

# Part B

## Facility elements and checklist

### How to reduce energy costs

Key considerations for  
local physical activity and  
sports facilities



Think of the environment. Please avoid  
printing this A4 document unnecessarily.

# Foreword

## How to reduce energy costs for local physical activity and sports facilities.

There are many challenges arising from the current economic circumstances and the needs for operators to maintain financial and environmental sustainability.

This guidance aims to give practical support on how energy efficiency measures can reduce running costs. The suite of documents describe the range of local physical activity and sports facilities and many types of energy reduction features that are available. It also provides a worksheet tool to help analyse individual situations and develop an energy reduction action plan.

## Illustrations

The references, images and links to commercial products and organisations used in this guide are intended to illustrate the range of technologies that are available on the market at 2Q2022, but should not be taken as an endorsement by Sport England of the particular products or services concerned.

## Document accessibility

This document has been designed for comfortable reading at A4 and on a laptop screen, but can also be printed at A3 for large print versions. The pdf is accessible and has been tested to work with text readers.

The guidance has separately downloadable parts – see page 3 summary. They have been developed to enable readers to digest and process the information easily with illustrations and tables for quick reference.

## User guide

Before using this design guidance note for any specific projects, all users should refer to the User guide to understand when and how to use the guidance as well as understanding the limitations of use.

Click here for **User guide** and other  
**Design and cost guidance**

## How this document relates to other guidance

The **How to reduce energy costs** guidance documents should be read alongside related Sport England guidance and links highlighted below:

### Sport England How to reduce energy costs documents

Part A Introduction and overview



**Part B Facility elements and checklist**

Part C Worked examples of typical facilities

Part D Frequently asked questions (FAQs)

Part E Project worksheet

For web page

[Click here](#)

### Other Sport England guidance

Environmental sustainability

[Click here](#)

Clubhouses

[Click here](#)

Club matters

[Click here](#)

Funding

[Click here](#)

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# 1.0 Indicative overview of facility elements

Table B-1 overleaf gives an overview of the range of accommodation that can be found in local physical activity and sports buildings. It includes both outdoor and Indoor energy use elements and suggests the likely main energy use categories.



**Organisations should self-assess their energy use profile and target savings on high-use areas.**



**Table B-1 Typical energy use characteristics**

Key: ● = typical; ○ = less typical

Category	Outdoor		Indoor				
Area type	Access and parking	Pitches	Activity space	Secondary activity space	Toilets and changing	Clubroom / social space	Catering
Clubhouse	●	●			●	●	●
MUGA/ AGP/ tennis	●	●			●	●	○
Community hub	●	●	●	○	●	●	●
Boxing gym	●		●	○	●	●	●
Gymnastic centre	●		●	○	●	●	○
Multi-sports hall	●		●	○	●	○	○
<b>Overall energy uses</b>							
Building fabric losses			●	●	●	●	●
Heating			●	●	●	●	●
Hot water			●	●	●	●	●
Lighting (internal)			●	●	●	●	●
Mechanical ventilation			●	●	●	●	●
Mechanical cooling			●	●	●	●	●
Equipment	●	●	●	●	●	●	●
Security	●	●	●	●	●	●	●
Cleaning	●	●	●	●	●	●	●
Maintenance	●	●	●	●	●	●	●
Lighting (external)	●	●					
Irrigation	●	●					
<b>Main energy use(s)</b>	Lighting	Lighting	Heating	Heating	Hot water	Lighting/ heating	Electricity/ hot water

## 2.0 Checklist for energy saving considerations

The checklist below <sup>1</sup> provides a typical energy use profile for a range of facility features under the following categories:

- Lighting (internal/ floodlighting/ external);
- Appliances;
- Building fabric;
- Building plant and systems;
- Water efficiency.

**Table B-2 General notes on energy saving features**

Subject	Characteristic	Consideration
<b>Lighting (internal)</b>	Generally	Reducing lighting energy use can make a real difference to a club's electricity bills.
	Controls	<p>Occupancy sensors that turn the lights off when the room is not in use are an effective way to save energy, and are particularly effective in areas that are occupied intermittently. These cost from as little as £25 each to buy (plus installation costs) and will often pay for themselves in less than a year in situations where lights are frequently left on.</p> <p>Ensure all light fittings are LED lights, which use around half the energy of fluorescent fittings.</p> <p>Automatic lighting controls can:</p> <ul style="list-style-type: none"> <li>• Switch lights on and off as people enter and leave rooms;</li> <li>• Dim the lights down if significant amounts of daylight are within the space.</li> </ul> <p>Consider smart lighting systems. They are:</p> <ul style="list-style-type: none"> <li>• Easy to install and can be controlled via mobile apps or web sites and/or voice-activated devices;</li> <li>• Can be combined with PIR occupancy detectors to switch on and off when people enter and leave rooms;</li> <li>• Be dimmed down easily to lower levels and reduce energy used.</li> </ul>

<sup>1</sup> Based on text from former Green Clubs web site and is not exhaustive.



