ESOS-ENERGY
Energy efficient solutions

Energy Efficiency and Zero Carbon Advice

Lancaster Priory
PCC of Lancaster Priory

THE DIOCESE OF BLACKBURN
THE CHURCH OF ENGLAND IN LANCASHIRE

Author	Reviewer	Date	Version
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Contents

1. Executive Summary

An energy survey of Lancaster Priory was undertaken by ESOS Energy to provide advice to the church on how it can be more energy efficient and provide a sustainable and comfortable environment to support its continued use. This audit has been provided in conjunction with 2buy2, the Church of England's Parish Buying scheme provider and is subsidised from Total Gas & Power, the Parish Buying schemes principal energy suppliers.

Lancaster Priory is a large Grade I listed church located adjacent to Lancaster Castle and was constructed around 1430 although a Benedictine Priory is reported to be on the grounds in around 1094 and a place of Christian worship from as early as the second Century. The Priory Church has had more recent additions including the inclusion of a café and toilets and choir school above this. The church is heated by gas fired boilers distributing heat via perimeter column radiators and lighting has been mainly converted to LED. There is both gas and electricity supplied to the site. Half of the electricity usage is incurred by the Telecom Company who operate a phone mast on the church tower.

The church has a number of ways in which it can be more energy efficient. Our key recommendations have been summarised in the table below and are described in more detail later in this report. It is recommended that this table is used as the action plan for the church in implementing these recommendations over the coming years.

Energy saving recommendation	Estimated Annual Energy Saving (kWh)	Estimated Annual Cost Saving (£)	Estimated capital cost (£)	Payback (years)	Permission needed	CO2 saving (tonnes of CO2e/year)
Refurbish window ironmongery / draught seals	11,704	£359	£500	1.39	List A (None)	2.16
Tune the boiler to more efficient combustions settings	8,764	£269	£500	1.86	List A (None)	1.62
Install SavaWatt devices on fridges and freezers	680	£89	£220	2.47	List A (None)	0.17
Fit flow regulators onto existing taps	478	£15	£60	4.10	List A (None)	0.09
Fit timed fused spurs to hot water heaters	162	£21	£90	4.24	List A (None)	0.04
Install reflective panels behind radiators	4,682	£143	£680	4.74	List B	0.86
Install thermostatic radiator valves (TRVs)	14,045	£430	£3,740	8.69	List A (None)	2.59
Install PIR motion sensors on selected lighting circuits	137	£18	£167	9.29	List B	0.03

Insulate exposed pipework and fittings in plantrooms	8,764	£269	£2,500	9.31	List A (None)	1.62
Change existing lighting for low energy lamps/fittings	13,980	£1,831	£24,641	13.46	Faculty	3.54
Install Draughtproofing to External Doors	7,022	£215	£3,200	14.87	List B	1.30
Install a Solar PV array to roof of building (assumed 100% of energy generated used in building)	10,935	£1,432	£21,583	15.07	Faculty	2.77
Install an Air Source Heat Pump into the building to replace existing heating system	33,035	-£408	£40,000	-98.02	Faculty	5.12
Replace heating system for electrical based heating solution	129,246	-£6,557	£29,681	-4.53	Faculty	16.66

The church should check any faculty requirements with the DAC Secretary at the Diocese before commencing any works.

Based on current contracted prices of 13.099p/kWh and 3.065p/kWh for electricity and mains gas respectively.

