

Hot hints

Laundry

Hot water for clothes washing also contributes to your energy use. A standard warm cycle on a top loading washing machine may use between 20 and 50 litres of hot water. A front loading washing machine generally uses less hot water for a warm wash than a top loading machine.

Most clothes washers are connected to both the hot and cold taps, which means that the hot water used for warm washes is drawn from your hot water system.

In the case of a clothes washer with only a single cold water connection, the water is heated internally using electricity. Most of the energy costs (around 80 per cent) are to heat the water.



Kitchen

The amount of hot water used in the kitchen depends on how you wash your dishes and if your dishwasher is connected directly to your hot water system or not.

For dishes washed by hand in a sink full of water will typically use around 5 to 10 litres of hot water.

Most dishwashers have a single cold water connection. This means the water is heated internally using electricity and does not draw from your hot water system.

If your dishwasher is connected to your hot water system it will typically use around 20 litres of hot water per cycle.

Dishwashers connected to cold water heat water during parts of the cycle that require hot water. They are usually more efficient than dishwashers connected to a hot water system.

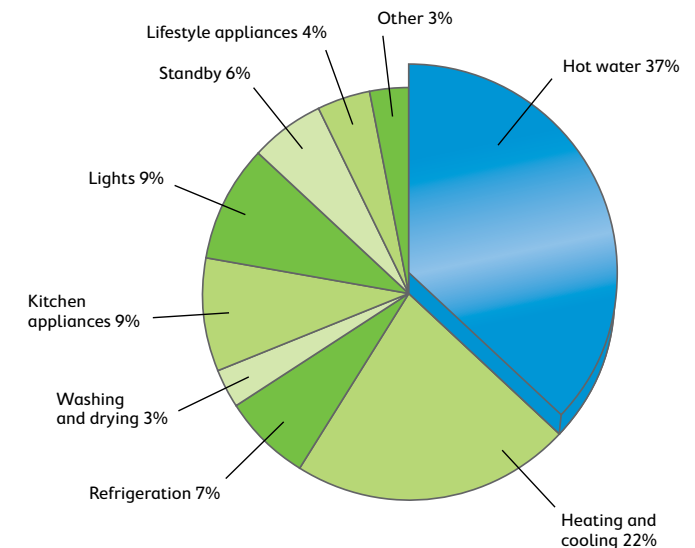
Use this table to compare the energy costs of cold washes with warm washes for a medium sized washing machine (6 to 7kg) that is being used four times a week.

Water temperature and machine type	Estimated cost per cycle	Estimated annual energy cost
Cold wash – Front or top loader	4.4 to 7.1 cents	\$9 to \$15
Warm wash – Top loader (3 star)	11.9 to 21.6 cents	\$25 to \$45
Warm wash – Front loader (3 star)	9.7 to 14.2 cents	\$20 to \$30

Note: The estimated costs in the table are calculated using typical electricity market rates from major energy retailers for residential customers in the Ausgrid network area from 1 July 2017. Energy costs for washing clothes vary depending on the model of washing machine, the washing cycle used and whether the machine is connected to the hot water system.

Average household energy use*

Heating water for showers, laundry and washing makes up more than a third of an average household's energy use, so it is important to heat water efficiently and choose the best energy source and hot water system for your needs.



* Average household energy usage is based on a typical 3-person household in Sydney with all electric appliances, a 500 litre fridge, reverse cycle air conditioning, clothes dryer, dishwasher and halogen lamps. Hot water usage is based on a 7 minute daily shower per person and a standard showerhead on an off peak tariff. Actual energy consumption will vary depending on appliance usage, model and type.

Consider the following when choosing a hot water system for your home

Type of energy used

Choosing the best source of energy to heat water in your home can reduce energy costs and greenhouse gas emissions.

Electricity is widely available however electricity generated from coal produces the highest greenhouse gas emissions of all fuels used to heat water. If you have an electric hot water system, consider an off peak connection to reduce your water heating costs.