Subject	Characteristic	Consideration
<b>Floodlights</b>	Generally	Floodlights are energy intensive and should only be on when required. Extended warm up times, or leaving lamps on for longer than necessary, can waste energy. The typical start up time for metal halide lamps is 1 – 8 minutes, and for high pressure sodium (SONs) is 10-20 minutes. Alternatively, installing timers will ensure that lighting is switched off automatically. For clubs with multiple pitches/courts, consider zoning individual pitches/courts or training areas to reduce the number of floodlights that need to be switched on at any one time.
	Selection	Where lighting systems are not LED, consideration should be given to an upgrade. Specialist advice should be taken on the overall design, the most appropriate light fittings and time and illumination controls.
<b>External lighting</b>	Generally	<p>Ensure all light fittings are LED lights:</p> <ul style="list-style-type: none"> <li>• LED fittings may use around a third of the energy that traditional metal halide or SON fittings might use;</li> <li>• LED fittings will last considerably longer than metal halide or SON fittings, thus they have a much better lifecycle cost;</li> <li>• Ensure lights are only ever on when needed. LED fittings don't have the same warm up time of the more traditional fittings, so should be used accordingly.</li> </ul>



Subject	Characteristic	Consideration
<b>Appliances</b>	Generally	See Energy Saving Trust website at: <a href="https://energysavingtrust.org.uk/energy-ratings-everything-you-need-know/">https://energysavingtrust.org.uk/energy-ratings-everything-you-need-know/</a>
	Hand dryers	<ul style="list-style-type: none"> <li>Some appliances can be energy intensive depending on age and specification. When refurbishing or replacing hand dryers, consider buying an energy efficient high-speed model. These can be up to 80% more efficient than conventional hand dryers. There are a range of models available costing from around £90 up to £900 each for the highest efficiency models (plus installation costs). Payback is estimated by manufacturers to be around five years for the most efficient models.</li> </ul>
	Kettles	<ul style="list-style-type: none"> <li>Make sure that kettles are only filled up with the amount of water needed. Over filling will use unnecessary energy – a simple notice will remind users to only add the water that they need.</li> </ul>
	Ovens and hobs	<p>Inefficient use of hobs can waste both energy and money. Use training and signage to raise user awareness of the following:</p> <ul style="list-style-type: none"> <li>Make sure the correct size pots and pans are used for the job and that they are fitted with lids to conserve energy and cook the food more quickly;</li> <li>When pans come to the boil, turn hobs down to the minimum to simmer (boiling does not speed up the cooking process);</li> <li>Turn the hob off when not in use;</li> <li>Only use the hobs for cooking meals and not for heating rooms;</li> <li>Do not leave oven door open for longer than necessary;</li> <li>Be aware of how long it takes to heat the oven up to the required temperature so that it isn't turned on earlier than needed;</li> <li>When buying a new oven, ensure that energy efficiency is considered;</li> <li>Moderate improvements could save up to 10% of the energy used.</li> </ul>

