Community Buildings Energy and Sustainability Guide

Communities Living Sustainably in Dorset

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Communities Living Sustainably in Dorset aims to inspire and enable people living in Bridport, Dorchester and surrounding villages to adapt to climate change and live more sustainable lifestyles. It is supported by the Big Lottery Fund for a three year period from March 2013.

http://www.clsdorset.org.uk

Community Buildings Energy and Sustainability Guide

1. Introduction

Community buildings are valuable assets, providing a space for social, recreational and educational activities which help to build resilience in a community.

Volunteers who run these buildings juggle with regulations, people and finances to keep them running effectively to provide the activities that a community needs. Saving money on energy enables you to do more for your community, and is a comparatively easy way of eking out scarce funds.

Figure 1 Charmouth Library – a community building

This guide aims to help community groups to manage their buildings in order to:

- Reduce environmental impact
- Cut climate change emissions
- Reduce fuel bills

Energy saving can also improve the thermal comfort of community buildings, making them more attractive for users. It will demonstrate that your building is environmentally friendly and encourage the community to feel proud of it – people may even want to use it in preference to other buildings!

The guide, used in conjunction with the Energy and Sustainability Review Form, will help you to understand how your building uses electricity, heating and water and help you to reduce these. It will also help you to reduce your environmental impacts from transport and the products you buy. Whilst some environmentally friendly measures like solid wall insulation can be costly, many of the measures discussed are low and zero cost.

There is no ‘one size fits all’ as far as community buildings are concerned. Their size, use and construction vary greatly and can range from stone built ex-school buildings used all week, to timber scout huts used a couple of times a week. In addition, the current economic climate means that some buildings such as libraries and village shops are increasingly being run by the community, rather than by the local authority. This guidance and review will help you think through how you use your buildings and select appropriate ways of improving them in order to reduce their environmental impact and save money.

To achieve this, it is important to involve your members, including those with historic knowledge of how the building works, and win their support and commitment for continued improvement.

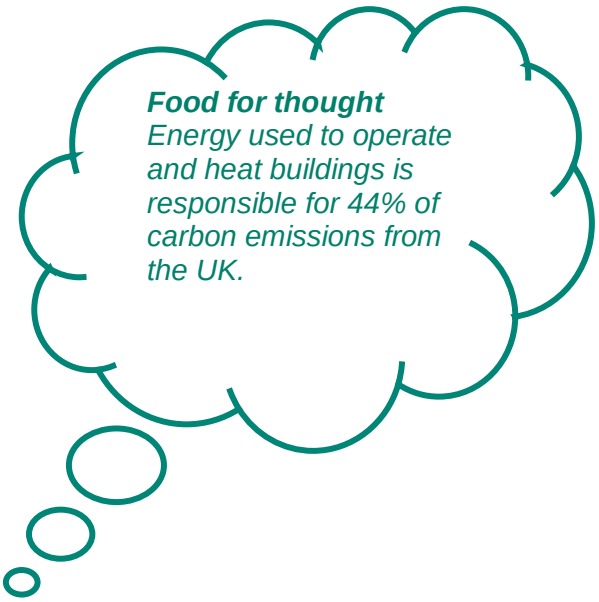
Further information

Plan Local has information on funding.
www.planlocal.org.uk

Sustainable Dorset has information on funding
www.sustainabledorset.org.uk/funding

Dorset Community Action provides advice and support for community groups, charities and social enterprises:
http://www.dorsetcommunityaction.org.uk/our_services

Action with Communities in Rural England provides a Village Halls Information Service:
www.acre.org.uk



Notes

2. Building construction and condition

The starting point for looking at the impact of a building on the environment is how it is constructed and its state of repair.

The construction of a building, especially its insulation and airtightness, dictates how effective a building will be at retaining heat. It is also an important factor in evening out changes in temperature at different times of day and year.

Performance reduces as the state of repair of the building deteriorates. In many cases this prioritises the maintenance or refurbishment required. For example, if the windows are rotten, their replacement will be a priority but this also presents the opportunity to consider upgrading to double or even triple glazing.

During such work, the thermal performance of buildings can be greatly improved. In some cases, merely repairing a building to its original state can result in large savings. More ambitiously, a number of retrofit projects have shown that old solid walled buildings can be refurbished to better than current building regulations.

Figure 2 New timber double glazed sash windows and internal wall insulation in a Victorian house

Heat loss from a building

Most of the heat is lost through the fabric of the building.

