

# Measures to save energy in your building



**A Hippo is a small plastic bag which can easily be fitted into your toilet cistern. Water is retained in the bag, helping to save up to 3 litres of water per flush**

## 9 ways to help with water conservation

Description	Details	Recommended for	Points	Payback
1 <b>Dual flush toilet</b>	Dual flush toilets give the option of a short flush and a long flush. The average slimline toilet cistern has a 4.5 litre flush.	Replacement for older toilet systems.	Older systems can have up to a 9 litre flush.	7-10 years
2 <b>Save-a-flush</b>	Fitting a Save-a-flush (a bag of harmless crystals) in your toilet cistern can save up to 1 litre per flush.	Toilet cistern with a 9 litre flush or greater.	Toilet cisterns installed since 1999 should already be water efficient and therefore do not need any type of cistern device.	2-6 months
3 <b>Hippo Bags</b>	A Hippo is a small plastic bag which can easily be fitted into your toilet cistern. Water is retained in the bag, helping to save up to 3 litres of water per flush.	Toilet cisterns with a 9 litre flush or greater.	Toilet cisterns installed since 1993 are already designed to use less water per flush. Fitting a Hippo may reduce the flush too far so that the toilet is not cleaned properly.	2-6 months
4 <b>Urinal Controls</b>	Water consumption can be significantly reduced with urinal controls, which are used to detect and control water supply to suit activity in an area.	Mens/ Boys toilets.	Urinal controls like cisternisisers, PIR sensors and occupancy sensors can be mains or battery operated. Regular checks are required to ensure they are operating correctly.	1 year
5 <b>Waterless urinals</b>	Systems use no water but some models require a chemical solution to operate.	Mens/ Boys toilets.	Regular cleaning, inspection and maintenance required.	6 months - 5 years
6 <b>Flush-per-use systems</b>	Single urinal bowls with pressure-flushing valves that use less than 1.5 litres.	Mens/ Boys toilets - smaller sites/ low useage areas.	The valves need to be checked regularly to ensure they are operating correctly.	5-7 years
7 <b>Non Concussive Taps</b>	Taps that self-close after a set period of time, reducing the risk of water wastage and avoiding the risk of taps being left on accidentally.	Can be used for most sites.	If taps are heavily used risk of damage to self-closing mechanism.	2-4 years
8 <b>Tap sprays / aerator</b>	Spray taps can save up to 50% of water consumption. However, the slow rate on hot water taps can mean a long wait for warmer water resulting in less savings.	Can be used for most sites.	Regular inspection and maintenance required to ensure the spray head is not blocked.	18 months - 3 years
9 <b>Flow Restrictors</b>	Reduces the taps' flow rate.	Can be used for most sites.	Regular inspection and maintenance required.	1-2 years