Subject	Characteristic	Consideration
<b>Appliances cont/d</b>	Televisions	<ul style="list-style-type: none"> <li>• Televisions use electricity to run and should be turned off when not in use. Put a notice in your meeting room to remind users to switch the TV off as soon as they finish with it;</li> <li>• If you are considering buying a TV, make sure that you look at the energy efficiency rating – a high efficiency model, such as an LCD TV and LED backlighting, will save you money on your energy bills.</li> </ul>
	Microwaves	<ul style="list-style-type: none"> <li>• Microwaves are more energy efficient than ovens, and should be used in place of an oven when heating up smaller amounts of food;</li> <li>• Ensure that energy efficiency is taken into consideration when purchasing a new microwave.</li> </ul>
	Fridge freezers	<ul style="list-style-type: none"> <li>• Fridge freezers are a significant energy user in club kitchens. Reduce the amount of energy used by making sure that they are positioned away from hot areas like hobs, that doors are not left open for longer than necessary and that seals on doors are kept in a good condition to maintain air tightness;</li> <li>• Keep fridge temperatures between 3 to 5°C. Turning up the temperature by just 1°C could reduce energy consumption by 2-4% without impacting on food quality. Freezer temperature should be kept at around -18°C, and the freezer should be regularly defrosted to prevent the build-up of ice from reducing its operating efficiency;</li> <li>• Compartments should not be overfilled, space is needed for the cold air to circulate and more energy will be used if they are too full;</li> <li>• When replacing a fridge, choose the most energy-efficient model. An A-rated fridge (A+++ in previous system) can use over 50% less energy than the lowest-rated models;</li> <li>• With moderate improvements in efficiency, and effective use of equipment, savings of up to 10% of fridge freezer energy use could be achieved.</li> </ul>

Subject	Characteristic	Consideration
<b>Appliances cont/d</b>	Dishwashers	<ul style="list-style-type: none"><li>• Dishwashers can use considerable amounts of water, energy, detergent and rinse aids. Make sure the dishwasher is only switched on when it is fully loaded, and always turn it off when it is not in use. Use the minimum temperature that provides satisfactory cleaning for the model. Make sure that the dishwasher is regularly cleaned and maintained so that it continues to operate efficiently. When purchasing a new dishwasher, look for a model that is both energy and water efficient. Where possible, purchase eco-friendly detergents;</li><li>• With moderate improvements in efficiency, and effective use, savings of up to 10% of dishwasher energy use could be achieved.</li></ul>
	Tea urns	<ul style="list-style-type: none"><li>• To save on energy used to heat water, make sure that tea urns are switched off overnight and at weekends. Fitting a seven day timer to the switch will mean that the urn automatically switches off and on again when needed. These are inexpensive (from around £8) and could halve the tea urn's energy consumption;</li><li>• When purchasing a new tea urn, select an energy-efficient model.</li></ul>
	Deep fat fryers	<ul style="list-style-type: none"><li>• Switch fryers off immediately after use to save on energy consumption;</li><li>• When purchasing a new deep fat fryer, select an energy-efficient model.</li></ul>

**See Energy Saving Trust website at:**

<https://energysavingtrust.org.uk/energy-ratings-everything-you-need-know/>

Subject	Characteristic	Consideration
<b>Appliances cont/d</b>	Extractor fans	<ul style="list-style-type: none"><li>• Always turn extractor fans off when not in use. Use posters to create an awareness campaign that encourages people to turn equipment off after use. Clean the extractor hood at regular intervals as recommended by the manufacturer, in order to ensure that it maintains its efficiency. For larger extractors, consider fitting a variable speed drive (VSD) so that the speed of the fan can be varied, as it does not need to be on full power at all times. Using a VSD to slow down a fan from 100% to 80% of its speed can save as much as 50% on energy use;</li><li>• With moderate improvements in efficiency, and effective use of equipment, savings of up to 10% of extractor fan energy use can be achieved;</li><li>• Ensure any ventilation system has a form of control suitable for application;</li><li>• Extract fans in toilet can be linked to lighting – so only operate when light is switched on;</li><li>• Fans in shower areas can be linked to a humidity sensor, to only operate when the space is humid, i.e., when the showers are operating;</li><li>• Fans in changing rooms can be time clock controlled, to only operate at times when the space is in use – and can be further automatically switched off when people are not in the space and automatically switched on when people enter again;</li><li>• Where fans are old, consider replacing, as new fans are likely to be more energy efficient.</li></ul>