Approximate heat loss from an uninsulated detached building	
Walls	35%
Roof	25%
Floors	15%
Windows and doors	10%
Draughts	15%

The bulk of heat loss is through the **walls** mainly because this accounts for most of the surface area. If the walls are constructed with a cavity, they can usually be filled cheaply with mineral wool or polystyrene beads. In extremely exposed areas, cavity wall insulation can increase rainwater penetration. External solid wall insulation is much more costly but can be used to protect the building in such areas. Slightly less costly is internal wall insulation, although care must be taken to ensure that the type of insulation is compatible with the walls especially if they are made from traditional materials like cob (clay, straw and sand).

Pitched **roofs** with ceilings are easy and cheap to insulate using mineral wool or recycled cellulose like Warmcel. Flat roofs can be insulated from the ceiling if height allows but

where this is not possible this should be done when the roof is renewed.

Timber **floors** can be insulated from below using mineral wool in conjunction with a draught proof layer, if there is space. If this is not possible, insulation can be done from above at the same time as central heating or electrical work. Solid floors can be laid with insulation if the existing door frames and ceiling height permits. With earth floors rising damp may need to be considered. A robot device has been developed which can be used to insulate under floors, see Further Information on p.7.

Existing **windows and doors** can be draught proofed, and secondary glazing installed. Secondary glazing can almost halve the heat loss from these elements. If the windows must be replaced, the use of triple glazed units should be considered as the cost of these is equivalent or only slightly more than double glazed windows. The most environmentally friendly doors and windows are those made from timber from sustainable sources, followed by fibreglass ones.

Draught proofing is probably the easiest and cheapest measure to implement in most cases. Heritage windows, e.g timber sash windows, require more effort but would result in a performance close to that of a new window for a fraction of the cost.

Thermal **curtains** are also effective at reducing draughts and providing insulation but these must be used on a daily basis.

Cutting heat loss

No / Low cost	**Cost**
Draught proofing - DIY friendly	£35/window 600mm x1100mm installed - payback 2-5 years
Secondary glazing (acrylic)	£35/window 600mmx1100mm installed - payback 5-8 years
Loft insulation to 270mm	£6/m2 plus installation - payback 2-3 years
Moderate cost	
Cavity wall insulation	£500 for a three-bed semi house - payback 2-3 years.
High cost	
Solid wall insulation	£45 to £75 /m^2 installed - payback 19-54 years.

Note: payback period will be dependent on site specific cost, heating fuel/cost and occupancy. Prices from various sources correct at Jan 2016

Notes

Further information

The Low Carbon Hub has information on energy saving in community buildings including insulation techniques.
www.lowcarbonhub.org

The Technology Strategy Board has funded a hundred low energy retrofit homes across the UK to test different insulation techniques
www.innovateuk.org/retrofit-analysis

The Green Building Store has advice on insulating traditional walls.
www.greenbuildingstore.co.uk

English Heritage is expected to issue advice notes on energy use in traditional buildings shortly. www.english-heritage.org.uk

Robot device for insulating underfloor boards
http://www.q-bot.co/services.php

3. Heating and hot water

Space heating can be responsible for as much as 70% of the energy use in a community building. There are three ways of reducing heat loss:

- Only heat the space you need, at the times you need and at the lowest temperature that you are comfortable with. This is especially important if your building is only occupied part of the time.
- Make the source of heating as efficient as possible.
- Reduce the heat lost from the building by insulating and draught proofing.

Figure 3 - Thermostatic Radiator Valve (TRV)

Community buildings have a vast range of heating systems and controllers. It is worth reviewing whether they are appropriate to your needs and as efficient as possible. If you have an old boiler for example, it might be worth replacing it with a newer more efficient boiler. Programmers and thermostats should be correctly located, accessible and, most importantly, people must know how to use them. Room thermostats should be in a room that is constantly used and generally fixed at shoulder height.

Community buildings also cater for a wide range of activities which demand different temperatures, for example, exercise classes will require a temperature of about 15°C. whilst an elderly day centre would require 21°C. The temperature should be set at the lowest which users are comfortable and happy with - a 1°C reduction in temperature will save about 10% on fuel bills! Activities with the same temperature should be scheduled together if possible, as this will save on energy and time needed for the building to warm up and cool down.

Generally, mains gas is the cheapest way of heating and also has low emissions. Other fuels like oil or LPG are more expensive.

Electric heating can be easy to install but has high carbon-dioxide emissions and could be expensive to run, for example if you have storage heaters on Economy 7 but your building is mainly used in the evenings. That said, electric radiant heating can be appropriate for low usage buildings or rooms as they only warm the floor and work areas rather than the whole building.

