For a good overview on how to reduce your church's carbon footprint see the Church of England's Practical Path to Net Zero (2020).

Housekeeping & Quick Wins for saving energy in your church

Instant things that you can do

These are quick and easy to implement ideas that you can start to do in next weeks and months:

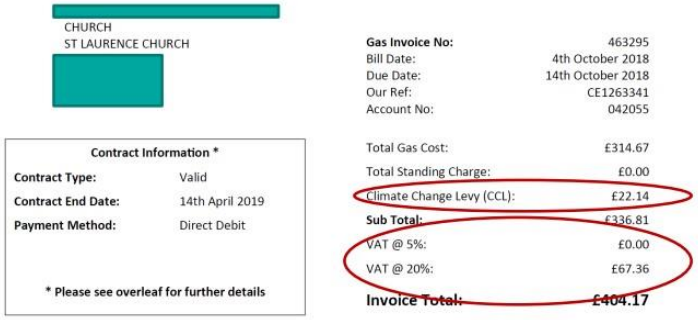
1. Check your energy bills
2. Understand your energy usage
3. Set boilers and frost stats correctly
4. Background heating
5. Timers
6. Radiators & Insulating pipes
7. Draught proofing
8. Easy to change lighting
9. Water saving

1. Check your Energy Bills

- ☐ **Check that you are not being overcharged on VAT**
- ☐ **Check your tariff rate is not overly high**
- ☐ **Switch to a 100% renewable tariff**

The best place to start - you can save money and energy simply by sorting out energy bills.

This might seem like a small change, but if you save money on your bills then you can invest that in other energy saving measures.



CHURCH
ST LAURENCE CHURCH

Contract Information *

Contract Type:	Valid
Contract End Date:	14th April 2019
Payment Method:	Direct Debit

* Please see overleaf for further details

Gas Invoice No:	463295
Bill Date:	4th October 2018
Due Date:	14th October 2018
Our Ref:	CE1263341
Account No:	042055
Total Gas Cost:	£314.67
Total Standing Charge:	£0.00
Climate Change Levy (CCL):	£22.14
Sub Total:	£336.81
VAT @ 5%:	£0.00
VAT @ 20%:	£67.36
Invoice Total:	£404.17

Check that you are not being charged more than 5% VAT on your energy bills.

- No church should be paying 20% VAT or Climate Change Levy (CCL) due to charitable status.
- Check ALL bills (especially high winter bills) to see if you have been charged 20% VAT at any point during the year.
- If you have been overcharged send in a VAT Declaration form to supplier (search "<supplier name> VAT Declaration to find forms online") and your supplier will make sure that you are charged correctly
- **You can claim back for up to six years with your current supplier if you have been charged incorrectly.**

Check your tariff rate that you are not being charged a very high rate.

- Many churches are being charged a very high (over 20p/Kwh for electricity and over 5p/Kwh for gas) or an out of contract tariff that means you are over-paying for your energy. If so, change your contract or switch supplier.

Switch to a renewable or green tariff.

- The quickest win to reduce your carbon emissions is to procure all energy from 100% renewable suppliers e.g. Green Journey, Parish Buying

2. Understanding your Energy Use

- □ Fill in the Energy Footprint Tool
- □ Check the time and date settings on meters

Understanding how much energy you are using and at what points during the day/week can help you to save energy, money and reduce your carbon emissions.

Energy Footprint Tool

The Energy Footprint Tool grades you on the basis of the energy you use and calculates your carbon footprint. This is accessed through Parish Returns online.
Don't be disheartened if your results are low as it gives you a starting point, and it is helpful as you can see when you are using your energy.

Energy Meters

Dual meters
Often, churches have dual meters and these can be wrongly set, causing you to be charged more for your energy. As churches typically use more energy in evenings and weekends, errors in the time or day can lead to high cost errors.

Old-fashioned mechanical time clock and meter
If you have an old mechanical time clock these can also have the incorrect time and day, if you have a weekend tariff it is very important that this reads the correct day!