**See Energy Saving Trust website at:**

<https://energysavingtrust.org.uk/energy-ratings-everything-you-need-know/>

Subject	Characteristic	Consideration
<b>Appliances cont/d</b>	Drink chillers	<ul style="list-style-type: none"> <li>Chilling drinks can be responsible for up to 10% of club energy use. If there are periods of time when the club bar is not used, make sure that fridges are emptied and turned off;</li> <li>Avoid leaving fridge doors open for longer than necessary, and make sure that door seals are kept in a good condition to maintain air tightness;</li> <li>Keep fridge temperatures between 3 to 5°C. Turning up the temperature by 1°C could reduce fridge energy consumption by 2-4%;</li> <li>Don't overfill fridges – space is needed for cold air to circulate effectively;</li> <li>When replacing a fridge, choose the most energy-efficient model. An A-rated fridge (A+++ in previous system) can use over 50% less energy than the lowest-rated models;</li> <li>Consider fitting a device such as the Energy unit to drinks coolers. These allow the cooler to 'sleep' when not in use, but to switch on to cool the contents in time for trading hours. The unit also allows the coolant to be replenished in non-active hours. A unit costs around £60, and can save up to 40% of cooler energy consumption (based on manufacturer's estimates) and will payback in less than 10 months.</li> </ul>
	Vending machines	<ul style="list-style-type: none"> <li>Vending machines use energy for lighting, cooling and operation. For vending machines which do not require continuous refrigeration, install a seven-day timer so that it is turned off outside of the club's hours of use. Timers cost from around £8, and turning the vending machine off at night will save over 50% of its energy use;</li> <li>Make sure that vending machines are running at the optimum temperature (in line with manufacturer's instructions) and aren't cooler than they need to be. Excessive cooling wastes energy and increases energy bills.</li> </ul>
	Gym equipment	<ul style="list-style-type: none"> <li>Gym equipment such a treadmills and rowing machines uses energy to operate;</li> <li>Turn this equipment off at times of the day when it is not in use, and always at night. A seven day timer to turn equipment off and on at the correct times, is easy to install, costs from around £8 and could save up to 50% on energy use;</li> <li>If the equipment has a standby mode, make sure that this is enabled so that when it isn't being used it can go into a lower energy mode to reduce costs and prolong the life of the equipment;</li> <li>When buying new gym equipment, always ask about the energy efficiency and purchase the most efficient models possible.</li> </ul>

Subject	Characteristic	Consideration
<b>Appliances cont/d</b>	Water coolers	<ul style="list-style-type: none"> <li>Water coolers use energy to maintain the temperature of the chilled water. Install seven-day timers on water coolers so that they are turned off outside of the sports club hours. Timers are easy and cheap to install from around £8 each. Turning the water cooler off overnight can save around 50% on its energy use;</li> <li>Consider replacing water coolers which use bottles with a mains filtered water cooler which is plumbed directly into the mains water supply. These prevent the waste produced from the water cooler bottles and often cost less to run.</li> </ul>
<b>Building fabric</b>	Windows	<ul style="list-style-type: none"> <li>Heat is lost through the windows of a sports club. There are a variety of actions that you can take to help reduce the costs associated with this.</li> </ul>
	Draught stripping and sealing	<ul style="list-style-type: none"> <li>Make sure that effective draught stripping is fitted around the windows;</li> <li>Inserting brush strips into the frames stops draughts, improves comfort, and provides savings on heating bills;</li> <li>Draught stripping is cheap (from about £2 for a 5m strip), easy to install, and has a payback of 1 to 2 years.</li> </ul>
	Curtains and blinds	<ul style="list-style-type: none"> <li>Ensure that windows are closed when the heating or air conditioning is on and that blinds and curtains are being used effectively:</li> <li>In winter – draw curtains and blinds at night to keep warmth in.</li> <li>In summer– use curtains and blinds to help reduce solar gains and to reduce glare.</li> <li>It may be helpful to position a notice in your meeting room to help raise awareness of these issues.</li> </ul>
	Secondary glazing	<ul style="list-style-type: none"> <li>Consider fitting secondary glazing to any single glazed windows. This can deliver most of the improvements that would be expected from modern high-performance windows, and can reduce window heat loss by up to 50% with a payback of around five years.</li> </ul>

Subject	Characteristic	Consideration
<b>Building fabric cont/d</b>	Window replacement	<ul style="list-style-type: none"> <li>• Primary window;</li> <li>• Air gap;</li> <li>• Secondary glazing;</li> <li>• Consider replacement of the windows with A+, A or B-rated double glazing, and estimate the likely payback;</li> <li>• The cost of secondary or double glazing will be dependent on the number and size of the windows.</li> </ul>
	Roofs	<ul style="list-style-type: none"> <li>• Heat is lost through the roof of a sports club. For clubs which contain a loft space and flat ceiling, the most cost effective measure to reduce this is to insulate, which can reduce heat loss by up to 25%;</li> <li>• Loft insulation costs range from around £5 to £10 per square meter plus installation costs. Payback will depend on the nature of the club building, but can be expected to be around 4 or 5 years for a club which was previously un-insulated;</li> <li>• Clubs which already have loft insulation should check that it is at the recommended level. If there is 100mm or less, insulation should be topped up to 275mm.</li> </ul>
	Exterior walls	<p>Heat loss occurs through the walls of a sports club. There are a number of ways to reduce this heat loss, depending on wall type:</p> <ul style="list-style-type: none"> <li>• Draft stripping and sealing: Consider using draught stripping to seal any gaps where draughts can be felt around areas such as skirting boards and roof joins. This is a cheap and effective measure which normally pays back within 1-2 years;</li> <li>• Top-up wall insulation: If the club does not have cavity walls, solid wall insulation can potentially be added to the inner or outer face of walls. However, this can alter appearance, and access to building systems (e.g. heating and electrical). If your club is of a cavity wall construction type, then the best way to insulate is to add cavity wall insulation. Cost will depend on the size of the club, and payback is generally less than six years.</li> </ul>