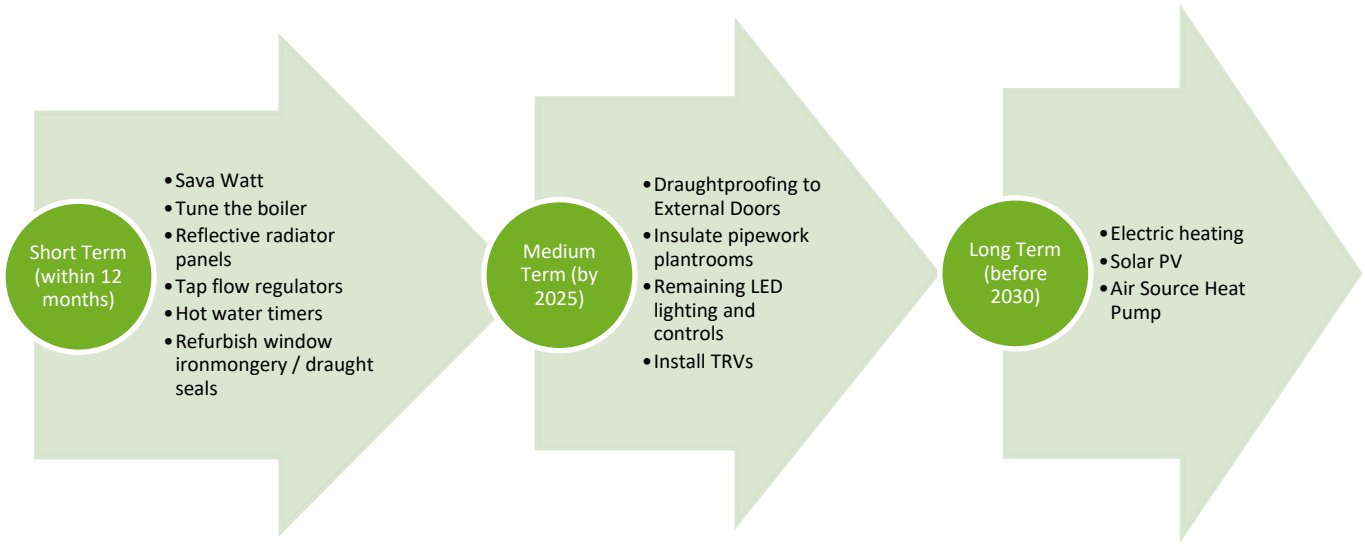
If we remove the electric heating and ASHP, implementing all other measures would save the church £5,092 per year.

As a route to a net zero carbon church, installing electric heating and an ASHP would provide a plausible route but currently results in a negative budget as seen in the table above.

2. The Route to Net Zero Carbon

The General Synod of the Church of England has indicated that the Church of England should be Net Zero Carbon by 2030. Every church, cathedral, church school and vicarage will therefore need to convert to be a net zero building in the next 10 years. Furthermore, the PCC of Lancaster Priory has also declared a climate emergency and has an ambition to be carbon neutral by 2035 and has recently implemented a policy that will not allow the replacement of oil heating systems.

This church has a clear route to become net zero by 2035 by undertaking the following steps:



3. Introduction

This report is provided to the PCC of Lancaster Priory to give them advice and guidance as to how the church can be improved to be more energy efficient. In doing so the church will also become more cost effective to run and seek to improve the levels of comfort. Where future church development and reordering plans are known, the recommendations in this report have been aligned with them.

An energy survey of the Lancaster Priory, Priory Close, Lancaster LA1 1YZ was completed on the 22nd of March 2021 by David Legge. David is an experienced energy auditor with over 10 years' experience in sustainability and energy matters in the built environment. David is a fully qualified ESOS lead assessor with CIBSE and a CIBSE Low Carbon Consultant and a fully qualified ISO50001 lead auditor.

Lancaster Priory	
Church Code	603242
Gross Internal Floor Area	1,264 m^2
Listed Status	Grade I

The church typically used for 50 hours per week for the following activities:

Type of Use	Hours Per Week (Typical)	Average Number of Attendees
Services	8 hours per week	200 (main eucharist)
Other Use	42 hour per week	

There is additional usage over and above these times for festivals, weddings, funerals and the like.

4. Energy Procurement Review

Energy bills for gas and electricity have been supplied by Lancaster Priory and have been reviewed against the current market rates for energy.

The current electricity rates are:

Day Rate	13.710p/kWh	Below current market rates
Night Rate	9.550/kWh	Below current market rates
Standing Charge	3.83p/day 3.68p/day	N/A
Climate Change Levy for 49% Of energy used	0.811p/kWh	N/A
EMR Levy	1.806 p/kWh	N/A
EMR Levy	1.806p/kWh	N/A

The current gas rates are:

Single / Blended Rate	3.13p/kWh	In line with current market rates
Standing Charge	188.25p/day	N/A

The above review has highlighted that the current rates being paid are in line or below current market levels and the organisation can be confident it is receiving good rates and should continue with their current procurement practices.

