

ADVICE ON CHURCH HEATING AND ENERGY EFFICIENCY

The advice given below has been prepared by a qualified person in the field being covered, and is given in good faith. All requirements are current at the time of issue.

Today heating our buildings makes up the bulk of energy costs for the majority of churches, especially our rural churches with their un-insulated solid stone walls and beautiful but single glazed stained glass windows. Unfortunately this problem is only going to get worse with energy bills due to rise by 6% on average in 2013 and probably the same in every following year, making this a key issue for many church communities.

Changing your energy supplier: one of the simplest ways of reducing your church energy bills is ensuring you are on the most economic tariff. Contact your supplier and see what cheaper tariffs they can offer, but remember they treat churches as businesses; hence tariffs are not the same as domestic ones.

Price comparison websites such as **Energy Choices** or www.allaboutsavings.co.uk/business-electricity can be used to find alternative suppliers as they only deal with business tariffs.

When choosing a "green" electricity supplier you should be aware that their prices may be higher and also you may wish to take the following into account:-

- Limit your search to renewable electricity suppliers for environmental or ethical reasons.
- Several ethical energy brokers have deals with companies investing in wind turbines, who will provide a quote free of obligation.

Improving the performance of your existing heating system

- Annual maintenance of the boiler whether it is oil or gas powered is essential and mandatory in the case of gas fired plant. A sluggish system can be brought back to life by treatment of the heating circuit with deslugging chemicals, but if badly clogged up a **Powerflush** is the best remedy, where high velocity water is pushed through the system to remove the sludge blocking the system. The addition of an **inhibitor** to the top-up tank or on fill-up with sealed systems of water based systems helps to optimise their performance.
- Heating systems also need to be controlled properly in order to maximise their efficiency. Modern digital controllers can be set to bring the heating on at different times each day, hence every day you can have a short burst of heating to help reduce condensation in the building in addition to regular services. **Optimum start controllers** will ensure that the heating is turned on at the right time before a service by measuring the outside temperature and starting the system later or earlier to ensure the heating

period is minimised. Digital programmers never forget to turn the heating off as we do sometimes! A thermostat to regulate the church temperature is essential or if radiators are used they can be fitted with thermostatic valves. In some cases it is worth considering control systems that are not overly complicated and can be operated by volunteers.

- The golden rule of heating is that the system must be capable of replacing the heat lost through the structure. Heat is lost into the walls and especially through the roof, therefore steps should be taken if possible to install under roof insulation panels, which can as a bonus, because they are faced with plaster board, often brighten up the church. However, bear in mind that if your church is listed care should be taken with proposals that affect the internal appearance of the building. Draughts can be dealt with by installing add-on brush seals to doors or secondary glazing to windows, but be careful that there is some air flowing over the windows especially if stained glass, as condensation damages the glass. The importance of improving insulation and air tightness increases the more you heat your church, but care should be taken to ensure there is enough air change to minimise condensation. When a church is often used by a small group of people it is worth exploring whether a small meeting room or chapel can be created within the body of the church that can be heated independently.
- Find out exactly how much heating is costing you church by signing up to the **Shrinking the Footprint** campaign and the '**Smeasure Audit Scheme**' at the Church Care website, www.churchcare.co.uk.

New heating systems

- When considering a new heating system, bear in mind the two main reasons for heating a church building: to keep the church dry and so protect the fabric of the building; and to provide comfort for the occupants.
- If there is a gas supply to the church then gas based heating using a condensing boiler will always be more cost effective. If not alternative systems such as air sourced heat pumps can be attractive, but beware of the limitations at low external temperatures.
- Make sure that the heating matches the heat requirement for the church, the most efficient system is one which is working for about 80% of the time.
- It is also an opportunity to look at the building insulation.
- Ensure the system has modern digital controls, with a 7-day capability and optimum start.
- Historic churches not in daily use require a very different approach to those used on a regular basis. They need to be ventilated to prevent condensation forming, most buildings can tolerate being at 2 to 3°C as long as they are dry. English Heritage recommend that the background temperature is maintained at 10°C if possible. Where a church is only used once a week or less, the heating system chosen should be capable of quick reaction eg under pew heating and have automatic controls.

Further information

- Some advice about installing a heating system is available from the **Churchcare** website, www.churchcare.co.uk, alongside some details of different electric heating systems. Other sources are the **Carbon Trust** website, especially for heat pump systems. Information on obtaining consent to install a heating system is specific to the Church of England, the rest is relevant to all places of worship.
- See also on the Churches Trust for Cumbria website, www.churchestrustforCumbria.org.uk, **Case studies of renewable heating and energy systems** being trialled in churches.
- Within Carlisle Diocese Preliminary Advice can be sought from the Diocesan Advisory Committee as soon as your PCC has agreed in principle to install new equipment.
- You can ask an installer to visit your church to help specify a heating system. However, many installers specialise in one type of heating, so seek independent advice first eg from your architect. Companies specialising in church heating can be found by entering "church heating" into an internet search engine such as Google.

Grants may be available for installing some renewable energy systems in places of worship and other community buildings. See the Churches Trust for Cumbria website funding page.

Finally -

*A church that is cold and damp is unlikely to be growing its congregation,
and the building's fabric may be being adversely affected.*