Some clubs use a lot of hot water, and have big energy bills to match. Since many clubs have old, inefficient water heaters, replacing them with modern, efficient models can be a smart economic and environmental choice. If your club is considering replacing its old hot water heater, or adding more capacity, it’s important to think about the club’s needs and usage patterns first. There are several different types of water heater available, all with different pros and cons based on how and where they are used.

**SOLAR THERMAL WATER HEATING**

Solar thermal water heating has the lowest running costs of all water heaters, meeting over 50% of a building’s hot water needs using free solar energy. They are also environmentally friendly, as they minimise the need for gas or electricity. However, a backup or ‘booster’ system, such as wetbacks, may still be required for times when there is not enough sun to meet hot water demand. In some cases solar thermal heaters can be connected into your current system - check with your plumber.

**HEAT PUMP WATER HEATING**

Heat pump water heaters (or HPWH) work by drawing heat from the outside air and using it to heat your water. Because it uses electricity to ‘move’ heat, rather than producing it directly, HPWHs are extremely efficient and cheap to run. However, they have a higher upfront cost. Because they draw their heat from the air, you will need to select a model designed to operate in low temperatures if you live in an area with a cool climate.

**ELECTRIC HOT WATER CYLINDERS**

Electric hot water cylinders are a common form of water heating in New Zealand. They have the lowest upfront cost of all water heating options, but are not very efficient and thus relatively expensive to run. This is because some of the heat in the stored water is constantly lost into the air and through radiation, a phenomenon called ‘standing loss’. One key advantage is that certain cylinders are available with additional connectors that allow other water heating options, such as solar thermal, to be added in the future.

**CONTINUOUS FLOW SYSTEMS**

Continuous flow systems can be powered by gas or electricity, and are designed to heat water instantly as it passes through the unit (without storing it). As there are virtually no standing losses of heat, they are efficient and well suited to buildings with variable usage patterns, like sports clubs. It’s important to note that gas is not a renewable resource, and produces greenhouse emissions when used. Electric models are available, but require separate heavy-duty wiring to accommodate the high currents required, and may struggle to provide enough hot water for larger sports facilities.

**GAS HOT WATER CYLINDERS**

Gas hot water cylinders are similar to their electric counterparts in that they are relatively cheap to buy, but expensive to run due to standing losses. They can be located outside, useful where space is an issue.

**GENERAL DESIGN TIPS**

- Look to reduce your hot water usage first. This allows you to specify a smaller system, reducing upfront and running costs. Installing low-flow, timed-use fixtures is a great way to achieve this.
- Place the system as near as possible to where the bulk of hot water will be used. This minimises pipe length, in turn reducing the amount of heat lost through them.
- Pipe lagging insulates your pipes, reducing heat losses. If plumbing work is being done, make sure lagging is fitted to any new hot water piping.
- Check out the EECA water heating calculator at www.energywise.govt.nz/tools/water-heating/. This tool lets you compare estimated upfront and running costs between different types of water heater based on your usage.

**Disclaimer:** Always consult with a registered professional before selecting or installing a water heater. The above information is intended as a guide only. LiteClub accepts no responsibility for negative outcomes incurred.