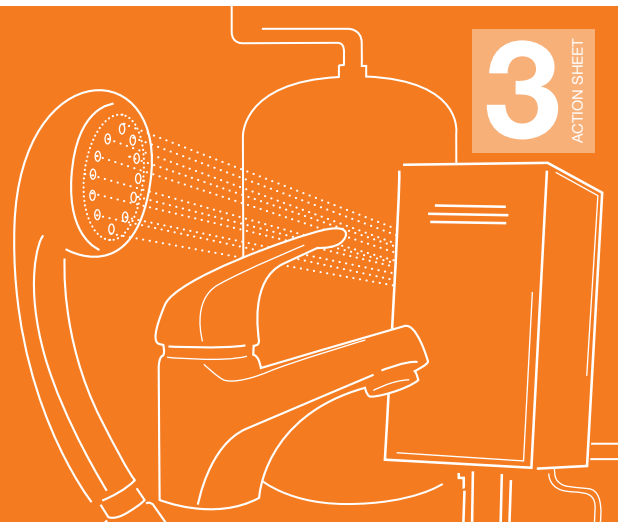


# Get more from your hot water



Whether you're choosing a new hot water system or using the one you already have, there are some easy ways to reduce your energy use without compromising on convenience.

About 30% of an average household's energy use goes on water heating, but you may be using more energy than you need to get the hot water you want.

Cutting out the hot water waste, and choosing an efficient new system, will lower your energy bills and your carbon footprint. It will also make sure that more of our country's resources are left for generations to come.



## Simple ways to save on hot water

### Streamline your system

There are some simple things you can do to cut the waste and make your existing hot water system as efficient as possible.

- **Wrap your hot water cylinder and pipes.** Hold the heat in by wrapping your electric hot water cylinder (you can't put a cylinder wrap on a gas hot water system) and insulating your hot water pipes. Wraps cost around \$60 and pipe insulation is about \$5 a metre from hardware stores. For an older (pre-1987) cylinder and pipes you could save up to \$150 a year.
- **Fix dripping hot taps.** These can waste up to 200 litres of water every day, or hundreds of dollars of energy each year. Replace the washer or fitting – a new washer only costs a few dollars.
- **Check your shower flow.** Around 80% of a home's hot water is used in showers. If your shower fills a 10 litre bucket in less than a minute at normal showering temperatures, install an efficient shower head – you'll get a good shower and it could save you hundreds of dollars a year. Get one with a flow rate of 9 litres a minute or less – you can compare the efficiency of new showerheads at [www.waterrating.gov.au](http://www.waterrating.gov.au)



## Choosing a hot water system

If it's time for a new hot water system, or you just want to save energy, then choosing the right system for your needs can help you reduce your energy use and lower your greenhouse gas emissions.

### What to consider

Knowing how your household uses hot water will help you make better choices about getting the best energy efficiency and value for money – these are some things to consider.

- **Ease your faucet flow.** Where the volume of water doesn't matter – like sinks or tubs that aren't regularly filled up – flow control aerators for faucets cost around \$2 and can halve the water flow.
- **Check your hot water temperature.** It should be no more than 55 °C at the tap so it is low enough not to burn, and it must be 60 °C at the cylinder to prevent the growth of Legionella bacteria. Don't have your thermostat higher than necessary – an extra 10 °C could cost you \$20 to \$30 a year. You might not have noticed it's too high if, as with most modern systems, yours has a tempering valve to add cold water to the hot water coming from your cylinder to prevent scalding. And without a tempering valve, a hot water thermostat set higher than necessary is a scalding risk. You may need an electrician or plumber to adjust your thermostat.
- **Maintain your hot water system** regularly according to the manufacturer's instructions.
- **The size of your household:** how many people live in your house now, and how many might there be in the future?
- **How and when you use hot water:** do you need a lot at once? For example, do six people want to shower in the morning? Does your dishwasher or washing machine draw on the hot water system?
- **How much you pay now:** look at your bills over a 12 month period or contact your energy supplier for help in calculating the cost.
- **How much you'll pay with a new system:** as well as paying for the system and its installation, you'll be charged for running it. You may also have to pay an ongoing supply charge.
- **When designing a new home or changing the layout of your existing home, aim to have all areas which require hot water close together** – your bathroom, kitchen, ensuites, toilets and laundry. As well as reducing the initial plumbing costs, you will save on energy costs as there will be less hot water wasted sitting in the longer pipes.

### Easy hot water habits

With some easy, everyday hot water habits you can cut your energy use – and your environmental impacts – even more.