Your supplier is obliged to fix any meter errors that are wrong, if you demand that they correct the historic error they will refund you if you have been charged incorrectly.

3. Boiler Controls & Frost Stats

- □ Check your thermostat dial is set correctly
- □ Check your frost stat is set correctly

This is an area where you can get good energy savings straight away!

Thermostat dial

If you have a dual burner boiler, these two dials need to be set correctly for the boiler to be efficient:

The high burn should be set to a lower temperature

The low burn should be set to a slightly higher temperature

This may seem counter-intuitive but it should be set like this so that the high burn boiler acts as a boost but the low burn takes over once it has reached the set temperature.
If you set the thermostat to really high level it will be very inefficient as it will take a long time for the reach that temperature. In general, three quarters round the dial is a good position.

Up to 30% of fuel costs can be due to frost protection.

Frost stat

- Your frost stat should be set only just above freezing point, to stop the water inside your system from freezing to reduce the risk of burst pipes.
- 3-5 degrees is the appropriate level, although this depends on the location of the sensor. If the temperature falls below the setting on the frost stat it will fire up the whole boiler which is why you don't want to have it set too high.
- As an alternative to having a frost stat set above freezing you can fill your heating system with a glycol-based inhibitor, then you don't need to worry about your frost setting. This could be particularly useful if you have a church which is only being used on a Sunday and the only reason the heating is coming on is to stop frost.

4. Background & Heritage heating

□ Check if you have background heating set
□ Evaluate if this is necessary for your historic interiors or whether you can switch this off

Recent thought is that background heating is generally not required in most churches and can sometimes cause more problems than it solves.

It is stable temperatures and humidity that are more important than background heating, historic interiors do not like major changes or spikes in temperature. Having heating on a hour every day with the thought that this helps to keep the damp off means that you are, in fact, causing fluctuations and instability.

Do not use background heating unless needed for a specific purpose e.g. tapestries or wall paintings for which you need specialist advice. Organs can be treated separately, ask your organ tuner about this, often with a little electric tube heater positioned in the organ itself.

If you have had constant background heating at the moment and you want to turn it off, you need to do this in the right way (i.e. not suddenly in winter!). You need to do this carefully so that you do not destabilize conditions for your interiors – you may want to ask for specialist advice on this.

It is much more important to keep people warm than heat empty space!

Ways to keep people comfortable:

- Pew cushions*
- Pew runners*
- Moving service times and PCC meeting venue in winter –
- consider the appropriateness of when to have smaller gatherings in the church building in winter.
- Keep feet warm e.g. a breathable matting or carpet on the floor.

*Speak to the DAC before introducing wholesale into the church
Faculty rules: https://www.legislation.gov.uk/uksi/2019/1184/article/20/made

5. Timers

□ Install timers if they are not already present
□ Set timers for hot water & flood lighting

Timer to control Hot Water unit

If you have a kitchenette you will often find this under the sink, it should have a timer on it and you only really want that timer to be on when you are in the building. They are very inexpensive to purchase and an electrician will be able to install on fuse outlet, then it is wired into the unit.

External Flood Lighting Timer This is not security lighting, which should be on a motion sensor to ward off unwanted guests.

For light pollution reasons, floodlights should be set to be off by no later than 11pm.

Have you considered the times/days/seasons that this is set to?

Most floodlights have a facility to come on at dusk but you can choose what time to set to turn them off. When consultations have been done with local people they often want floodlights off after 9-10pm, and even that extra hour or so can be quite a considerable saving in energy & money!

Does it need to be on every day of the week? Floodlights can be most effective when planned, can you link the floodlighting with the mission of your church e.g. Lent & Advent, instead of lighting up the church at all times.

6. Radiators & Lagging Pipes

- □ **Dust your heating system**
- □ **Check your column/panel radiators for cold spots, and if they need draining or bleeding contact a heating engineer**
- □ **Check the lagging of your pipes in your boiler**

Cleaning and Dusting

Dust is an incredibly good insulator so during your spring clean dust your heating systems!