Heating with wood is especially effective where there is space for storage and a source of cheap wood. Open fires should be avoided as these are inefficient compared to modern stoves. Stove doors should be kept closed as opening the doors merely turn an 85% efficient stove to a 15% efficient open fire. They will need to be correctly sized for the rooms they are heating and will require attention whilst they are working.

Looking to the future, utility companies will be installing smart meters from 2015. These are meters which transmit meter readings direct to the companies and also provide customers with information about their fuel consumption. Some smart meters will also allow you to control heating systems and monitor how much energy you are using. If you cannot wait, they are already available for your own use from independent suppliers.

Efficiency of various heat sources

	Old	New	Comment
Gas and oil boilers	65%	93%	Modern efficient boilers are one of the most effective ways of saving energy
Open fires	15%	15%	Look attractive but very wasteful
Wood pellet stoves	-	92%	Can be funded by Renewable Heat Incentive
Wood stove	50%	85%	Low carbon and efficient
Electricity	100%	100%	Costly, with high emissions

Note: From various sources correct at Jan 2016

Hot water

Depending on the configuration of your building, hot water can be supplied from the boiler or through a separate gas or electric water heater. Check the efficiency of the systems and that the controllers are able to match the timing of water use. The temperature of the hot water should be set as low as possible, but bear in mind that the Health and Safety Executive recommends that stored hot water must reach 60°C for at least one hour each day to prevent legionella.

Water waste should be reduced (see water section); this is doubly important with hot water as you have paid to heat it.

In large buildings, the pipework between a tap and the hot water tank can contain a gallon or more of cold water. This must be run off before the water runs hot and the heat retained in the pipes once the tap is turned off is wasted. In such instances it may make sense to install instant point of use hot water heaters.

Larger buildings

Many systems used in houses are scaled up and used in larger buildings. There are also other systems which are less common in houses. These include:

- **Heat recovery ventilation** uses the heat in stale air to pre-heat incoming fresh air. These systems are increasingly being used in houses. Similar systems are used where large amounts of hot water are used, for example in leisure centres.
- **Heat stores** are alternatives to hot water tanks. They allow heat to be stored from multiple sources including biomass or solar panels and used in a controlled way for heating and/or hot water.
- **Building Energy Management Systems (BEMs)** enable boilers, lighting, air conditioners, fans and/or lifts to be monitored and controlled remotely. When used to control boilers, they can cut fuel costs by up to 50% by accurately matching boiler performance to need.

Buildings larger than 1000 m^2, which are visited by the public require a Display Energy Certificate which shows how well the building performs in relation to others of the same

type.

Monitor your energy use

Take regular readings of your water gas and electricity meters and record any other fuel deliveries as well. This will help you monitor and control how much energy you are using and ensure that you are not charged on estimated bills. Converting the readings to CO_2 emissions using the table below will let you know how well you are doing environmentally. Publicising how these change over time will show your users how well your building is doing on the environmental front, and encourage them to help you reduce its emissions even further.

Table of approximate energy cost and CO_2 emissions per kWh

	p/kWh	kgCO_2/kWh
Mains Gas	3.5	0.18
LPG Gas (bulk)	5.63	0.21
Heating Oil	4.76	0.27
Bottled Gas	10.5	0.21
Electricity (standard)	16.02	0.46
Electricity (Economy 7)	8.8 off peak 19.3 peak	0.46
Wood	4.51	0.01 (transport etc)

Other conversion factors

- 1 litre of oil is equivalent to 2.96 kg CO_2
- 1 litre of LPG is equivalent to 1.51 kg CO_2
- 1 kg of LPG is equivalent to 2.73 kg CO_2

Note: values from various sources correct at January 2016

An example

If your annual energy use is twelve 47kg bottles of calor gas (LPG) for cooking and hot water and 12,000 kWh of electricity per year for storage heaters, convector heaters, office and lighting (include both off-peak to standard electricity), your annual emissions will be:

LPG 12 x 47 x 2.73 = 1540 kg CO_2
Electricity 12,000 x 0.54 = 6480 kg CO_2
Total **8020 kg CO_2**

C
performance.