- Use cold water for washing your clothes. At four loads a week, this could save you around \$50 – \$75 each year.
- Rinse dishes with cold rather than hot water.
- Only run the dishwasher when it is fully loaded, and then on an 'eco', 'half load' or 'fast' wash setting if available.
- Fill the sink with hot water rather than leaving the hot water running when doing certain tasks like shaving.
- Shower rather than bath where practical – it typically uses only half as much water and energy.
- Shorter showers can save you money. In a household of three, each minute you add to your shower time is about \$80 a year.<sup>1</sup>

And remember, if your water use is metered, then every litre you save is saving you more money.

1. Assuming electric water heating (23.7c/kWh), three showers per day, shower flow rate 10.6l/min.

### Storage vs instantaneous systems

There are two main kinds of water heating systems – systems that store water and instantaneous flow systems.

Instantaneous hot water systems heat water as it runs through rather than storing it, which reduces heat loss.

Systems that store water	Instantaneous hot water systems
<ul style="list-style-type: none"> <li>• Solar water heating</li> <li>• Heat pump water heating</li> <li>• Electric storage</li> <li>• Gas storage</li> <li>• Wood or wood pellet water heating</li> </ul>	<ul style="list-style-type: none"> <li>• Instantaneous flow gas</li> <li>• Instantaneous flow electric</li> </ul>

## Types of water heating systems

The common types of water heating systems on the market are listed below. Keep in mind that they're not all created equal – some types of water heating are more efficient than others, and efficiency can also vary between models of the same type.

Types of water heating systems	
Solar water heating	<ul style="list-style-type: none"> <li>• This uses the sun's rays to heat water, which is stored in an insulated hot water tank for later use.</li> <li>• A system usually includes an electric or gas booster for times when the sun can't heat enough water to meet your needs, so you'll always have hot water.</li> <li>• With a well designed and installed system, you'll pay for 50 to 75%<sup>2</sup> less energy than conventional electric water heating costs and produce 50 to 75% fewer greenhouse gas emissions.</li> <li>• There is a \$1000 grant available for solar water heating – find out more at <a href="http://www.energywise.govt.nz">www.energywise.govt.nz</a></li> </ul>
Heat pump water heating	<ul style="list-style-type: none"> <li>• The same technology used for heat pumps can also heat water.</li> <li>• A properly designed and installed system uses less energy than conventional electric water heating and produces fewer greenhouse gas emissions.</li> <li>• It can also work well in some places that aren't good for solar water heaters – places that get less sun, like the south side of hills.</li> <li>• Some systems are better designed for operating in cold places than others – check with the manufacturer.</li> </ul>
Electric water heating	<p><b>Storage cylinder</b></p> <ul style="list-style-type: none"> <li>• An electric element heats the water in an insulated tank to a temperature set by a thermostat.</li> <li>• This is the most common form of water heating in New Zealand.</li> <li>• Using a cheaper night-rate electricity tariff (where available) can save you about 50% of your hot water bill. Before switching to night-rate, test that your cylinder is big enough to store a day's water: switch it off first thing in the morning and back on before you go to bed for a couple of days to see if you run out of hot water. If you have enough hot water to see you through, organise a night-rate tariff with your electricity supplier.</li> <li>• If buying a new electric cylinder, consider a 'solar-ready' tank. This can have a solar panel, heat pump water heater or wetback connected to it in the future.</li> <li>• The hot water pipes should be insulated to reduce heat loss.</li> <li>• Newer electric hot water cylinders, installed after 2002, will be A-grade and well insulated. Older cylinders are likely to be inadequately insulated – a cylinder wrap will stop heat loss.</li> </ul> <p><b>Instantaneous</b></p> <ul style="list-style-type: none"> <li>• Instantaneous flow electric water heaters heat water as it runs through, so they don't need a storage tank which reduces heat loss. Therefore they use less energy than an electric storage cylinder.</li> </ul>
Gas water heating	<ul style="list-style-type: none"> <li>• Systems can run on natural gas (mains gas) or bottled LPG.</li> <li>• Types include instantaneous gas heaters and gas heated hot water storage cylinders.</li> <li>• Instantaneous gas heaters avoid the heat losses from a cylinder and can free up some storage space in your house if a cylinder is removed.</li> <li>• Condensing systems (whether it's instantaneous or storage cylinder) are the most efficient.</li> <li>• Gas storage cylinders tend to have higher heat losses than electrically heated cylinders.</li> </ul>
Solid fuel (wetback) water heating	<ul style="list-style-type: none"> <li>• Many wood or pellet fires, ranges or burner systems can have wetbacks fitted to them. They can work as a valuable supplement to your hot water system.</li> <li>• A wetback is a pipe arrangement that fits in the back of the firebox and uses some of the heat from the fire to heat water.</li> <li>• Keep in mind when sizing a new wood or pellet fire that adding a wetback to a new or existing burner means that you will get less heat in the room than you would without the wetback. Many existing wood or pellet fires have adequate capacity to have a wetback added and still be able to heat the room.</li> <li>• The type and location of your hot water cylinder can often determine if you can fit or use a wetback. Check with the fire manufacturer and a plumber.</li> </ul>

2. When compared to the 180 litre reference Electric Water Heater defined in AS/NZS4234:2008 – Heated water systems – Calculation of energy consumption. How much money you save from solar water heating will depend on a number of factors. These include how much hot water you use, how well the system is designed to meet your needs, and the quality of the installation.