# Make the most of natural light and switch off lights

## 9 ways to help with heating and lighting

Description	Details	Recommended for	Points	Payback
1 <b>LED Lighting</b>	Most efficient option of lighting and lasts much longer.	Can be used for most sites.	LED lighting lasts up to 50,000 hours and can reduce electricity consumption up to 70%. It helps to reduce maintenance costs as well.	5-7 years
2 <b>Lighting controls / sensors</b>	Help maintain correct lighting levels and provide optimum light output whilst minimising energy consumption.	Large rooms in schools and office buildings where lights are left on unnecessarily.	Various types of control are available e.g. occupancy sensors help ensure lights only operate when the space is occupied.	4-5 years
3 <b>Natural Lighting</b>	Make the most of natural day light and switch off lights. Possibly install Sunpipes which are reflective natural daylight portals that provides natural light to a room.	Can be used for most sites (Sunpipes - in poorly lit spaces where daylight would reduce need for electric lighting).		Instant. (Sunpipes - medium/high)
4 <b>Energy efficient boiler</b>	Change of boilers to more efficient boilers . Change from oil boilers to gas boilers or even to biomass boilers.	When boiler needs replacing.	Savings can be made by upgrading a boiler to a newer, more efficient model and also by changing the type of fuel used- such as changing from oil to gas, or using biomass.	10+ years, dependant on boiler size and if changing fuel
5 <b>Heating Zoning</b>	Zoning the heating system enables only the area in use to be heated.	Sites which would like to heat separate areas of a building, e.g. for after school clubs.	Most cost-effective when a new boiler is being installed, however, they can be retrofitted.	4-5 years
6 <b>Heating Control Improvements</b>	Includes Thermostatic Radiator Valves (TRVs), weather compensation and electronic controls.	Wherever there are existing poorly controlled heating systems.	TRVs can't be used on older single pipe heating systems.	4-5 years
7 <b>Radiator reflective foil</b>	Fitted behind radiators on external walls to reflect heat back into room.	Any accessible radiators.	More effective when used on uninsulated external walls.	6 months - 1 year
8 <b>Pipework Insulation valvewrap</b>	Uninsulated hot water pipes lose heat, therefore hot water reaches taps much faster if they are properly insulated, reducing the amount of water wasted. Boiler room valves and flanges can also be insulated.	Accessible uninsulated pipes.	Accredited installers must be used for insulating boiler rooms where there is asbestos risk.	4-5 years
9 <b>Variable speed drives on pumps, fans and compressors</b>	Fans, motors and pumps rarely need to operate at full speed all of the time. The reduction in speed saves time.	Where fans, pumps and motors run unnecessarily.	Only cost-effective for larger machinery.	6 months - 5 years

# Fitting a jacket to hot water tanks keeps the water hot for longer, therefore saving energy

## 8 ways to help with insulation

Description	Details	Recommended for	Points	Payback
1 <b>Double glazing</b>	Double glazing works by trapping air between two panes of glass, which creates an insulating barrier that reduces heat loss, noise and condensation.	Single glazed windows.	Double glazing cuts heat lost through windows by half. Secondary glazing is less expensive but still saves money by reducing heat loss and draughts.	10+ years
2 <b>Triple Glazing</b>	Adds a third sheet of glass to the windows creating an extra barrier of trapped air.	Single and double glazed windows.	Depending on the building it may not be much more efficient than double glazing, in other instances creates great savings.	Depends on the building but at least 20 years.
3 <b>Secondary Glazing</b>	Adding a second layer behind the internal window space. Can be glass or plastic and openable or unopenable depending on circumstances.	Single glazed windows.	Less expensive option with a quicker payback.	5-10 years
4 <b>Window insulation-draught proofing</b>	Strips of insulation tape can be used to reduce draughts around windows and door.	Single glazed windows and poorly fitted doors.	Inexpensive and easy to fit.	2-3 years
5 <b>Hot water tank insulation</b>	Fitting an insulated cylinder jacket to hot water tanks keeps the water hot for longer, therefore saving energy.	If the cylinder is bare or the layer of foam is so thin that it gets hot.	Take care to fit the jacket and pipe sleeves well to minimise heat loss.	3-4 years
6 <b>Cavity wall insulation</b>	Insulation is used to fill the wall cavities of buildings to reduce heat lost through walls.	Uninsulated cavity walls.	Insulation types include, mineral wool, recycled paper, and sheeps wool e.g. thermafleece.	3-4 years
7 <b>Loft Insulation</b>	Loft insulation reduces heat loss. In many cases existing levels of insulation can be increased.	Uninsulated or poorly insulated spaces.	Loft hatches should also be insulated.	3-4 years
8 <b>Solid Wall Insulation</b>	Solid wall buildings can be insulated inside or outside. An insulation layer is fitted to the wall.	Solid wall buildings.	Can reduce internal floor space, but will provide greater thermal efficiency and reduced fuel costs.	High cost 10-20 years payback