If a filter is not cleaned out then remove a cover once or twice a year and hoover out as this will increase efficiency

Fins down at the bottom are very delicate, you want the soft bristle end of the hoover and make sure this is very delicately done.

Column/panel radiators

If you find you have cold spots at the bottom ask your heating engineer if it is worth chemical flushing the system. Sludge can be built up inside them (typically often in the middle when pipes go in and out at the bottom), heating engineers can clean out radiators easily.

If you find it is cold at the top and warm at the bottom that is because you have air in your radiator, there will probably be an air bleed valve and you may need to top up pressures in your boiler system when you do that dependent on your system it will help your system to be effective.

Lagging pipes

The boiler room should not be the warmest place in your church!

- If the boiler room is warm this is because the pipes have insufficient insulation and act as a massive great radiator!
- Even the complicated twisty sections should be insulated, you can get flexible jackets.
- This is well worth doing as it means you will get more heat into the building and boiler will work more efficiently.

National guidance about heating principles here:
https://www.churchofengland.org/resources/churchcare/advice-and-guidance-church-buildings/heating

7. Draught proofing

- □ **Check doors, keyholes and windows for draughts**
- □ **Implement the most appropriate solution from the list**

Treat the draught rather than turning the heating up!

Doors

Consider what is most appropriate given the age and type of door:

- Draught stripping
- Hessian dipped in wax
- The base of doors can be solved with a sausage dog draught excluder
- If it is a fire exit door you can attach draught excluders so that it will go out with the door and not cause a trip hazard
- Curtains

Large keyholes cause a considerable draught, this can easily be solved by a fridge magnet painted black placed over the hole.

For windows you can use a bit little of black plasticine if you want to seal a window which is draughty up for autumn/winter.

8. Easy to change lightbulbs

- □ Change to LED lightbulbs
- □ Consult an electrician for difficult to change lightbulbs

One of the easiest ways to save energy, money and carbon emissions is to switch your lightbulbs over to LED. The long-term savings mean that this is well worth the initial cost, and the majority of lightbulbs can be changed without the need for an electrician.

Check the colour of your LED lighting – you will want a warmer white instead of a cold blue-white.

PAR 38 – LED
Tea saucer PAR 38 reflector lamp

Old fashioned = up to 138 watts
LED version = 15-20 watts
MASSIVE SAVING, simply unscrew and screw in LED one, no electrician needed.

Mains GU10 downlights (but not the Low Voltage MR12.

Little downlight fittings typically in kitchens or bathrooms.

The GU10 mains voltage with 2 mushroom shaped lugs which twist out, can easily be removed and replaced.

If you have the two pins version which pushes in, that is a low voltage unit and will have a driver unit behind it. It is best to get an electrician to advise you correctly on how to change this to LED.

If you replace this with an LED version without an electrician's advice it will tend to flicker.

Traditional lightbulbs

These can easily be changed to LED, just check whether Edison screw or Bayonet cap fitting.

If any of your light bulbs are high access make sure changes are done safely

9. Water saving

- □ Claim a free water saving kit from your water supplier
- □ Check your toilets for leaks
- □ Install a water butt in your churchyard or garden

You can get free items from local water companies to save on your water usage:

- WC bags for placing in cisterns
- Check your toilets for leaks (e.g. brown limescale, running water sound)
- Kits to convert taps to low flow units

Did you know 90,000 litres of rainwater falls on a roof in just one year? Consider installing water butts in your churchyard!

This information was presented by Matt Fulford from Inspired Efficiency, sustainability advisor at Gloucester Diocese, for the Church of England National Environment Programme Carbon Net Zero webinars. This document was compiled for the Diocese of Newcastle by Bethany Hume.
Photographs from Unsplash or from Matt Fulford's presentation.

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INSPIRED EFFICIENCY
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