You can choose to buy GreenPower, which is a government accredited program for renewable energy from sources such as hydro, wind or biomass. You generally need to pay more for GreenPower in addition to your electricity account.

Gas for hot water is economical and has only around one-third of the greenhouse gas emissions of coal-generated electricity. If natural gas is not available in your area, LPG (Liquid Petroleum Gas) or bottled gas is another option.

Solar uses the sun's energy to heat water through a solar hot water system. The water is heated as it is circulated through solar collectors mounted on your roof, then stored



in a tank. Solar hot water systems require boosting from either gas or electricity to provide hot water on overcast days or at night.

Electric heat pumps are a relatively new form of heating water. They extract heat from the surrounding air and use this to warm water which is stored in a tank. This is an energy efficient, cost-effective option that has a lower environmental impact than a standard electric hot water storage system.

Type of system

Both storage and instantaneous systems are suitable for most households. When deciding between them you should consider the purchase price, installation and running costs, your household hot water needs and the life expectancy of the unit.

Storage systems heat and store hot water in an insulated tank. They operate most cost effectively on solar, natural gas or off peak electricity but they can also run on LPG, continuous electricity and solid fuels such as wood.

Instantaneous systems heat the water as you need it. This means that you don't run out of hot water and you don't require a storage tank. Instantaneous systems run most efficiently on natural gas. They are smaller than storage systems and can be installed internally or externally. Internal gas units must have a flue to ensure the air quality in your home is maintained.



Hot choices

Size of system

Smaller systems may be cheaper to buy and maintain, but when choosing a system you should consider the size of your household and your future needs.

New additions to the family, for example will change your hot water requirements. Consult your supplier for specific product recommendations.



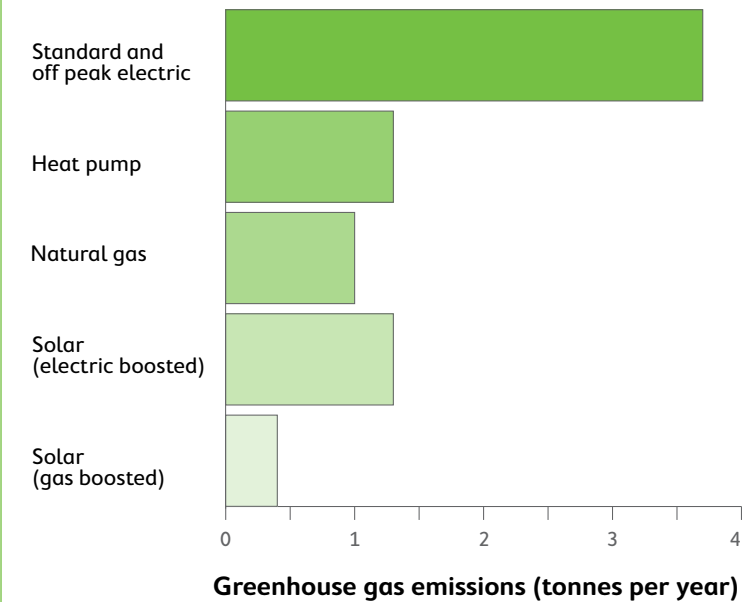
Reasons for choosing a less greenhouse-intensive hot water system

The Australian Government is lowering the cost of solar and heat pump hot water systems by offering Small-scale Technology Certificates (STCs) which can give you a discount on the purchase price. Ask your supplier for more information.

The Australian Government is working with state and territory governments to phase-out greenhouse-intensive electric hot water systems. For more details visit www.climatechange.gov.au/what-you-need-to-know/appliances-and-equipment/hot-water-systems.aspx

Environmental impact

Buying a gas, solar or heat pump water heater will be less harmful for the environment than an electric hot water system. This chart compares the amount of greenhouse gases generated to heat the same amount of water for different hot water systems.