# Convert sunlight into electricity

## 6 ways to generate energy

Description	Details	Recommended for	Points	Payback
<p><b>1 Solar photovoltaic panels (PV)</b></p>	<p>Converts sunlight into electricity.</p>	<p>Suitable buildings with south facing roofs, not overshadowed by any buildings or trees etc.</p>	<p>Straightforward installation in most cases and little maintenance required.</p>	<p>High initial costs but an annual income is provided by the Government's Feed in Tariff which guarantees a payment for the energy generated up to 20 years plus an export payment.</p>
<p><b>2 Wind turbines</b></p>	<p>Generates energy from wind.</p>	<p>Usually needs windy rural or hilly sites with open aspect.</p>	<p>Installation more complex due to planning regulations and regular maintenance needed.</p>	<p>High initial costs but an annual income is provided by the Government's Feed in Tariff which guarantees a payment for the energy generated up to 20 years plus an export payment.</p>
<p><b>3 Solar water heating</b></p>	<p>Uses the sun's energy to heat water.</p>	<p>Needs a good all summer demand for hot water and south facing building. Suitable for large hot water demands like old people's homes and swimming pools.</p>	<p>Low maintenance needed and provides a good carbon saving.</p>	<p>The Government provides an annual payment for all heat generated from the Renewable Heat Incentive.</p>
<p><b>4 Ground source heat pumps</b></p>	<p>Take heat from under the ground using liquid (water and antifreeze) circulating in horizontal pipes or a vertical borehole. The heat extracted is generally used to warm water for space and under floor heating.</p>	<p>Often suitable for new builds with space to install pipework although can be retrofitted in certain cases.</p>	<p>Small grants may be available but contact us for current list of funding available.</p>	<p>The Government provides an annual payment for all heat generated from the Renewable Heat Incentive.</p>
<p><b>5 Small-scale hydro</b></p>	<p>Hydro-power systems convert potential energy stored in water held at height to kinetic energy (or the energy used in movement) to turn a turbine to produce electricity.</p>	<p>Limited use for public buildings although if there are streams or rivers close by the potential should be explored.</p>	<p>Some grants available for small scale hydro.</p>	<p>High initial costs but an annual income is provided by the Government's Feed in Tariff which guarantees a payment for the energy generated up to 20 years plus an export payment.</p>
<p><b>6 Biomass / Biofuel</b></p>	<p>This is organic matter of recent origin, it doesn't include fossil fuels. The released when energy is generated from biomass is balanced by that absorbed during the fuel's production.</p>	<p>Good potential for more biomass in public buildings where there is a large heat demand and a change of boiler system is being considered. For example oil fired systems. Needs to be good access and room for the installation.</p>	<p>Need to identify a good quality wood fuel supply and needs a regular maintenance regime.</p>	<p>The Government provides an annual payment for all heat generated from the Renewable Heat Incentive.</p>

# Hydro-power systems convert potential energy stored in water held at height to kinetic energy

## Other energy efficiency measures

Description	Details	Recommended for	Points	Payback
<b>1 Voltage Reduction and Optimisation</b>	Where mains voltage is towards high end of legal limits – opportunity to reduce voltage and hence kWh used.	Good potential across larger KCC buildings.	Energy Load fund available for installation of the equipment	High cost but payback between 3-4 years.
<b>2 SMART Metering</b>	A device added to the electricity or gas meter so consumption can be measured more accurately in order to identify any unusual trends.	Larger sites.	Users can view their consumption records via a website.	Information tool to identify where savings can be made.
<b>3 Building Energy Management Systems (BEMS)</b>	A central system which controls a building's energy use, when boilers come on and go off, control of pumps, fans, etc.	Larger sites where no BEMS is in place.	Older BEMS can be upgraded to achieve higher savings.	3-6 years.
<b>4 Self closing devices on external doors</b>	Enables doors to be closed automatically to reduce heat escaping from buildings.	All sites where external doors may be left open.	Inexpensive and easy to fit.	6 months -2 years.
<b>5 Time controls</b>	Simple controls that switch services on and off in response to programmed time settings.	Vending machines, photocopiers and office equipment.	Most commonly used are 24 hour day and seven day timers.	6 months - 3 years.

Can you list 9 ways you could help save energy?

Taps that self-close after a set period of time, reduce the risk of water wastage and avoid the risk of taps being left on accidentally

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