Subject	Characteristic	Consideration
<b>Building fabric cont/d</b>	Exterior doors	<ul style="list-style-type: none"> <li>Exterior doors can be a major source of heat loss. For example, a 3mm gap around the door could let in as much cold air as a brick removed from a club wall;</li> <li>Keep doors closed when heating or cooling is turned on. Fit draught stripping around the edges of outside doors. Brush strip draught excluders for the bottom of a door can cost as little as £3 per door (plus installation costs) and could pay for themselves in less than a year. Carry out regular maintenance to draught proofing to make sure it is adequate and replace it if necessary. Heating and cooling bills can be reduced by up to 10% when a leaking building is fully draught proofed. Draught proofing doors will make an important contribution to this saving;</li> <li>There are also some refurbishment options which prevent draughts and reduce heating and cooling bills such as fitting draught lobbies to main entrances – this allows one set of doors to be closed before the other set opens. Upgrading your door to a modern very well insulated version, can also make a significant difference to heat loss.</li> </ul>
<b>Building plant and systems</b>	Boilers and heating systems	<ul style="list-style-type: none"> <li>Space heating and hot water are responsible for the majority of energy use in a sports club. Timing controls on heating systems should be checked to ensure that they anticipate the occupancy pattern of the club, and that the heating is not running for longer than necessary;</li> <li>Making a small change to the temperature setting on a thermostat make a significant difference to heating bills – a 1°C reduction in temperature could reduce a club's annual heating bill by up to 8%. If the club heating system includes a thermostat, make sure that it is fitted in the right place. It should be away from draughts or heat sources such as sunlight, radiators or office equipment;</li> <li>For clubs that also have air conditioning a temperature gap (known as a 'dead band') should be maintained between the air conditioning and heating control settings. This prevents them switching on at the same time and competing against each other, wasting both energy and money;</li> <li>Get the most out of radiators to ensure that they are not wasting energy. Make sure that they are not obstructed by furniture, and that they are turned off whenever the room is not in use. Fit Thermostatic Radiator Valves (TRV) to radiators to give more control over their heat output. These cost from around £40 each plus installation costs, will save around 17% on radiator energy use per year (if used effectively) and will payback in around 5 years. Alternatively, consider the advantages of a smart system (see below).</li> </ul>

Subject	Characteristic	Consideration
<b>Building plant and systems cont/d</b>	Heating	<p>If electric panel heaters are providing the heating, consider other options</p> <ul style="list-style-type: none"> <li>• Gas boilers with radiators;</li> <li>• Heat pumps with radiators,</li> </ul> <p>Ensure boilers or heat pumps have a time clock control and the time clock matches the expected occupancy of the building:</p> <ul style="list-style-type: none"> <li>• Make sure the controls are set back to just 10°C when the building is not used;</li> <li>• Radiators should have a Thermostatic Control Valve (TRV) to allow temperature to be adjusted within each space – normal setting should be around 3-4;</li> <li>• Smart thermostats and controls can be easily installed and easily used. The user interface is intuitive – see: <a href="https://www.digitaltrends.com/home/what-is-a-smart-thermostat/">https://www.digitaltrends.com/home/what-is-a-smart-thermostat/</a> ;</li> <li>• Programmable TRVs can be bought and installed, the temperature required within each space can be set. These work best when used in conjunction with a smart thermostat e.g. If the building only uses one or two rooms, for example the club / committee room and not the changing rooms.</li> </ul>
	Boilers	<ul style="list-style-type: none"> <li>• Make sure that boilers are well maintained. They should be cleaned and serviced at least once a year. A well-maintained boiler can be up to 10% more efficient than a similar poorly-maintained one;</li> <li>• Replace boilers that are more than 15 years old. Older systems are usually 10% to 30% less efficient than modern systems.</li> </ul>