A review has also been carried out of the taxation and other levies which are being applied to the bills. These are:

VAT	5% and 20%	One of the electric meters is being charged 20% VAT (for the phone mast as is correct). The organisation is understood to be a charity and therefore should be benefiting from only be charged a 5% VAT rate for the remaining supply.
CCL	100% not charged	The correct CCL rate is being applied.

The above review confirmed that the correct taxation and levy rates are being charged.

5. Energy Usage Details

Lancaster Priory uses 65,725 kWh/year of electricity, costing in the region of £8,609 per year, and 238,855kWh/year of gas, costing £7,321.

This data has been taken from the annual energy invoices provided by the suppliers of the site. Lancaster Priory has one main electricity meter, serial number E10BG00601. There is one gas meter serving the site, serial number: E040K03171 15D6.

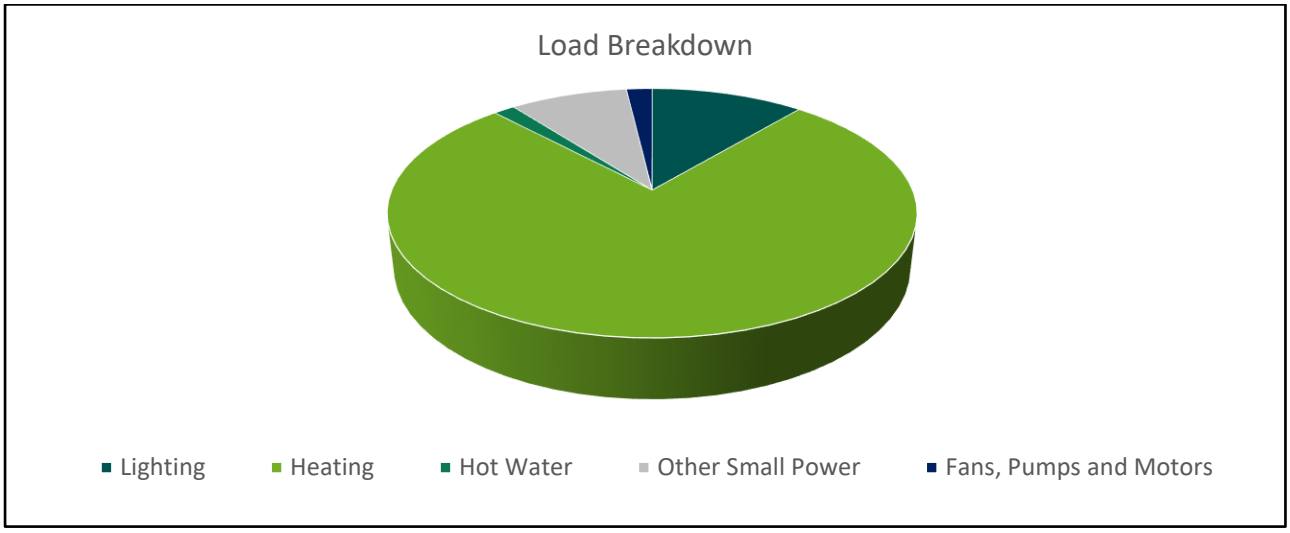
Utility	Meter Serial	Type	Pulsed output	Location
Electricity – Church	E10BG00601	EDMI Atlas Mk 10D	Yes, no AMR connected	Café cupboard
Gas – Church	E040K03171 15D6			Plant room

It is recommended that the church consider asking their suppliers to install smart meters so that the usage can be monitored more closely, and the patterns of usage reviewed against the times the building is used.

5.1 Energy Profiling

The main energy consuming plant can be summarised as follows:

Service	Description	Estimated Proportion of Usage
Lighting	Lighting has been mainly converted to LED. Beyond the chancel steps inefficient lighting remains, including SON floodlights and halogen spots.	11%
Heating	Provided by gas fired boilers which have reached their end of life. Separate boiler providing heating and hot water to café, choir school and vergers office.	77%
Hot Water	Provided by combi boiler to café	2%
Other Small Power	Heating pumps, organ, sound system, alarms, kitchen appliances and other plug loads.	9%
Fans, Pumps and Motors	Pumps and motors use for heat distribution system.	2%



As can been seen from this data, the heating makes up by far the largest proportion of the energy usage on site. The other significant load is lighting and small power.