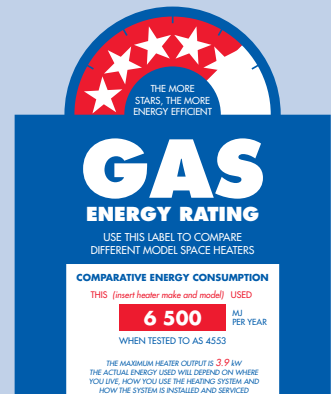
Note: See comparison table for assumptions used.

Find out more about the various hot water systems available

Reaching for the stars

By choosing an energy efficient hot water system, you can save money and reduce greenhouse gas emissions.

Use the energy rating labels to compare models of gas hot water systems and then choose the most efficient system you can afford. Hot water systems typically only need replacing every 10 to 15 years, so the more efficient the system you choose, the more you will save.



Gas

Natural gas is a very efficient fuel for heating water, but it's not available everywhere.

If you are connecting to gas for the first time, there may be installation costs and there will also be an annual service fee for the gas connection of around \$178.

When choosing a gas hot water system, both storage and instantaneous models are available and can be installed inside or outside your home. Instantaneous systems are usually much smaller in size, which is helpful when space is limited. They generally have fewer losses than storage systems, making them an efficient option.

Gas hot water systems carry an energy rating label to help you choose an efficient system.

The more stars the more energy efficient the system, and the lower the running costs will be.

Where natural gas is not available you could consider a Liquid Petroleum Gas (LPG) system which usually consists of two 45kg cylinders or bottles.

As one bottle runs out, you can change to the second bottle while you arrange delivery of a new bottle to replace the empty one. You may need to install gas pipe work and there is an annual rental fee for the bottles. LPG is up to three times more expensive than natural gas.



Electricity

Continuous electricity

Electric hot water systems connected to a continuous electricity supply ordinarily receive power 24 hours a day.

Continuous electricity is used for electric instantaneous or small storage water heaters.

These systems can be very expensive to run if you use a lot of hot water, so they should only be used when less expensive options are not possible. Continuous electricity rates can be up to three times more expensive than off peak rates.

Off peak electricity

Most electricity suppliers offer cheaper off peak tariffs for heating your water outside of peak times. Ausgrid's Off Peak 1 tariff is controlled so that the hot water system only receives power overnight (between 10pm and 7am each day). The running costs are cheaper than natural gas.

If you are concerned about running out of hot water outside of these times, there is an Off Peak 2 tariff which provides

power to the hot water system for 16 hours a day, but it costs a bit more than the Off Peak 1 tariff.

Off peak tariffs can only be applied to storage systems of 100 litres capacity or greater. For systems smaller than this, you will need to connect to continuous supply.



Hot options

Solar

Solar hot water systems are a less greenhouse intensive option and can have lower running costs than a standard electric storage hot water system. Solar hot water systems consist of solar collector panels located on the roof, with a storage tank either on the roof, in the roof or at ground level.

In NSW, solar systems typically provide between 50 to 80 per cent of your hot water free of charge, lowering your energy costs.

Solar hot water systems cost more to buy and install than conventional hot water systems but will generally pay back that higher purchase cost in energy savings over 5 to 10 years, depending on your household's hot water consumption. If you are switching to solar hot water from an electric storage hot water system you may be eligible for incentives or government rebates.

All systems come with a gas or electric booster to supply adequate hot water during periods of low sunshine. Boosters are generally automatically controlled

with a thermostat that activates when the water temperature falls below a desired level.

They can also be installed with a manual override switch on timer to give the user some control over boosting times.

Electric boosted systems can be connected to cheaper off peak tariffs to keep energy costs low. Natural gas or LPG boosted systems have a lower greenhouse impact than electrically boosted systems.



Heat pump




These hot water systems are powered by electricity and work by extracting heat from the air. The heat is transferred to water stored in a tank at ground level.

