



# A practical path to net zero carbon for our churches

Recommendations that aim to help  
churches reduce their energy use  
and associated carbon emissions.





# These recommendations aim to help churches reduce their energy use and associated carbon emissions.

<h2>A Where do we start?</h2>	<p>These are actions that nearly all churches can benefit from, even low occupancy churches only used on a Sunday. They are relatively easy, with fast pay back. They are a good place for churches to start when trying to move towards net zero.</p>
<p><b>The building itself:</b></p>	
<p>A1. Maintain the roof and gutters to prevent damp entering the building and warm air escaping. Useful published guidance on church maintenance is available, including the SPAB Faith in Maintenance: <a href="http://spab.org.uk">Faith in Maintenance Project (spab.org.uk)</a></p>	
<p>A2. Fix any broken windowpanes* and make sure opening windows shut tightly to reduce heat loss.</p>	
<p>A3. Insulate around heating pipes to direct heat where you want it; this may allow other sources of heat to be reduced in this area.</p>	
<p>A4. If draughts from doors are problematic, draught-proof the gaps* or put up a door-curtain*. Also, consider placing fridge magnets over seldom-used door-locks.</p>	
<p>A5. Consider using rugs or floor-coverings (with breathable backings) and cushions on or around the pews/chairs.</p>	
<p><b>Heating and lighting:</b></p>	
<p>A6. Switch to 100% renewable electricity, for example through Parish Buying's energy basket, and 'green' gas.</p>	
<p>A7. Understand your heating controls better and match heating settings to usage so that you only run the heating when necessary*.</p>	
<p>A8. If you have water-filled radiators, try turning-off the heating 15 minutes before the service ends; for most churches this allows the heating system to continue to radiate residual warmth*.</p>	
<p>A9. If you have radiators, add a glycol based 'anti-freeze' to your radiator system and review your frost setting.</p>	
<p>A10. Replace lightbulbs with LEDs where simple replacement is possible.</p>	
<p>A11. Replace floodlights with new LED units.</p>	
<p>A12. If you have internet connection, install a HIVE- or NEST-type heating controller, to better control heating.</p>	
<p>A13. If your current appliances fail, then replace with A+++ appliances.</p>	
<p><b>People and policies:</b></p>	
<p>A14. Create an Energy Champion who monitors bills and encourages people to turn things off when not needed.</p>	
<p>A15. Write an energy efficiency procurement policy; commit to renewable electricity and A+++ rated appliances.</p>	
<p>A16. Consider moving PCC meetings elsewhere during cold months rather than running the church heating.</p>	
<p><b>Offset the rest:</b></p>	
<p>A17. For most low usage 'Sunday' churches, once they have taken steps like these, their remaining non-renewable energy use will be very small. For the majority, all they need to do now to be net zero is offset the small remaining amount of energy through Climate Stewards or other reputable schemes.</p>	
<p>A18. Also, think about your church grounds. Is there an area where you could either let vegetation grow and/or plant a native tree? Speak to your Archdeacon about plans for planting trees, and take care to avoid impacting any archaeology present.</p>	
<p>A19. Promote biodiversity and cherish the green spaces. Consider mowing church grounds less to allow wild flowers to blossom and time grass cutting to after flowers have seeded. See resources from Caring for God's Acre Resources – <a href="http://caringforgodsacre.org.uk">Caring For God's Acre (caringforgodsacre.org.uk)</a></p>	

# B

## Where do we go next?

These are actions with a reasonably fast pay back for a church with medium energy usage, used a few times a week. Perhaps half of churches should consider them. Most actions cost more than the ones above, and/or require more time and thought. Some require some specialist advice and/or installers. They are often good next steps for those churches with the time and resources to move on further towards net zero. Listed churches and cathedrals have special significance, and careful consideration should be given and specialist advice sought to examine the impact of any of the following proposals on historic fabric.

### **The building itself:**

- B1.** If you have an uninsulated, easy-to-access roof void, consult with your professional adviser about insulating the loft\*.
- B2.** If you have problematic draughts from your door, and a door curtain wouldn't work, consult with your professional adviser about installing a glazed door within your porch, or even a draught-lobby\*.
- B3.** Consider creating one or more smaller (separately heatable) spaces for smaller events.
- B4.** Consider fabric wall-hangings or panels, with an air gap behind, as a barrier between people and cold walls.