5.2 Energy Benchmarking

In comparison to national benchmarks for church energy use Lancaster Priory uses 160% more electricity and 26% more heating energy than would be expected for a church of this size.

	Size (m^2 GIA)	Annual Energy Usage (kWh)	Actual kWh/m^2	Benchmark kWh/m^2	Variance from Benchmark
Lancaster Priory (elec)	1,264	65,725	52.00	20.00	160%
Lancaster Priory (gas)	1,264	238,855	188.97	150.00	26%
TOTAL	1,264	304,580	240.97	170.00	42%

6. Efficient / Low Carbon Heating Strategy

The energy used for heating a church typically makes up around 80% to 90% of the overall energy consumption. Putting in place a heating strategy that is energy efficient and low carbon is, therefore, of the highest priority

The Church of England is in the process of reviewing its heating guidelines. The process has already established some principles for heating that can help churches as they seek an acceptable combination of comfort, conservation, affordability, and environmental care. The principles can be found at https://www.churchofengland.org/sites/default/files/2020-04/CBC%20Heating%20guidance%20principles%20FINAL%20issued.pdf

As the principles make clear, every church's strategy will be unique to it, informed by many factors, including the nature of its usage, the system it's starting from, the conservation needs of the building, and the resources available. The strategies in this audit are designed specifically for your church.

Our recommendations on heating generally fall within three major areas. Firstly, for all churches we make recommendations that will help to reduce energy wastage and, as a starting point, to optimise the system that you already have

Secondly, we recommend options for many churches that focus on heating people rather than the full volume of the church. Some of the changes that can help with this will be 'soft' changes – others will relate to the heating system itself.

Finally, we make recommendations about moving away from fossil fuels. Moves away from fossil fuels are key to cutting emissions. For most churches, this will involve moving from gas, oil or LPG to electricity. Electricity currently creates carbon emissions around the same level as mains gas, but the carbon emissions associated with it are reducing rapidly as the UK builds more renewable energy and decommissions its remaining oil and coal fired power stations. Mains gas does have some potential to reduce its carbon content through the use of bio gas and hydrogen but these are less developed solutions and will be unable to deliver 'zero carbon mains gas'. Some local areas may also be considering the option of district heating networks.

While moving away from fossil fuels may not always be possible, as the principles state, "churches should be expected to have at least carefully considered the option of moving away from fossil-fuel based heating (gas and oil boilers) towards electric-based heating." And if such options are not viable now, the churches "can try to be ready for a future retro-fit when technology and the grid has progressed."

For the Priory, there are two main strands to the heating strategy: using localised electric heating for smaller services and to replace the existing gas boilers with an electric heating source for larger services.

As is explored in more detail below, the first recommendation is to discontinue the current practice of background heating. At the same time, there were several areas of damp ingress into the church including to the store above the choir school. The causes of the damp should be thoroughly investigated and fixed to alleviate this issue. If there is any paperwork that is affected by the damp, this should be moved to a dry office or archived appropriately at the County Archive. A tube heater should be fitted to the organ as the background heating is discontinued.

Following this, electric under pew heaters should be considered for smaller services including use of the Regimental chapel for Tuesday services and the use of under pew heaters in front 6 rows for evensong services. Finally, consideration of wall hung panels in St Thomas chapel for Wednesday services.

For larger services, there is obviously a need to heat the whole church. The current system makes use of cast iron column radiators and these could be retained and may need additional radiators if an Air Source Heat Pump (ASHP) were to be considered. It is suggested that the existing boilers, which have reached the end of their serviceable life, are considered for replacement with an ASHP (detailed further within this report). This would be able to provide heating for larger services whilst offering a low carbon heating solution.

