

St Albans DAC: How parishes can reduce the carbon produced by their church buildings in a practical and effective way

A call to action – *The challenge of climate change and our response*

Climate change is creating extreme weather, damaging the earth and destroying the lives of people around the world. It is caused by burning fossil fuels for energy and other human actions which produce greenhouse gases including carbon dioxide that trap heat in the atmosphere. We must reduce and stop the harm we are doing before it is too late.

The Church of England has the ambitious target of making major strides towards reducing our overall carbon production to zero by 2030. We all have a part to play in 'turning the ship around' and caring for and renewing our precious planet and the wonderful life it supports.

Parishes should aim to use energy efficiently and reduce the carbon produced by their church buildings while meeting the needs of the people who use them. They should look to make changes which are practical, worthwhile and can be afforded. This approach follows the DAC's Strategy for Net Zero Carbon.

The church buildings picture – *Seeing the wider picture helps parishes understand their church buildings and what they need to think about in reducing carbon*

Our church buildings have been constructed with materials and energy from carbon. The best way of benefiting from those valuable resources is to keep using and looking after our churches. The construction and operation of new buildings and other developments should produce as little carbon as possible.

The energy to heat and light churches has traditionally come from carbon-based fuels. Heating is responsible for over 80% of the carbon produced with many churches using gas boilers and a smaller number oil. Changing heating so it produces much less carbon is normally more demanding and expensive than making improvements to the lighting.

The large number of church buildings taken together produce a significant amount of carbon. Major and middle-sized churches create much more carbon than the more numerous smaller churches. They are of course more likely to be used frequently and for longer by more people.

Church buildings have special designs, character, spaces and value with the majority protected by listing. The type of heating solutions you would use in a home or office may not be suitable. No two churches are the same and each needs a tailor-made scheme or variation which reflects its particular energy supply, site, building, environment, use and parish.

Recent progress means that 100% green electricity can be bought and renewable Biogas is now available. But key technological advances for heating such as using hydrogen or generating and storing electricity in novel ways are unproven or still to be made. We do not know what energy sources and systems will be adopted and become common in the future.

Parishes depend on wonderful parish volunteers to carry out a wide range of responsibilities including caring for and improving their church buildings. Most parishes have modest funds and

fundraising is time consuming and often difficult. Grants for installing renewable and other green energy systems in churches are currently limited.

There is therefore lots to think about when looking to reduce the carbon your church building produces through lighting and especially heating. Finding and funding the right solution can be challenging particularly when heating is replaced. However, it is possible to make real progress which will reduce carbon.

First steps and quick wins – *Steps that all churches can take to reduce their carbon use*

There are a number of first steps which parishes can take to reduce carbon, increase efficiency and potentially save money. These are relatively easy and may not be expensive. You may have taken some of them already. The steps include:

- Seeing how much carbon your church is using and comparing it to similar churches with the [Energy Footprint Tool](#).
- Taking a 100% renewable electricity tariff
- Taking a green Biogas tariff where suitable and available
- Maintaining your church and keeping water out – a damp building uses more energy and is less comfortable
- Reducing draughts and separating people from cold surfaces which again saves energy and increases comfort
- Making sure that your heating system is both being controlled and operating as efficiently as possible.
- Changing light bulbs to LED

The Church of England's 'Practical Path to Net Zero for Church Building' and other advice is helpful.

Further steps and big changes – *Following a path to give the best results for your church and parish*

Whatever the reason is for changing your heating, and sometimes your lighting too, you need to follow a path which takes you from a full understanding of your situation and what you require through identifying and assessing options to recommended solutions. Your situation includes the nature of your church building including its construction, contents and internal environment and the existing energy supply and heating system. It also includes your worship and community needs.

As no church and its use is the same as another so the path taken and the best result may be different. It is a mistake to take an 'off the peg' solution though learning from similar churches and parishes can be helpful.

In some village churches with one or two services on a Sunday electrical under-pew heating and panels nearby which warm people may be a good choice. In a larger church with frequent use and a less important floor an air-source heat pump and underfloor heating would give a good basic temperature. Solar panels could be suitable at a church which can make good use of the electricity they generate when there is good light. The key point is that you won't know what the right answer is unless you follow the path from understanding your building and circumstances to recommended solutions.

The Energy Footprint Tool is a good place to start along with the Church of England's 'Heating Checklist'. Energy audits or surveys which assess your church building and your existing and future needs and produce options and recommendations can be very helpful when you need to change your heating system. Energy audits/surveys are available and sometimes subsidised through Parish Buying. Your church architect or surveyor will have a key role in the process because they know your building and see it 'in the round'. The DAC team will advise on how you could follow your own path and give the names of specialist professional bodies and accreditation schemes along with consultants and firms which have worked in the Diocese.

Keeping, replacing or changing your heating system and planning for the future

The regular inspections and servicing of your heating system together with quinquennial inspection reports should give a good idea of how much life the system has left and whether it is still reasonably efficient. That information will help you to avoid nasty surprises and plan for the years ahead including finding and funding the right solution.

Alterations to the church and its spaces may enable or require changes to the heating. Building alterations should not prevent good heating and lighting solutions being installed in the years ahead.

If the heating system is not at the end of its life or irretrievably inefficient and there is no environmental, comfort or other special reason for making a change then keeping what you have is probably the best option.

That choice will make further use of the carbon and materials already used and the money invested in the system. Not making a change now could allow you to take advantage of technological advances and possibly more certainty and lower costs when it is replaced in the future. It will give you time to plan.

Replacing a gas boiler which has reached the end of its life with another gas model may also be an option worth considering. The existing pipes and radiators could be kept saving carbon, work and cost. The new boiler design will be more efficient than the last one and Biogas could be used. And when the replacement boiler is itself replaced in say twenty years' time then technology should have taken a leap forward and the best ways of delivering green energy become mainstream.

Main contacts and further information

Church of England (Church Buildings Council) <https://www.churchofengland.org/about/church-england-environment-programme>

Support and guidance on getting to Net Zero Carbon with very extensive and helpful advice such as the 'Practical Path to Net Zero for Church Building' and 'heating principles' including a heating checklist. There are also very useful Net Zero Carbon webinars.

Parish Buying <https://www.parishbuying.org.uk/>

Including purchasing energy audits or surveys, green energy supply and some renewables.

DAC team

Additional information and advice is available from the DAC team: dac@stalbans.anglican.org.

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