### **Heating and lighting:**

- B5.** Learn how your building heats/cools and the link to comfort by using data loggers (with good guidance).
- B6.** Improve your heating zones and controls so you only warm the areas you are using.
- B7.** Install TRVs on radiators in meeting rooms and offices to allow you to control them individually.
- B8.** 'Heat the person, not the building'. Consider under-pew electric heaters and/or individual heated cushions or full-length heated pew cushions\*, which keep people warm without trying to heat the whole church space. Infra-red radiant panel heaters\* may also provide direct heat from above, but consider comfort levels and visual intrusion. Radiant panels are especially good for specific spaces like chapels and transepts, which you might want warm when you don't need the whole church to be warm.
- B9.** If you have radiators, install a magnetic sediment 'sludge' filter to extend the life of the system.
- B10.** Consider thermal and/or motion sensors to automatically light the church when visitors come in, for security lights, and for kitchens and WCs.
- B11.** Install an energy-saving device such as Savawatt on your fridge or other commercial appliances.
- B12.** Get your energy supplier to install a smart meter to better measure the energy you use.

### **People and policies:**

- B13.** Vary service times with the seasons, so in winter you meet early afternoon when the building is warmer.

<h2>C Getting to zero</h2>	<p>These are bigger, more complex, projects, which only busy churches with high energy use are likely to consider. They could reduce energy use significantly, but require substantial work (which itself has a carbon cost) and have a longer payback. They all require professional advice, including input from your DAC.</p>
	<p><b>The building itself:</b></p> <ul style="list-style-type: none"> <li>C1. Draught-proof windows*.</li> <li>C2. If you have an open tower void insulate or draught-proof the tower ceiling *.</li> <li>C3. Double-glaze or secondary-glaze suitable windows in well-used areas such offices, vestries and halls*.</li> <li>C4. Internally insulate walls in well-used areas such offices, vestries and halls*.</li> <li>C5. If you have pew platforms consider insulating under the wooden platform with breathable materials*.</li> <li>C6. Reinstate ceilings, and insulate above*.</li> </ul> <p><b>Heating and lighting:</b></p> <ul style="list-style-type: none"> <li>C7. Install a new LED lighting system, including all harder-to-reach lights, new fittings and controls.</li> <li>C8. Install solar PV if you have an appropriate roof and use sufficient daytime electricity in the summer.</li> </ul>

<h2>D 'Only if ...'</h2>	<p>These are actions you would do at specific times (such as when reordering is happening) or in very specific circumstances. Nearly all require professional advice, including input from your DAC.</p>
	<p><b>The building itself:</b></p> <ul style="list-style-type: none"> <li>D1. If you are reroofing, insulate the roof at the same time, if it is appropriate for your roof*.</li> <li>D2. If you have an uninsulated wall with a cavity (typically built 1940 onwards), then insulate the cavity.</li> <li>D3. If the building is regularly used and suitable, such as a church hall, consider appropriate external insulation or render, appropriate for the age and nature of the building*.</li> </ul> <p><b>Heating and lighting:</b></p> <ul style="list-style-type: none"> <li>D4. Consider embedded carbon. Before investing in new equipment, consider prolonging use of existing systems, possibly by part-replacing components or using replacement boilers, as existing radiators and pipes may be allowed to continue in use.</li> <li>D5. If there's no alternative to fossil-fuels, then replace an old gas boiler or an oil boiler, with a new efficient gas boiler.</li> <li>D6. If yours is a well-used church which you want to keep warm throughout the week, then consider an air or ground source heat pump. Ground source heat pumps are more expensive and invasive to install than air source heat pumps, but run more efficiently once installed, depending on ground conditions.</li> <li>D7. If you are doing a major reordering or lifting the floor anyway, and yours is a very regularly used church, then consider under-floor heating. This can work well in combination with a heat pump (above).</li> </ul> <p><b>Church grounds:</b></p> <ul style="list-style-type: none"> <li>D8. If you have car parking that is sufficiently used, EV charging points for electric cars can work out cost neutral or earn a small amount of income for the church. Note, they will increase the church's own energy use, but will support the uptake of electric cars. They could be good in combination with solar PV panels.</li> </ul>

## E By exception

These actions are often mentioned in this context, but are generally not recommended, because of the risk of harm to the fabric, energy used, and/or the cost.

- E1.** Standard secondary glazing on the main historic windows (this can be inefficient, expensive and cause damage).
- E2.** Install solar thermal panels to generate hot water (hot water use is generally not high enough to justify it).
- E3.** Background space heating at all times unless needed for stabilisation of historic interiors (high energy use).

### NOTE

Many of the suggestions will require a faculty; please seek DAC advice early on and before making any changes, especially if the church interior is of historic, artistic, architectural or liturgical interest.

The DAC has a range of people with relevant expertise to help you. Your quinquennial architect may also be a good provider of advice on implementing net-zero measures.

Other resources, guides and case studies can be found on the Church of England's net zero environment programme webpages: [About our environment programme | The Church of England](#) and A Rocha's Eco Church resources website: [Resources - Eco Church \(arocha.org.uk\)](#)

The Church of England also has an excellent free net zero webinar programme and archive of past webinars: [Webinars on getting to net zero carbon | The Church of England](#)

\* If interiors are of historic, architectural or artistic interest, seek professional and DAC advice first.



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