6.1 Discontinue with Background Heating Strategy

Most traditional churches were constructed without any form of heating. The modern addition of heating is not needed to preserve the fabric but only to provide thermal comfort to occupants. The previous trend of 'conservation heating' for fabric issues is now largely considered to be unnecessary and is being avoided by the likes of National Trust and English Heritage. The only times when background heating may be required is if there are historic wall paintings or to for the preservation of large artefacts such as tapestries. The organ (and other sensitive areas such as historic papers stored in the vestry) may require some local background heating specific to that area. In general, sensitive paper records should be removed for storage in the county archive. Organs can be installed with a local background tube heater such as https://www.dimplex.co.uk/product/ecot-4ft-tubular-heater-thermostat within the organ casing in order to provide the heat where it is required. The fabric is often subject to the greatest damage by humidity (which is naturally higher when the air is warmer as warmer air has greater capacity for holding more moisture), as a result of large temperature swings (from central heating systems turning on and off) and from the excessive drying out/baking of timbers where high temperature heating units have been fixed to them (such as overhead heaters fixed to timber wall plates).

Providing constant background heating to the church building as a whole is excessive and wasteful of energy. At the very least we would recommend that this background level is reduced to a maximum of 12°C and ideally avoided all together.

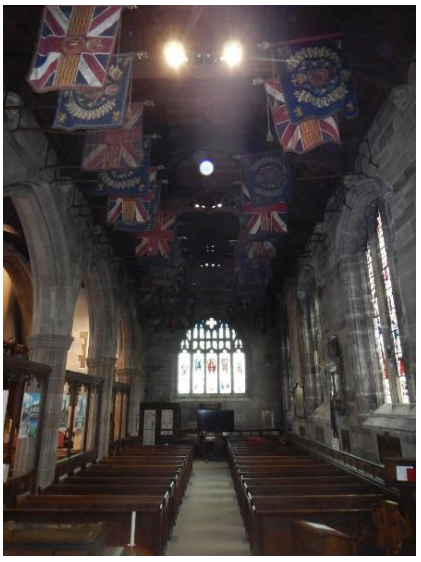
6.2 Install Electric Under Pew Heaters and Wall Mounted Heaters

The following schedule of heaters is designed to provide localised heat for smaller services to reduce the need to (attempt to) heat the entire air volume of the church for smaller services and reduce the gas consumption considerably. The heaters listed below will also add heating to areas (such as the chancel) that are currently not well heated.

Area	Type/Size	Length	Number required	Notes
Regimental chapel (for 20 people)	Electric Under Pew 650W	948	12	2 per pew, 3 rows
Main church-central aisles (for 50 people)	Electric Under Pew 650W	948	36	3 per pew, 2 pews per row, 6 rows

Chancel/altar	Electric Under Pew 650W	948	2	Under altar table (moveable but not likely to be moved!
Side chapel (where storage currently)		0		Will depend on final reordering plans
Organ heaters	Electric Under Pew 300W	525	3	
Choir stalls	Electric Under Pew 650W	948	20	Notable historic wooden pews, heaters need to be floor standing
Children's chapel	Electric Far IR Wall Panel 1200W	1200	4	wall mounted thin profile heaters to replace existing pipework heating
St Thomas Chapel (for 10 people)	Electric Far IR Wall Panel 1200W	1200	4	wall mounted thin profile heaters to replace existing pipework heating

For replacement, two most popular under pew heaters within churches are BN Thermic PH65 heaters (http://www.bnthermic.co.uk/products/convection-heaters/ph/) or similar from http://www.electricheatingsolutions.co.uk/Content/PewHeating.



We would therefore suggest that the following works could be considered:

Install BN Thermic Under Pew Heaters suspended from brackets from the underside of the pew seat, as noted in the table above.

Cable runs to the pew heaters should run along the along the existing routes or along walls (all cabling should be in armoured cable or FP200 Gold when above ground) to the rows of pews. Each pew heater to be switched with a neon indicated fused spur located underneath the pew seat.

The under pew (see photo below) and panel heaters have been recently installed at St Andrews Church, Chedworth, Gloucestershire, GL54 4AJ. The church is open in daylight hours so can be viewed at any time.

7. Improve the Existing Heating System

In the period before the replacement of the existing heating system it is recommended that measures are taken to improve the efficiency of the existing heating system, this should include:

7.1 Tune Boiler Settings

The existing boilers within the church are serviced at least annually, at which point the flue gas is analysed and the results from this are displayed on the front of the boiler. The main purpose of this analysis is to make sure that the boiler is combusting the gas properly and not releasing too many toxic gases into the atmosphere. The flue gas analysis also provides an indication as to the efficiency of the boilers.