Cutting heating costs

Low cost	Cost
Using controllers effectively	£0.00
Insulating boiler room pipework	£2/m plus installation
Repair leaking hot water taps	£0.50 plus installation per tap
Hot water tank jacket	£10 domestic plus installation
Lag hot water and central heating pipework, especially in unheated areas like under the ground floor or in basements	£2/m plus installation
Moderate cost	
Install automatic air vents and system cleaners on boilers - removes trapped air and debris in water	£100 for 3 bed house plus installation
High cost	
Install new condensing boiler	£2,500 installed payback 7-10 years

N*ote: Prices from various sources correct at Jan 2016*

Further information

The efficiencies of domestic boilers are available on http://www.homeheatingguide.co.uk/efficiency-tables.html

Energy Saving Trust provides advice on energy efficiency including boiler systems. http://www.energysavingtrust.org.uk

Wessex Energy can advise on all sustainable energy matters including funding. www.wessex.energy 01202 209410

Energy Saving Community (now at Wessex Energy) aims to help community groups to save energy. www.energysavingcommunity.co.uk

The Low Carbon Hub have surveyed community buildings around Oxford to help them save energy. www.lowcarbonhub.org

Food for thought

Sir George Monoux Sixth Form College in London uses income from renewable energy to pay for scholarships for ten of its students.

4. Lighting

Lighting can constitute 15% of the energy use of a typical community building. However, buildings like libraries require higher light levels which will result in more energy being used. This coupled with the high cost of electricity compared to mains gas could mean that the cost of lighting can be as high as that of heating.

Figure 4 - Energy efficient and long lasting LED lamps are direct replacments for most incandescent lamps

Advances in low energy fluorescent and LED lamps combined with better controls mean that reducing the cost and environmental impact of lighting is now easier. These lamps have the added benefit of lasting 8 times and 40 times longer respectively and cut the labour cost of changing lamps.

As with other aspects of energy use, it is important to match lighting with how the building is used:

- Only light the space you need at the times you need and at the lighting level that you need.
- Use light fittings that are as efficient as possible with the appropriate controls. This could be people switching lights off consistently when not in use, or automatic controls which detect low light levels and activity.
- Ensure that light fittings are well maintained and clean.

Myth Busting

An enduring myth is that more electricity is used in switching fluorescent lights off and on than in leaving them off all the time. This is not true as the warm-up time for fluorescent lamps is less than a minute. During this time, slightly more electricity is being used so turning them off if they are not needed for ten minutes or so makes sense. Switching on and off will reduce the life of fluorescent lamps and fittings but this is minimal compared to the cost of the energy saved. The life of LED lamps and fittings are not reduced by switching on and off. They also do not have noticeable warm up times.

<u>Larger buildings</u>

In the past some energy saving technologies such as flood lights were unique to larger dwellings but with the advent of low cost LED, compact fluorescent lamps and cheap reliable automatic controls, small buildings can use the energy efficient lighting systems previously used by larger buildings.

Cutting energy use in lighting

No / Low cost	Cost
Keep light fittings clean as dirt can halve the light output	£0.00
Keep daylight sensors clean, as dirt can make them come on earlier in the evening	£0.00
Make sure that people switch lights off when not in use	£0.00
Replace T12 lamps with more efficient T8 lamps (same price, 9% saving)	£0.00
Replace all incandescent lamps with compact fluorescent or LED lamps	payback - six months
Moderate cost	
Install daylight and presence sensors (£14 and £25 respectively plus installation)	payback - 4 years
High cost	
Replace old T12 or T8 fluorescent magnetic ballast fillings with electronic ballast T5 or LED fittings	payback - 3 years

Note: Prices from various sources correct at Jan 2016

Further information

The Energy Saving Trust has numerous guides on saving energy including lighting for households to large buildings.
www.energysavingtrust.org.uk

Carbon Trust also has useful lighting guides.
www.carbontrust.com

Food for thought
Incandescent lamps convert 2% of the electricity to light compared with 11% for fluorescent and 13% for LED lamps.

Unlike fluorescent lamps, LEDs do not contain mercury.

5. Appliances

Electrical appliances are major users of electricity.

As with all electrical equipment, they should be efficient, well maintained and only used when necessary. Extra care should be taken of appliances which are kept on all the time like fridges and freezers.

You can monitor the energy demand of individual appliances using a low cost power meter, or your whole building with a smart meter.

Smart meters are being installed by utility companies across the country. They will be able to provide instantaneous readouts of energy use and can therefore be used to check the energy use by groups using the buildings.

Computers, printers, TVs, radios, dishwashers and other appliances should be turned off when not in use. A few appliances will need to be turned off at the socket as they draw electricity even when they seem to be turned off. An energy monitor will be able to identify how much is wasted in standby and 'off'.

