

Water heating



Hot water is costly to produce and, as many workplaces use domestic hot water systems, it is important to use this resource efficiently. For example, supplying just 100 litres of hot water a day can cost \$300 a year and generate three tonnes of greenhouse gases.

Stop hot water costs going down the drain

Install AAA-rated showerheads or flow restricting valves on taps to reduce water-heating costs. These devices can save capital costs by reducing the size of the hot water system required.

In most cases, AAA-rated showerheads cut water consumption from 20 litres to 9 litres a minute without reducing shower quality, and reduce energy consumption by 50 percent.

The cost of AAA-rated showerheads ranges from \$30 to \$80, while aerators and flow regulators for taps cost between \$6 and \$30. The more expensive ones are usually more durable and better value in the long term.

Other ways to save on hot water consumption include repairing dripping taps, and using separate hot and cold taps rather than a single lever tap.

Improving your existing system

Install an adjustable thermostat to provide more control and ensure water is being heated to realistic temperatures. While most units have thermostats set at 80 degrees, they could be more economically set at 60 to 65 degrees.

Insulating pipes between the tank and taps can improve an existing hot water system. The insulation should be at least 10mm thick, particularly the first two metres leading from the hot water system, as this is where most heat energy is lost from the pipes.

Upgrade the insulation of the hot water tank (electric tanks only) by wrapping extra insulation around it.

Heat lost from a small electric hot water system and its fittings costs around \$70 a year. Studies have shown that an \$80 hot water cylinder wrap should save a typical household \$65 a year in electricity costs. Installing the hot water tank as close as possible to the usage point will also minimise heat loss from pipes.

Consider removing or turning off unnecessary hot water systems. For example, if a boiling water unit is installed above a sink, an outlet with a mixing valve could be fitted to supply the modest amounts of domestic hot water needed for washing dishes more economically and efficiently than a separate hot water system.

What's hot in a new system?

Water heaters eventually need replacing and are often replaced with the cheapest option. Unfortunately, this is usually an electric system that is not an eco-friendly choice and more costly over the life of the system. Investing in a more efficient system such as a heat pump or solar system can result in ongoing energy savings and a rate of return of approximately 10 percent.

When choosing a new system it is important to consider your needs. The storage of hot water should be considered as this influences the greenhouse intensity of the system.

Types of hot water systems

Storage systems store hot water in a tank and make it available throughout the day as they continually reheat the water when it starts to cool. Most of these units use cheaper off-peak electricity but results in the emission of large quantities of greenhouse gases. However, fewer greenhouse gases are emitted when the system is powered by solar energy or natural gas.

Instantaneous systems are energy efficient as they heat only as much water as needed and can use natural gas or electricity. They use less energy to produce the same amount of hot water, and don't require a storage unit. Standard units can deliver adequate hot water to one or two points at one time, and water is only heated as it is required.

Solar powered systems heat the water as it circulates through collector panels on the roof and the water is stored in a tank. Solar energy can provide 65 to 80 percent of hot water required with the remainder supplied by a boosting energy source (gas is the less greenhouse-intensive option). Solar powered systems can reduce greenhouse gas emissions by 70 percent compared with standard off-peak electric systems, producing only around 700kg of greenhouse gas emissions a year.

Gas powered systems burn gas to heat the water in either a storage tank or instantaneous system. Look for the ENERGY STAR rating label, as more

stars indicate greater efficiency. Gas powered systems emit about two tonnes of greenhouse gases a year.

Electric powered systems use energy from coal burnt at a remote location to provide electricity to heat hot water in a storage tank or an instantaneous system. Most hot water systems are the electric storage type and are inefficient because water is continually heated even though it may not be required. Small electric hot water systems lose around 2kWh a day due to heat loss from the tank, while large units lose more. An electric powered system produces about 4.8 tonnes of greenhouse gas emissions a year, equivalent to a family car.

Heat pumps extract heat from the surrounding atmosphere using a refrigerant gas and a compressor. Water is heated and stored in a tank at ground level. Solar energy or electricity can be used to boost heat pumps, but gas cannot. They are the new high efficiency form of water heating, which uses around 66 percent less electricity than other electric water heaters. For every unit of electricity put into the heat pump, three units are produced as heat, thereby delivering 300 percent efficiency. Like gas-powered systems, heat pumps emit about two tonnes of greenhouse gas a year.

For more information

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