It was noted from the results of this flue gas analysis that while the flue gases are within the permitted limits there is more scope to adjust the burner to increase the efficiency of combustion. It is therefore recommended that the boiler engineer is requested to maximise the burner efficiencies during their next service visit.

7.2 Insulation of Pipework and Fittings

The pipework within the boiler room has the majority of its straight lengths insulated, but the more complex shaped pipework fittings, such as valves, have been left uninsulated. These exposed areas of pipework contribute significantly to heat loss from the system and make the plant room unnecessarily warm. The exposed hot surfaces also represent a health and safety risk of burns for those working in the area.

It is recommended that these areas of exposed pipework and fittings are insulated with bespoke flexible insulation jackets. These wrap around the various elements but can be removed and then replaced for any servicing activities.

A free survey and quotation for the supply and installation of insulation of pipework fittings can be arranged through ESOS Energy Ltd (contact Adrian Newton 0117 9309689, adrian@esos-energy.com).

7.3 Reflective Radiator Panels

The church is heated by radiators served from the boiler. These radiators are located on the external, uninsulated walls and have no reflective or insulated surfaces directly behind them at present. They therefore lose much of their heat into the masonry of the wall behind the radiator rather than giving it out into the body of the church.

In order to improve the insulation directly behind the radiators, a reflective panel can be installed. This helps to make sure more of the heat from the radiator goes into the space and requires less overall heating from the boiler to achieve the set point. There are a wide variety of reflective panels for installing behind radiators on the market. It is recommended that these panels are installed behind all radiators within the building.

The installation of radiator panels can be carried out by anybody competent in basic DIY and does not require the radiators to be removed.

8. Energy Saving Recommendations

In addition to having a revise heating strategy there are also a number of other measures that can be taken to reduce the amount of energy used within the church.

8.1 New LED Lighting

The lighting makes up a relatively small overall energy proportion of the electricity used within the church, and whilst a good proportion of the lighting is lit by LED, there are still several areas which are lit by relatively inefficient fluorescent and SON fittings within the church and cafe.

It is recommended that the fittings scheduled in Appendix 1 are all changed for LED. There are a vast number of specifications of LED lights on the market, but it is recommended that any LED light should come with branded chips and drivers and offer a 5 year warranty. An example of such a range of fittings is available from http://www.qvisled.com/

If all the lights were changed on a simple “like for like” the total capital cost (supplied and fitted) would be £ £24,641. The annual cost saving would be £1,831 resulting in a payback of around 13 years. This estimate includes for the supply of the lights, the labour to install them and the access required. It does not include for any upgrade to the wiring or a new lighting design both of which the church may wish to consider.

There are some fittings such as vestry and stairs where the existing fitting can be made more efficient by simply changing the bulb/lamp within the existing fitting to w new LED bulb/lamp. This could be carried out by competent members of the churches internal team, very cost effectively and would be a List A item so no permissions would be required.

8.2 Lighting Controls (Internal)

There are several lights which currently remain on for longer than is necessary in areas such as vestry, toilet areas and the like. Some of these areas are only used occasionally and for a short amount of time so that, in actuality, the light does not need to remain on constantly or for prolonged periods. There are also spaces which benefit from a good amount of natural daylight coming in through the windows, such that artificial lighting is not required for much use during the year.

It is recommended that a motion sensor is installed on these specific lighting circuits so that the lights come on only when movement is detected in the space and turn off approximately two to

five minutes after the last movement has been detected (note that the duration of the time lag after which the light goes off needs to be considered alongside the type of light that is fitted. LED lights are much more suited to being switched off after only a short duration than some fluorescent lights). These movement sensors, commonly called PIRs, also have light sensors integrated into them so they can be used to make sure that the light does not come on if there is already sufficient daylight in the space.

Your existing electrician or any NICEIC registered electrical contractor can install PIR sensors onto existing lighting circuits. This can be carried out without significant disruption to the use of the space.

8.3 Refrigeration Controls

Within the church there are various domestic and commercial refrigeration units such as fridges within the cafe area. These units run 24/7 and contribute to the baseload electrical consumption of the building.