Heat pumps are more efficient than conventional electric hot water systems and typically use up to 60 per cent less electricity. When connected to an Off Peak 2 tariff, running costs can be quite low.

Heat pumps emit noise similar to that of a pool pump or air conditioner so you will need to make sure your heat pump is located away from your neighbour's premises and your bedrooms. For more information on Noise Regulations, talk to your local council or visit www.environment.nsw.gov.au/noise

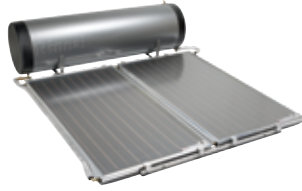




Use this table to compare the main hot water options and choose the best system for your home and lifestyle

Types of hot water systems	Gas instant 	Gas storage 	Electric storage 	
Considerations	<p>Instantaneous systems are smaller and typically have less heat losses than storage systems.</p> <p>For new connections to natural gas, there may be installation and connection fees and an annual service charge (about \$173 a year).</p>	<p>For new connections to the natural gas network, there may be installation and connection fees and an annual service charge (about \$173 a year).</p>	<p>Off peak electricity can be inexpensive and is typically used for larger storage systems.</p> <p>Small storage systems are usually connected to a continuous tariff and can be expensive to run if your household uses a lot of hot water.</p>	
Tariff type	Natural gas	Natural gas	Continuous	Off Peak 1 to 2
Purchase price	Low to medium	Low to medium	Low	Low to medium
Estimated annual energy costs¹	\$419 to \$509	\$464 to \$554	\$702 to \$721	\$252 to \$361
Estimated annual greenhouse gas emissions (tonnes)²	1.0	1.0	3.4	3.4
Rebates available				

¹(a) Estimated annual energy costs are based on a 3-person household with 7 minute daily showers per person and a standard showerhead. For more information visit our hot water calculator at www.ausgrid.com.au/hotwatercalculator
^(b) Estimated electric system annual energy costs are calculated using typical electricity market rates from major energy retailers for residential customers in the Ausgrid network area from 1 July 2015.
^(c) Estimated gas system annual energy costs are calculated using typical gas market rates from major energy retailers for residential customers in the NSW Jemena network area from 1 July 2015.

Comparison of hot water systems

Solar (electric boost)		Solar (gas boost)		Heat pump	
					
<p>Collector panels are located on the roof, with a storage tank either on the roof, in the roof or at ground level.</p> <p>The electric booster can be connected to an off peak tariff to lower energy costs.</p>		<p>Collector panels are located on the roof, with a storage tank either on the roof, in the roof or at ground level.</p> <p>Gas boosters can be either an instantaneous unit or part of a ground storage tank.</p> <p>For new connections to the natural gas network, there may be installation and connection fees and an annual service charge (about \$173 a year).</p>		<p>When used in conjunction with a timer and/or off peak tariff, the energy costs can be quite low.</p> <p>Noise Regulations may restrict use of noisy systems that are installed close to neighbouring homes. Check with your installer to make sure the system is appropriate for your situation.</p>	
Continuous	Off Peak 1 to 2	Natural gas		Continuous	Off Peak 2
High		High		High	
\$246 to \$252	\$88 to \$126	\$147 to \$178		\$351 to \$361	\$180
1.2	1.2	0.4		1.7	1.7

You may be eligible for Small-scale Technology Certificates (STCs) for solar and heat pump water heaters.

(d) Solar hot water system ranges are calculated using 65 per cent solar contribution. Heat pump figures are calculated using a 50 per cent reduction in electricity use compared to an electric storage system.
 2) Greenhouse gas emissions are calculated using the National Greenhouse Emissions Factor of 0.96 kg/kWh for the full fuel cycle of electricity generated in NSW and 0.0643 kg/kWh for the full fuel cycle of natural gas delivered to customers to NSW metropolitan areas, published by the Australian Government, Department of Environment of the National Greenhouse Accounts (NGA) Factors, August 2015.

