

HOT WATER HEATING

– Reducing your needs to save energy

Although hot water heating accounts for only 4% of supermarket energy consumption, there are a number of straightforward ways that you can address system losses and reduce its cost to your business.

Supermarkets rely on hot water for cleaning their premises and equipment in bathrooms and kitchens. Different hot water heating systems are available - electric storage, inline gas-fired, heat pump, waste heat recovery and solar – and these heat water using different means. Some heat water on demand and others store heated water in tanks.

COMMON HOT WATER HEATING INEFFICIENCIES

The most common inefficiencies that drive up the costs associated with hot water include:

- Hot water leaking from poorly maintained pipes
- Inefficient hot water system fittings
- Heat losses resulting from insufficient pipe insulation
- Using hot water when cold water would do
- Setting hot water temperature points higher than needed
- Using equipment and appliances that are not water efficient
- A poorly maintained or inefficient hot water heater

SAVE MONEY BY INCREASING HOT WATER HEATING ENERGY EFFICIENCY

You can improve the performance of your hot water system in three ways:

1. **Use less hot water** – limiting hot water use is the most cost-effective action you can take to reduce hot water costs. Suggestions include eliminating leaks, using efficient fittings that reduce hot water flow, using hot water more appropriately by using cold water cleaning techniques and upgrading to more water efficient equipment and appliances.
2. **Improve the efficiency of your existing system** – you can improve your existing system by lowering the set-point temperature of your system, reducing system heat losses from piping and storage tanks, conducting routine maintenance on your hot water heater, switching your system off when hot water won't be needed for an extended period and recovering heat from other equipment to preheat the feed water to your hot water system.
3. **Upgrade your existing system** – before selecting a new hot water system, it is a good idea to look for ways that you can reduce your hot water usage, as well as review the way you use hot water. This will ensure you understand your needs and won't specify a system that is oversized. Generally speaking, the most efficient systems use a two stage heating process where stage one utilises "free heat" (for example, solar or waste heat) and stage two uses gas or electricity to raise the temperature up to your desired levels, if necessary.



OTHER OPPORTUNITIES TO SAVE MONEY

- When looking at your hot water use you should also consider the following:
- Using high pressure systems for cleaning. Although high pressure cleaning systems use more electricity but less hot water than low-pressure systems.
- Using separate hot and cold water fixtures instead of a combined mixing tap will save hot water, as no hot water will be used when only cold water is required.
- Specifying the use of cleaning products and methods that don't require the use of hot water.

EXAMPLE STORE ENERGY EFFICIENT SYSTEM

A store with daytime and early evening hot water needs and located in an area with high levels of sunlight and access to natural gas could look at installing a solar heater as the first stage with an inline gas-fired water heater as the second stage.

THE BUSINESS CASE – REDUCING HOT WATER USE

Reducing your hot water use can be as simple as installing flow restrictors to taps in kitchens, cleaning stations and back of house bathrooms.

Flow restrictors are inexpensive and effective, reducing the flow of water from taps to approximately six to seven litres per minute. This moves your equipment's use from a 2 Star WELS rating to a 5 Star WELS rating.

The table below estimates the savings in energy costs that can be achieved through reduced hot water use in your store:

Water reduction (kL per annum)	Equivalent to stopping a hot water tap from flowing for a time (per annum)	Energy saving (per annum)
1,000	>2 hours	\$295
2,000	>5 hours	\$590
5,000	>12 hours	\$1,475
10,000	>20 hours	\$2,950
20,000	>50 hours	\$5,900

Cost	\$\$
Benefit	☺☺
Simplicity	✓✓

"We just started a manual system instead of the automatic timers and it's just a matter of training staff to go and turn them on at certain times. In summer we were looking at saving about \$3,000 in a month. It was massive and that wasn't through changing lights or anything, that was just through putting 12 hours into breaking down our light times and then just staff training after that."
- Queens SUPA IGA Manager, Stuart Bain

MORE INFORMATION

For further information about how to improve your hot water heating system's energy efficiency, including an action planning checklist and advice about the types of hot water heating solutions that could work for your premises, refer to **Section 4.4** of the Handbook.

Cost	\$ = lowest cost, \$\$\$ = highest cost
Benefit	☺ = lesser energy efficiency, ☺☺☺ = greater energy efficiency
Simplicity	✓ = requires external/technical expertise, ✓✓ = can be undertaken in-house but may require some external expertise, ✓✓✓ = can be undertaken in-house.