Figure 5 - Fridges stay on all the time. Replacing a 20 year old fridge with an A+ or A++ can save £20 per year

Larger buildings

Larger community buildings may use air conditioners. If so, their controls should be effective and set 3°C higher than that for the central heating so that they are never on at the same time. For example, the heating thermostat should be set at 20°C and the air-conditioning thermostat at 23°C. Electric fan heaters must not be used in rooms where air-conditioners are also turned on.

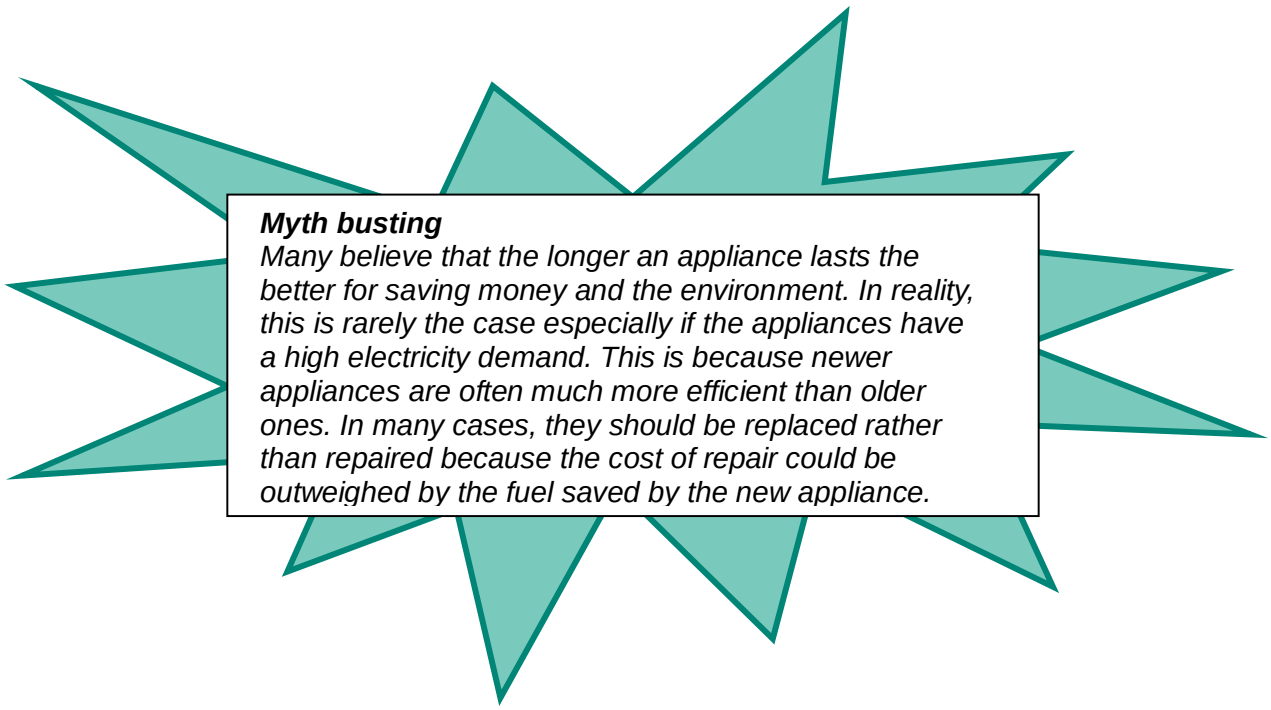
Such buildings may also have lifts and fans. These should be checked to ensure that they are only on when required and if inefficient, they should be refurbished with efficient modern motors and control systems.

Voltage regulators can sometimes reduce electricity costs from motors by 12% depending on the background voltage.

Cutting energy used in appliances

No / Low cost	Cost
Ensure equipment is only on when needed (see Behaviour section below)	£0.00
Contact your utility companies - they often give their customers energy efficiency devices	£0.00
Fridge doors should be closed firmly, and should only contain things that need to be kept cool. The grid on the back of the fridge/ freezer should be kept free of dust as this will make it less efficient. The fridge should also be regularly defrosted	£0.00
Moderate cost	
Products like Bye-Bye Standby enable appliances to be turned off from one point www.byebyestandby.com	£18
Replace inefficient appliances with A++ rated ones.	£370 - payback 19 years
High cost	
Larger buildings benefit from monitoring of individual electricity circuits. In some cases these can tell you when individual appliances like kettles and computers are switched on.	£600 plus £25/year

Note: Prices from various sources correct at Jan 2016



Myth busting
Many believe that the longer an appliance lasts the better for saving money and the environment. In reality, this is rarely the case especially if the appliances have a high electricity demand. This is because newer appliances are often much more efficient than older ones. In many cases, they should be replaced rather than repaired because the cost of repair could be outweighed by the fuel saved by the new appliance.