**Smart thermostats and controls can be easily installed and easily used. The user interface is intuitive.**

Subject	Characteristic	Consideration
<b>Building plant and systems cont/d</b>	Wood burners	<ul style="list-style-type: none"> <li>• If your club has a wood burner, or is considering installing one, make sure that it is as sustainable as possible;</li> <li>• When choosing a wood burner to install, look at efficiency. A more efficient burner will produce the same amount of heat for less wood use;</li> <li>• When buying wood, make choose a sustainably managed source. Ask your supplier for evidence of where they source the wood from.</li> </ul>
	Cooling	<ul style="list-style-type: none"> <li>• Air conditioning can be energy intensive. Check that the controls are set to the correct temperature for the requirements of the room. Each additional degree of additional cooling will add 8% to club air conditioning energy bills per year;</li> <li>• Make sure that air conditioning equipment and control settings are properly maintained – energy consumption can increase by up to 30% if regular maintenance is not undertaken. Cleaning fans, filters and air ducts can greatly improve efficiency.</li> </ul>
	Drink pumping equipment	<ul style="list-style-type: none"> <li>• Make sure that any cellar pumping equipment is well maintained and regularly cleaned so that it can continue to operate at its optimum efficiency. Always turn off equipment after use – give someone the job of checking the cellar before the club closes, and switching off anything that does not need to be left on.</li> </ul>
	Computers	<ul style="list-style-type: none"> <li>• Computers left idling for long periods waste energy. Ensure that computers and screens are switched off when not in use. Use electronic communication where possible to reduce printing and faxing.</li> </ul>

**Computers left idling for long periods waste energy. Ensure that computers and screens are switched off when not in use.**

Subject	Characteristic	Consideration
<b>Water efficiency</b>	Generally	The following sections provide tips and advice on measures to help you to reduce water use at your club.
	Sinks	<ul style="list-style-type: none"><li>• A tap can use up to 20 litres of water per minute, which is often much more than is needed.</li><li>• If an isolating valve is in place then this can be turned down to reduce an overly high flow rate. Alternatively, installing a flow restrictor allows the tap flow rate to be manually adjusted, this costs around £10 per valve (plus installation costs) and can result in savings of up to 10 litres per minute, depending on the existing flow rate of the tap. The payback period is usually around one year;</li><li>• Depending on water pressure and tap type, it may be possible to fit tap aerators, which screw onto the end of the tap and act like a sieve, reducing the amount of water that leaves the tap. They also mix air and water together under pressure, increasing the apparent flow rate. Tap aerators cost around £5 each and are easy to fit. For a typical tap that is used 20 times a day for 15 seconds, they could save up to £13 a year per tap, meaning that they will pay back in around one year;</li><li>• Installing self-closing taps (push-down taps) means that the tap cannot be left on. These cost from about £30 per tap plus installation costs. Savings will vary depending on the delay time set at installation, but payback is typically 2–3 years. Electronic infra-red sensor taps allow the water flow to be controlled through a sensor which detects the presence of the user's hands under the tap. These sensors cost about £70 each plus installation costs, and payback in around 2 years.</li></ul>

**Depending on the existing flow rate of a tap, installing a flow restrictor can save up to 10 litres of water per minute and costs around £10 per unit.**

Subject	Characteristic	Consideration
<b>Water efficiency cont/d</b>	Showers	<ul style="list-style-type: none"><li>• Showers are likely to be responsible for the majority of hot water use in a club. There are many ways to save water without compromising on performance;</li><li>• Fitting a shower aerator between the hose and showerhead, or replacing the existing shower head with an aerating version, will mix air and water together under pressure, reducing water use, but increasing the apparent flow. Depending on the original flow rate, an aerator can save up to 6 litres of water per minute and costs around £20 per shower and are simple to install. For showers used twice a day for five minutes, this could result in saving £30 per shower each year in water costs. Further savings will also result from a reduction in the amount of energy needed to heat the shower water;</li><li>• Installing a flow restrictor allows a high shower flow rate to be manually adjusted, saving on water use. These are cheap to buy at around £25 per valve plus installation costs, and generally pay back in around one year;</li><li>• Another option is a push button shower, which stops after a set period of time. Cost and savings for this measure will be dependent on the delay time set during installation;</li><li>• Always ensure that showers are regularly maintained, as soap deposits or scale can build up that can cause blockages and reduce performance and efficiency.</li></ul>