To reduce the electrical consumption of these appliances, it is recommended that they are all fitted with a SavaWatt unit. These units work by automatically detecting the load of the compressor and turning down the power when it is not in full load. This reduces the energy consumption of the refrigeration unit by around 18% while maintaining the cooling of the appliance. It does this by reducing the voltage delivered to the unit when it is idling but allowing the full energy to the unit when it is required.

Supply and installation and further details can be undertaken by SavaWatt directly http://savawatt.com/. (Note the self-installed SavaPlug has been discontinued, but the professionally installed Savacontrol option is available) The installation does not cause any significant disruption to operations and can be undertaken during normal operating times.

8.4 Thermostatic Radiator Valves (TRVs)

The church is heated by radiators and not all of these have thermostatic radiator valves (TRVs) installed on them.

TRV's can be installed on the existing radiator and allow the users of the room to have some element of control over the temperature in the room. They prevent o ver-heating and hence situations where the heating is on and the windows are open. They also allow unused spaces to have the heating in them turned down.

It is recommended that TRVs are installed on all radiators and users advised as to the best way to operate these once they have been installed. TRV's can be supplied and installed by any good heating engineer.

8.5 Timers on Fuse Spurs to Water Heaters

There are various electric hot water heaters and water boilers (for tea making and the like) located within the church. These only need to heat the water to the required temperature when the building is in occupation but at the moment these heaters are directly wired in without any form of time control and therefore maintain their set temperature 24/7.

It is recommended that the heaters are fitted with a 24 hour/7 day timeclock to replace the fused spur switch. An example of such a unit would be a TimeGuard FST77. They should be set up with times to match the times that the building is occupied. This will prevent the standing losses from the unit wasting energy during periods when the building is not occupied.

Such units can be purchased at any electrical wholesaler and fitted by your existing electrician or any NICEIC registered electrical contractor.

8.6 Draught Proof External Doors

There are a number of external doors in the church. The historic timber doors do not close tightly against the stone surround and hence a large amount of cold air is coming into the church around the side and base of these doors.

It is recommended that the draughtproofing around the door is improved and draught strips are added. This could be achieved in a number of ways:

For timber doors that close onto a timber frame a product called QuattroSeal (see link below) is often used in heritage environments to provide appropriate draught proofing. http://www.theenergysavers.co.uk/application/files/1714/7197/4194/National_Trust_Case_Study.pdf

Or for timber doors that close onto a stone surround more traditional solutions such as brush draught strips rebated into the edge of the door by a skilled joiner. Other traditional methods such as using hessian or felt pads tacked to the door could be used. Keeping the door maintained in a good condition is also important.

Simple measures such as having a 'sausage dog' style draught excluder laid along the base of a door (it needs to be sufficiently heavy to stay in place), using plasticine of the right colour to fill gaps where daylight can be seen, and putting painted fridge magnets over large keyholes can all be simple DIY measures which are effective.

8.7 Draught sealing windows and doors

The windows are in generally good repair, however there are a number of gaps/breakages in the windows, allowing cold air into church. These gaps allow large quantities of cold air into the church whilst also allowing heat to escape.

Gaps can temporarily be filled with black plasticine which will cause no damage and can be easily removed (as recommended by English Heritage). It is recommended that the masonry, mortar and frames are repaired to reduce these gaps.

9. Saving Recommendations (Water)

9.1 Tap Flow Regulators

The taps to the wash hand basins within the church and café area have been checked as part of the audit and the average flow rate within these has been measured to be over 8l/min. The recommended flow rate for hand washing is 4.8l/min and therefore the taps are providing around double the amount of water that is necessary.

The overprovision of water for hand washing is not only a source of excessive water use, but in the case of hot water, it is also a source of wasted energy in the heating that has to go into providing the hot water.

The flow rate of the taps can be easily regulated by fitting flow regulators within the taps. It is recommended that flow regulators are fitted into all the viable hand wash basin taps to save on both water and heating of the hot water.

These regulators can be self-installed or by any good facilities staff or it can be installed by anyone with competent DIY skills.

10. Renewable Energy Potential

The potential for the generation of renewable energy on site has been reviewed and the viability noted.