Further information

Plug in power meters are available from www.maplin.co.uk and periodically from supermarkets like Lidl and Aldi.

Green Energy Options (geo) manufactures smart meters to monitor electricity use, some of which can be used remotely.
www.greenenergyoptions.co.uk

No Watt provides remote monitoring systems for sub-metering larger buildings which can often identify when a kettle is used or a security light is switched on.
www.nowatt.com

EMS produces small voltage optimisers.
https://ems-uk.org/vo4home/

Time to Change shows the energy and cost saving of new compared to old appliances (funded by appliance manufacturers).
http://www.t2c.org.uk

Food for thought

Electricity consumption of fridges has halved in the past 20 years (1994 to 2014) whilst electricity and water used in washing machines halved for 2005 models compared to 1995 models. This means that replacing old appliances with new ones will save money and also cut emissions even when the materials used to build them are taken into account.

Notes

6. Water

In recent years Dorset has suffered from the effects of too much water. The winter of December 2013 - February 2014 was, according to Met office records dating back to 1766, the wettest on record in Southern England. But we can also suffer from a lack of water. As recently as March 2012 much of Southern England including Dorset was officially in drought

Even in times of plenty it requires energy to treat and pump water to your house. It is therefore too precious to waste. As a result, meters are being installed by water companies and inevitably, we will all be paying for the water we use by volume.

Check to see if you have any water leaks - this includes dripping taps and overflows as well as water leaking down toilet pans. The latter is especially common where valve flushes are fitted as these are not leak-proof like the older British siphon flush. They can allow a visible amount of water to trickle constantly into the toilet.

Figure 6 - Installing a rainwater harvesting tank, Ryall, Dorset

Check all your water meters to ensure that you do not have a leak, turn off the taps and take meter readings over 15 minutes. If the leak is bad, you can see the dial move as you watch. You should also check the diameter of the inlet pipe to the meter as this dictates your standing charge. Domestic meters are normally about 15mm diameter, while small schools can have 25mm diameter meters. If your water consumption is low because of infrequent use, you will probably save money if you are on a meter. Check with your water company who will probably supply meters at no cost.

Sewage charges are based on the amount of water you use, so reducing your water usage will reduce your sewage cost. If you are not connected to the sewers, your water bill will be lower but you are responsible for maintaining your septic tanks. To reduce this maintenance, it is important to use environmentally friendly cleaners and products as these are less likely to poison the bacteria essential to their operation.

Myth Busting
People often think that water is plentiful in the UK but the reality is that the increasing population and single person households as well as climate change means that the country is more and more vulnerable to water shortages.

Cutting Water consumption

Low cost	Cost
Turn down isolating valves to basins to reduce flow if present.	£0.00
Flow regulators for showers to about 8 litres/min or less	£5.00 plus installation
4 litre/min spray heads on basin taps where possible	£4.17 plus installation
Water butt for gardens	£30.00 plus installation
Read your water meter/s regularly and monitor how much you are using. This will tell you if you have leaks.	Zero cost
Moderate cost	
Replace washing machine and dishwashers with new A++ machines.	
High cost	
Install rainwater harvesting for gardens and toilets	£3,000 for 5,000 litres

Note: Prices from various sources correct at Jan 2016

Further information

Wessex Water provides water saving advice as well as free packs to help save water.
www.wessexwater.co.uk

Wessex Water also runs the Watermark Award of up to £2,500 for environmental projects.

7. Renewable Energy

Once the basic steps in energy saving have been made like renewing old boilers, draught proofing and insulating the loft, it is worth looking at renewable energy for your building.

These are low carbon ways of producing heat or electricity for your building that usually attract government funding through their Renewable Heat Incentive (RHI) or Feed In Tariff (FIT). These are payments from the government to promote renewable energy and are linked to the amount of renewable energy that is generated. A condition of funding is that the Energy Performance Certificate (EPC) of the building must achieve at least a D rating (like the energy efficiency rating seen in estate agent details for houses) RHI is available until 2021.