## Costs of a hot water system

### Upfront costs

Generally, the upfront cost of a gas or electric system is between \$1,500 and \$3,000. A heat pump water heater costs between \$5,000 and \$7,000, and a solar water heating system between \$4,000 and \$8,000. These costs include installation and building consent costs, if applicable.

If you are planning to install a solar water heating system you may be eligible for an ENERGYWISE™ grant of \$1,000.

### Running costs

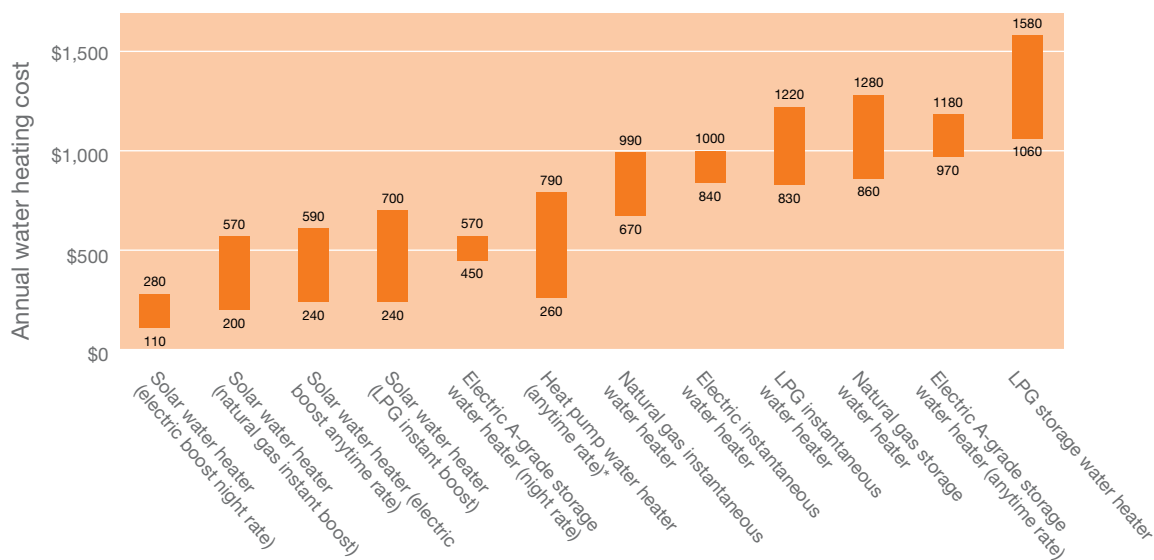
Ongoing running costs over a year can vary quite a bit depending on what water heating system you choose to use, how much hot water you use and your energy tariff. As an example, the following graph shows costs for a typical three-person household. Note that larger households will generally use more hot water and could therefore save even more.

### Environmental impacts

Choosing a hot water system that uses renewable energy sources like the sun (solar and heat pump water heating) or wood (wood or wood pellet water heating) will reduce the environmental impacts into the future.

Whichever system you choose, using it efficiently will mean less energy and water is wasted.

**Indicative running costs of water heating options  
– three person household**



Lowest cost based on high efficiency and warm climate. Highest cost based on poor efficiency and cold climate. Does not include purchase/installation and maintenance costs. Assumes three showers per day, shower duration 9 minutes, shower flow rate 10.6l/min. Fuel cost assumptions: Electricity 23.7c/kWh (Anytime rate)/10.8c/kWh (Night rate); Natural gas 14.7c/kWh; LPG (45kg bottle) \$2.50/kg. Calculated using the HERS hot water rating tool, documented in BRANZ report EC1475C "ANZHERS – Upgraded hot water rating algorithms", March 2009.

\* Running costs for Heat Pump Water Heaters based on Consumer NZ testing of 4 systems in 2008. Check [www.energywise.govt.nz](http://www.energywise.govt.nz) for updated running costs.

**Getting more out of your hot water has lots of benefits, and not just for your energy bills. It also means less energy waste, having hot water that's set to safe and healthy temperatures, and lower environmental impacts – and that's good news for everyone.**