage, a heat pump will provide hot water for a longer time to the apartment building than a gas hot water plant as heat pumps have more hot water tanks and store more hot water in reserve. This extra storage of hot water can be thought of as a type of battery.

Heat pumps can be configured with multiple layers of backup so that one heat pump will continue to operate if another heat pump fails. It is even possible to have backup electric element heating coils in the storage tanks to ensure reliable hot water.

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)