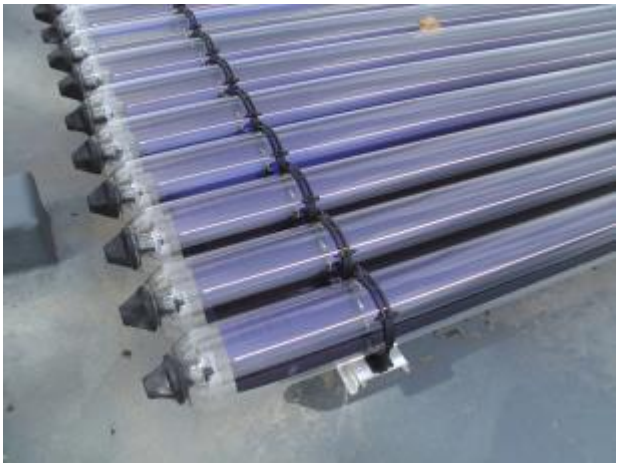


Figure 7 - Solar thermal tubes can be self-funding with RHI and will continue to provide free hot water for 25 years

The result of this funding is that these systems can pay for themselves in under ten years and provide cheap or free energy for years to come after that, depending on its expected life. Technologies include:

- **Ground source heat-pumps** and the less costly **air-sourced heat-pumps** operate like fridges in reverse to pump heat into the building. They run on electricity, but produce about 3kW of heat for every 1kW of electricity. They are especially cost effective and good at cutting carbon if they are replacing oil or LPG heating. As their output is usually lower than that of boilers, the buildings will need to be well insulated before they are installed. Air-source heat pumps are just like air-conditioning units so noise can be an issue especially in quiet locations. The cost of air-sourced systems for a 3 bedroom house is about £7,000 and with the RHI will pay for itself in about 4 years.

- **Solar Thermal** provides hot water when the sun is shining. These tubes or panels will need to be positioned (ideally) facing southwards with the minimum of shading from trees or buildings. Extra heating will be needed in winter as there is not enough sunlight at this time. Your existing hot water system will need to be adapted for solar thermal and your hot water demand must be sufficiently high and regular to justify such a system. If you have a combination boiler, you will need an additional hot water tank between the boiler and solar panels to store the pre-heated water. 5m^2 of solar panels on a 3 bedroom house will cost about £4,500, provide about 60% of the hot water and pay for itself in about six years with RHI.

- **Wood pellet and chip boilers** can be used to replace gas or oil boilers in central heating systems but are larger than the latter and a significant amount of storage for wood fuel will be required. If used to replace combination boilers, a hot water tank will

be required. A domestic system costs around £7,000, over twice that of a replacement domestic oil boiler, but the payback with RHI is about 4 years. Some larger and more costly systems can be automatically fed from a large fuel store to enable the boiler to operate unattended for up to three months.

- **Solar PV** generates electricity when the sun is shining and is especially effective if your main use of electricity is during the day. A 4kW system will cost about £6,000 installed and with reduced 4.4 p/kWh Feed in Tariff and free electricity, it will pay for itself in about 13 years. It will generate about 3,435 kWh, most of the electricity used by a typical house.

Further information

A number of solar PV installations were installed on community halls in Bridport, Dorchester by Dorset Community Energy under FiTs. The current reduction in funding from 12.9p/kWh to 4.4 p/kWh means that further expansion of the scheme is unlikely to be viable.

Energy Savings Trust information on renewable energy
www.energysavingtrust.org.uk/Generating-energy/Choosing-a-renewable-technology

Ofgem information about FIT and RHI
https://www.ofgem.gov.uk/environmental-programmes

Energy Share has useful information on funding sources.
www.energyshare.com

RegenSW provides support for community renewable energy projects
www.regensw.co.uk

Food for thought

The solar power shining on the UK is 60% of that shining on the equator and is equivalent t 1,000 power stations.

*The price of solar PV has been falling rapidly, so much so that the cost of electricity from PV in the UK is expected to be the same or cheaper than that from power stations **without subsidy** by 2017. Get your Feed In Tariff now!*

8. Behaviour, travel and house keeping

Whilst a lot can be done to the structure and equipment of community buildings to make them more efficient, their environmental impact also depends on how people use, maintain and travel to the building.

It is these soft aspects of being environmentally friendly that are often the most visible and effective at getting people to feel that the community building is doing its best to protect the environment. This could be by seeing the use of environmentally friendly products, the recycling of waste on-site, growing plants and vegetables or being cycle-friendly.

Figure 8 - Green roof in Morcombelake cuts summer overheating and promotes biodiversity

Behaviour

- Turn appliances, heating and lighting off when the building is not in use and encourage people using the building to do the same. Use posters, newsletters and information about current and past emissions.(see Carbon Trust below)
- Inform/instruct all users on how to use and turn off thermostats, lights and appliances.