Renewable Energy Type	Viable
Solar PV	Yes - South aisle roof is viable. South nave roof is visible so not possible.
Wind	No – no suitable land away from buildings
Battery Storage	No – no viable PV
Micro-Hydro	No – no water course
Solar Thermal	No – insufficient hot water need

Biomass	No – not enough heating load as well as air quality issues
Air Source Heat Pump	Yes – to replace existing gas boilers
Ground Source Heat Pump	No – archaeology in ground and radiator system

There is potential for a PV array on the roof of the South Aisle which would be hidden from view but not overshadowed which would make for a viable array on a listed building. The current arrangements around solar panels mean that to be financially viable the building on which they are mounted needs to consume the vast majority of the energy that they produce. Given that the church is used 6 days a week during the day, the electricity generated would be used on site at the time of generation, making this a viable option for the church. Equally, if air course heat pumps were installed, solar would also partially meet the ASHP demand.

Battery Storage is not strictly a renewable energy solution, but battery storage does however provide a means of storing energy generated from solar PV on site to be able to be used at peak times or later into the day when the PV is no longer generating. It therefore extends the usefulness of the existing PV system particularly in this sort of church. This is a new but fast-growing technology with prices expected to fall substantial over the next 2 to 3 years.

Air Source Heat Pumps (ASHP) have Coefficient of Performance (COP) values between 2 and 4, which are weather dependent, and this means that for every one unit of electrical input, you achieve between 2 and 4 units of heat output. They are least efficient when required to deliver large amounts of heat when the air is cold, so are incompatible with heating a building once a week from cold. Installed costs are around £400 per kW of heat required.

An ASHP of around 100 kW is likely to be required to provide sufficient heating to the church but may also require additional radiators or alternatively a high temperature heat pump to be installed. The location of a heat pump would most likely need to be where the existing gas boilers are due to the listed status of the building and the surrounding environment.

11. Funding Sources

This audit programme offers each participating church the chance to apply for a grant of up to £150 towards implementing some of the audit's recommendations. An application form is included with this report.

There are a variety of charitable grants for churches undertaking works and a comprehensive list of available grants is available at https://www.parishresources.org.uk/wp-content/uploads/Charitable-Grants-for-Churches-Jan-2019.pdf .

12. Faculty Requirements

It must be noted that all works intended to be undertaken should be discussed with the DAC at the Diocese.

Throughout this report we have indicated our view on what category of permission may be needed to undertake the work. This is for guidance only and must be checked prior to proceeding as views of different DACs can differ.

Under the new faculty rules;

List A is for more minor work which can be undertaken without the need for consultation and would include changing of light bulbs within existing fittings, repair and maintenance works to heating and electrical systems and repairs to the building which do not affect the historic fabric.

List B is for works which can be undertaken without a faculty but must be consulted on with permission sought from the Archdeacon through the DAC. This includes works of adaptation (but not substantial addition or replacement) of heating and electrical systems and also the replacement of existing boilers so long at the same pipe work, fuel source and flues are used. It can also be used to replace heating controls.

All other works will be subject to a full faculty.

Works which affect the external appearance of the church will also require planning permission (but not listed building consent) from the local authority and this will be required for items such as PV installations.

Appendix 1 – Schedule of Lighting to be Replaced or Upgraded

Room/Location	Number of Fittings	Recommended Upgrade	Annual Saving (£)	Total Cost (£)	Payback
Café room	12	5ft Single Proteus LED	£51	£1,528	30.07
Café	30	LED GLS	£65	£357	5.50
WCs	5	2D LED 11W	£11	£294	26.82
Vergers vestry	1	5ft Single Proteus LED	£33	£127	3.84
Stairs	2	2D LED 11W	£14	£118	8.25
Choir school	4	5ft Single LED	£178	£351	1.97
Top vestry	2	2D LED 11W	£14	£118	8.25
Side aisles/chancel	9	AR111 LED	£221	£383	1.73
Side aisles/chancel	10	3 Spot Track lights	£245	£10,000	40.78
Side aisles/chancel - halogen	6	3 Spot Track lights	-£43	£6,000	-141.16
External	10	100W LED Flood	£1,041	£2,000	1.92