Images kindly provided by Dux, Rheem, Rinnai and Solahart

Here are a few tips to reduce your hot water costs

General

- Have your system installed by a registered tradesperson, maintain it as required and have it serviced according to the manufacturer's instructions.
- Ensure your unit is the right size for your household.
- Install your system as close as possible to all points of hot water use to minimise heat loss in pipes. If this is not possible, locate it close to where small, regular amounts of hot water are used (typically the kitchen or bathroom).
- Insulate hot water pipes, especially the first two metres leading from the hot water system. Closed cell rubber insulation is recommended to keep the insulation dry.
- Turn your hot water unit off if you're going away for an extended period. Some units have a 'vacation' setting to make this easier. Be aware that some off peak systems will need to reheat overnight when you return.



Electric systems

- The thermostat on the water heater should be set to deliver the lowest acceptable temperature. This will lower your energy costs and extend your tank's life. For energy savings and adequate hot water supply, the optimum water temperature for storage hot water systems is between 55 and 60 degrees.
- You can add extra insulation to a storage tank to reduce heat losses, saving you up to \$15 a year. However, make sure you don't restrict flues or air vents. Also, check with the manufacturer to ensure the warranty won't be affected before installing extra insulation.
- Install a timer on your storage hot water system if you are on a time-of-use tariff to avoid heating water during peak periods.

Gas systems

- When buying a gas water heater, choose one with a 5 or 6 star energy rating. Visit www.energyrating.gov.au for more information.
- Keep the hot water system sheltered and protect any pilot lights from draughts.
- Check the gas flame in your gas unit. When it is burning efficiently it will be blue. If it is yellow you should have it checked by a qualified service technician.

Solar and heat pumps

- If you have a heat pump or electrically boosted solar system, consider connecting it to a low cost off peak tariff to save money on the energy costs.
- Poorly designed and operated boosters for solar systems can reduce the solar contribution by heating water at night, which means that there is no heating provided by the sun the next day.
- Timers or switches can be used to optimise the solar contribution of your system. Consult your installer for more information.
- To maximise the performance of an electrically boosted solar system, when possible use hot water early in the day. This allows the water in the tank to be reheated by the sun.



Hot tips



Top ten tips for hot water savings

- 1 Shaving a couple of minutes off showering times reduces hot water usage and saves up to \$40 per person per year.
- 2 Use cold water for tasks where hot water is not absolutely necessary, e.g. washing clothes. This can mean savings of up to \$20 per year.
- 3 Pre-rinse your dirty dishes using cold water, or scrape them clean before putting them in the dishwasher.
- 4 For a small number of dishes wash by hand instead of running a near empty dishwasher.
- 5 Use the economy cycle on your dishwasher whenever possible.
- 6 Only wash with a full load in your washing machine and dishwasher.
- 7 Showering can make up over two-thirds of hot water usage in the home. By fitting a 3 star rated showerhead you could save up to \$120 per year on energy and water bills.
- 8 Fix dripping taps. A tap dripping 45 times per minute wastes around 1,000 litres of hot water each month, the equivalent of ten bathtubs.
- 9 Insulate the bathtub during installation. This helps to keep bath water hotter for longer.
- 10 Switch to a more energy efficient hot water system such as solar or gas.

Energy rating labels for gas systems

Both instantaneous and storage gas hot water systems carry an energy rating label. The more stars, the more energy efficient the system is, and the lower the running costs will be. Gas storage systems have 3 to 4 stars and high-efficiency models have around 5 stars. High-efficiency models are cheaper to run but more expensive to buy. Gas instantaneous systems generally have higher star ratings 4 to 6 stars.



This brochure is correct at the time of printing. You may need to seek professional advice for your particular circumstances.



Hot water 2015/2016

For more information on how to save on your energy bills, visit our website at www.ausgrid.com.au/save or call 13 15 25.