Travel

- Encourage visitors and users to share cars, cycle, bus and walk to the building.
- Install bike parking and other facilities.
- Install an electric car-charging point. This is available at a subsidised cost - see details below.
- Encourage the use of public transport.
- Where possible hold events when public transport is available. This will also mean that people who rely on public transport feel included.

Housekeeping

- Use environmentally friendly cleaners, especially if the building uses septic tanks as these cleansers will cause less harm to the bacteria essential for their operation.
- Keep windows and light fittings clean to let as much light through as possible.
- Keep radiators clear and clean dust of fridge heat exchangers.
- Purchase sustainable office and building materials such as recycled paper or Forest Stewardship Council paper and timber.
- Use green suppliers of electricity.
- Recycle as much waste as possible
- Start a garden and/or vegetable plot and use composting, wormeries and bokashi to recycle organic and food waste. Wormeries use worms to consume organic waste and bokashi uses a mixture of yeasts, fungi and bacteria to ferment the waste so that flies and vermin are not attracted to it.
- Set-up wild-life areas to promote greater biodiversity.

Further information

Up to £5,000 off electric cars and £8,000 off vans
www.gov.uk/plug-in-car-van-grants/overview

Electric car charging points for domestic vehicles and grant aided for commercial vehicles.
www.pod-point.com

Carbon Trust has energy saving posters which can be downloaded.
http://www.carbontrust.com/resources/guides/energy-efficiency/employee-awareness-and-office-energy-efficiency

Wiggly Wigglers supply wormeries and bokashi systems.
www.wigglywigglers.co.uk

Annex - Further information about the Communities Living Sustainably project

Communities Living Sustainably (CLS) in Dorset aims to inspire and enable people living in Bridport, Dorchester and surrounding villages to adapt to climate change and live more sustainable lifestyles. It is a partnership initiative led by Dorset Community Action and including Dorset Agenda 21, and is supported by the Big Lottery Fund for a three year period from March 2013.

CLS is what the Big Lottery Fund describes as a 'test and learn' initiative - they want to test a variety of innovative and integrated approaches to tackling climate change based on different communities and locations – rural, coastal and urban. Overall the Big Lottery Fund wish to use the learning gained from this project to inform future community climate change action in England including influencing policy and practice in Government, communities and businesses.

The programme has several inter-related strands: climate change adaptation, local food, greener choices, renewable energy, eco-schools. Some of the activities which CLS is currently involved in are:

- **Open Eco Homes** – We have supported Open Eco Homes events, in West Dorset in September 2013, 2014 and 2015. Each year around 20 homes have been open to the public attracting hundreds of visitors. Follow up surveys suggest that around one-third to one-half of visitors go on the make changes to their own homes or to adopt more environmentally friendly behaviour. http://www.clsdorset.org.uk/Open-Ecohomes.aspx
- **Transition Streets** - This is a programme that supports groups of friends and neighbours to work through a practical tool kit aimed at cutting domestic carbon footprints. Previous participants have had fun, made new friends and saved an average of £400 on household bills. http://www.clsdorset.org.uk/Greener_Choices-Transition_Together.aspx
- **Renewable energy for community buildings** – The CLS in Dorset project has supported the registration of a co-operative, Dorset Community Energy Ltd, to enable free solar photovoltaic (PV) installations on 6 village halls or schools in the CLS in Dorset area. Householders can invest in Dorset Community Energy from as little as £50 and receive 5%-6% per year dividend from the income generated by the government guaranteed feed-in tariff. The school or village hall receives free electricity from the solar panels. http://www.clsdorset.org.uk/Renewable-Energy.aspx
- **Eco schools** – This is an international awards scheme that encourages schools to reduce their environmental impacts through a combination of pupil-led environmental action, behavioural change and bringing environmental themes into curriculum learning. CLS is supporting local schools to take part in this programme and hope to get 10 schools up to Green Flag status. Working towards an award involves a pupil action group leading the whole school in actions addressing topics such as Energy, Waste, School Grounds, Biodiversity, Healthy Living, Transport and Global Citizenship. Participation in Eco-Schools can enhance the curriculum, support outdoor learning and help encourage leadership skills and social responsibility among pupils.
- **Business** – CLS in Dorset is currently (Jan – March 2016) offering up to 20 West Dorset businesses free environmental consultancy and energy advice sessions for staff. http://www.clsdorset.org.uk/Greener_Choices-AtWorkAtHome.aspx

For more details about the CLS project and its activities, see the project website: http://www.clsdorset.org.uk

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