

# Environmental Sustainability

## Why is it important to you?

Most people today are aware of the challenges posed by climate change. As a country we have committed to reducing our CO<sub>2</sub> emissions 60% by 2050; this will have to include reductions from domestic, commercial, public and community buildings.

Increasing energy bills are a very good reason to do as much as possible to reduce energy consumption. An energy efficient village hall is going to be more financially sustainable as well as environmentally sustainable.

“Green credentials” have become a unique selling point for many organisations to encourage people to use their services over a competitor with less “environmentally friendly” practices. A village hall committee could promote their own sustainable practices in order to generate more use and therefore more income.

## Key Points

### Small changes

There are many small ways in which improvements can be made and still make a difference. It is recommended to develop a policy which requests users of the hall to make energy conscious decisions when using

the hall. In addition there are lots of things the committee can do to reduce the energy consumption of the building. Some examples include:

- Lighting - can incandescent bulbs be replaced with energy saving bulbs?
- Instant boil water heaters- instead of boiling several kettles or keeping an urn hot, it is more efficient to use an instant water heater
- Recycling and compost provisions- increasingly hall management committees are establishing facilities for hall users to recycle
- Insulation - example: one hall lowered their ceiling by about 1 metre with a new false ceiling and insulated the cavity between. Instead of buying 3 tanks of oil per year they are now buying just 2. Open pitched roofs can be more difficult to insulate but materials with high insulation properties are available which fix to the inside of the roof. Also, check doors, windows and walls for gaps and cracks which can be blocked to stop heat escaping
- Automated heating - a constant low level of heat can be good for a building which is in regular use compared to repeatedly blasting the heaters for a couple of hours and then letting the temperature drop again. A tamper proof heat controller can prevent users from adjusting the heating.

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Many come with a “boost” button which will increase the temperature for a preset amount of time

- Lighting sensors/timers - make sure that users of the hall are informed about turning off lights when they leave a room. Alternatively, lighting could be set to automatically come on when someone enters a room and turn off automatically if there is no movement for a set period of time. You may wish to be able to manually override this so that committee meetings are not suddenly in the dark!
- E-mail - can minutes, agendas and any other information be e-mailed where possible?
- Energy supplier - could the village hall afford a Green Tariff contract with their supplier? Some Green Tariffs are the same price as a regular supply and will usually either provide electricity from a renewable source or generate money to spend on new renewable energy projects

### Micro generation technologies

The renewable energy industry is steadily growing. There are many technologies today which are being used by a variety of community buildings, schools and domestic properties. Some village halls are using solar panels to generate electricity, whilst others are using ground source heating and air source heating to maintain a comfortable temperature throughout the building.

Below are a sample of technologies and how

they work. This information is taken from the Department for Business Enterprise and Regulatory Reform (BERR) and is Crown Copyrighted.

#### **Wind**

Wind turbines are mounted on a tower to optimise energy capture. This is because, in general, wind is stronger, more consistent and less turbulent the higher off the ground it is.

#### **Solar Energy**

Solar energy involves capturing and harnessing the sun's energy. There are three main ways of doing this:

- Passive solar design
- Active solar water heating
- Solar photovoltaics

#### **Passive solar design**

Passive solar design involves the application of design principles (such as south-facing windows) to make sure that excess heat loss is avoided and solar radiation is captured, in order to minimise the need for heating and lighting. The reverse is also true, so that minimising the capture of solar radiation, coupled with the use of natural ventilation, helps to reduce dependency on mechanical systems such as air conditioning.

#### **Active solar water heating**

Active solar water heating uses collectors, usually on the roof of a building, to capture

and store the sun's heat via water storage systems. The collectors provide heat to a fluid that circulates to a water tank.

### **Solar photovoltaics**

Solar photovoltaics (PVs) convert energy from daylight into electricity using a semiconductor material such as silicon.

Solar PV cells can be arranged in panels on a building's roof or walls, and can often directly feed electricity into the building. With the latest PV technology, cells can also be integrated into the roof tiles themselves.

### **Wood biomass**

Energy can be derived from woody biomass sources (including forest products, waste wood and straw) using combustion systems, which can be used to heat anything from a domestic stove or hot water system to an entire community. Biomass can also be used on its own or by co-firing it with fossil fuels, reducing greenhouse gas emissions by replacing a component of the fossil fuel required.

### **Ground Source**

Ground-source heat is a form of geothermal energy. It is extracted from the low-temperature heat (10–20°C) that is found at relatively shallow depths within the earth's crust. This source of heat remains at a relatively constant temperature all year and can be taken from the ground itself or from

groundwater. Heat pumps can increase the temperature to provide a more useful output temperature of around 40–50°C, ideal for low-temperature heating systems like under floor systems and radiant panels.

Heat pumps do not produce electricity; however, they can provide heating and can be operated in reverse to provide cooling.

### **Air Source Heating**

Where the use of ground source heat pumps have been considered, but it is not possible to drill in a ground probe or install a surface ground loop on the property, an air source heat pump may well be the answer. The only space requirement is an outside wall making them ideal for buildings with limited outside space. With no need for groundworks, installation costs are kept to a minimum.

Air source heat pumps work by converting the energy of the outside air into heat, creating a comfortable temperature inside a building as well as supplying energy for the hot water system. As with all heat pumps, air source models are most efficient when supplying low temperature systems such as underfloor heating.

The efficiency of an air source heat pump is measured in Coefficient of Performance (CoP). A CoP of 4 means that for every kilowatt of electricity put in, you get 4 kilowatts of energy in the form of warm water.

## Sustainable improvements

When considering improvement projects to the hall, try to ensure that any materials used are environmentally sustainable. Most products should include information about their source or power rating etc. which can help you to include their environmental impact as part of your decision making process.

You should talk to contractors about your options and inform them that you wish to use low energy consuming, high insulating, and low environmental impact products where possible.

It is recommended to seek advice from an organisation like Community Energy Plus.

## FAQs

**We really want to make some environmentally sustainable improvements but can't afford it, so what can we do?**

There are a range of grants available to assist projects with environmental benefits, particularly energy micro-generation. Further advice on these grants should be sought from Community Energy Plus or the Department for Business Enterprise and Regulatory Reform.

**We are submitting a funding application and have differing quotes for the work. One quote is lower but not as environmentally sustainable, will the funder expect us to use this cheapest quote?**

Most funders will prefer to invest in projects which achieve their aims with the lowest impact on the environment. In such a case it could be justified that, although more expensive, the more environmentally sustainable option is preferred. It is recommended to speak to the funder directly if possible.

## Further information

**ACRE publications (available from CRCC):**

- How 'green' is your village hall? (£4)

**Community Energy Plus**  
www.cep.org.uk Tel: 01209 614975

**Energy Saving Trust Advice Centre**  
Tel: 0800 512012

**The Department for Business, Enterprise and Regulatory Reform**  
www.berr.gov.uk Tel: 020 7215 5000

## FOR A LARGE PRINT VERSION PLEASE CONTACT US



**Write to:** Jon Teague, Community Buildings Officer,  
CRCC, 2 Princes Street, Truro, Cornwall, TR1 2ES

**Tel:** 01872 243551 **Email:** jon.teague@cornwallrcc.co.uk

**www.cornwallrcc.co.uk/community\_buildings.html**

Cornwall Rural Community Council (registered as Cornwall Community Development Ltd.) Charity no: 1087550, Company no: 4144745, VAT no: 557448996

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