**Depending on the original flow rate of a shower, installing an aerator can save up to 6 litres of water per minute and costs around £20 per unit plus installation.**

Subject	Characteristic	Consideration
<b>Water efficiency cont/d</b>	Cost of hot water	<p>Understand the cost of generating hot water – assuming prices based on 4.4p/kWh gas / 21p/kWh electricity, a shower used 50 times a year for 10 minutes each time will cost:</p> <ul style="list-style-type: none"> <li>• £10.16 / annum for gas (instantaneous);</li> <li>• £48.51 / annum for electric (instantaneous).</li> </ul> <p>Is hot water generated in a cylinder?</p> <ul style="list-style-type: none"> <li>• If so, ensure time clocks reflect the use pattern;</li> <li>• Smart controls, as described above can also control hot water cylinders;</li> <li>• Maybe consider replacing with point of use or instantaneous gas hot water generators: It's important to ensure the fuel used has enough capacity, instantaneous loads have a higher peak, though use less energy overall.</li> </ul> <p>If showers are electric point of use or combi boiler / instantaneous?</p> <ul style="list-style-type: none"> <li>• Consider taking shorter showers;</li> <li>• Turn the temperature down as low as is comfortable;</li> <li>• Consider cost benefit of gas over electric showers.</li> </ul>
	Toilets	<ul style="list-style-type: none"> <li>• There are several low-cost options available to reduce WC water use. For cisterns installed before January 2001 (7.5 litres or more), a cistern volume adjuster such as a 'hippo' bag can be fitted at minimal cost, saving up to 2.5 litres per flush. It is worth asking your water company about hippos, as it may offer them to customers free of charge. Hippos should never be fitted to cisterns which were installed after January 2001, as after this date all cisterns use a 6 litre flush and fitting a volume adjuster will result in a poor flush, and a higher volume of water being used;</li> <li>• Retrofitting a variable flush or dual flush where possible can also reduce the volume of water used for flushing. This measure will save around 45% of WC water use (~2 litres per flush on a short flush). It will cost about £20 to buy (plus installation costs), and will usually pay for itself within a year.</li> </ul>

Subject	Characteristic	Consideration
<b>Water efficiency cont/d</b>	Urinals	<ul style="list-style-type: none"> <li>Many urinals do not have controls meaning that they flush continuously, even when there is no occupation. Consider installing passive infrared motion sensors, which control flushing by detecting movement. These can save up to 75% on urinal water use, cost around £350 (plus installation costs), and usually payback in less than a year for larger clubs. Alternatively, consider installing waterless urinals. These have a retrofit cost of around £80–90 (plus installation costs and on-going chemical costs of around £50–£75 per year);</li> <li>They can save up to 90% on water use (some water is required for cleaning), and payback can be less than one year for a large club.</li> </ul>
	Cleaning	<ul style="list-style-type: none"> <li>Cleaning has a variety of impacts on the environment, including the use of water and chemical cleaning products. Speak to cleaners (or volunteers) to make sure that they are using water efficiently when cleaning the club. Get feedback from on the level and extent of cleaning required. This will help to strike a balance between water efficiency and effective and hygienic cleaning practices. At the same time, review the cleaning products that are purchased for the club. It may be possible to purchase more environmentally friendly equivalents for a similar price;</li> <li>Alternative languages and formats.</li> </ul>

**Depending on the original flow rate of a urinal, installing passive infrared motion sensors can save up to 75% of water use.**





**For glossary of terms used, see How to reduce energy costs – Part A Appendix 2.**

## Document accessibility

This document has been designed for comfortable reading at A4 and on a laptop screen, but can also be printed at A3 for large print versions. The pdf is accessible and has been tested to work with text readers.

## Contributors

Sport England, Abacus Cost Management Ltd (Design Services), Desco, and Robin Wilson Consulting.

## Acknowledgements

Sport England wishes to thank all individuals and organisations referenced or credited within this document.

## User guide

Before using this design guidance note for any specific projects all users should refer to the User Guide to understand when and how to use the guidance as well as understanding the limitations of use.

Click here for **User guide** and other  
**Design and cost guidance**

## Issue tracker

001 – Initial publication: October 2022

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