Energy Efficiency and Zero Carbon Advice

St John's Church, Egham
PCC of St John's Church

Author	Reviewer	Audit Date	Version
Paul Hamley	Marisa Maitland	26th April 2022	2.0

Contents

1. Executive Summary

An energy survey of St John's Church, Egham 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.

St John's Church, Egham is a Victorian Grade II* listed church built in 1820 in the classical Doric style, with adjoining contemporary unlisted hall [the Easter Centre, 2017] to the south. There is both gas and electricity supplied to the site.

This report focusses on the 1820 church building. The 2017 centre is constructed to modern standards and therefore it can host solar photovoltaic panels, which could supply the whole site (but would mostly serve the centre which is in daily use). As a regularly used building which is well insulated, it is ready to be fitted with a heat pump; it is thought that preliminary works for this were included in the building design. The third building on site, the Caddey Room, is a solid wall, converted cow shed which would require extensive work to become energy efficient. It may be suited to become a summer use only overflow building, if activities could be accommodated within the centre (or church) during winter.

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)
Disconnect radiator circuit	40% 11,000	£200	£500	3	List A	2.0
Connect East Room heating to Centre	Nil	Minor reduction, see text	£500- 1,000	N/A	Faculty	0
Reconfigure boiler to output at 50°C / return below 55°C	8% 2,200	£40	£Nil	Immediate	None	0.4
Clean radiator system Add Magnetic Particle Filter	7% 1,900	£34	£400	12	List A	0.35
Replace water heating tank with point of use heater	1000	£150	£150	1	List B	0.25
Complete installation of LED light bulbs	50	£10	£10	1	None	0.01
Install timer to control crypt lighting	50 plus	£7	£50	< 7	List A	0.01

Draughtproofing works, doors	2% 560	£10	£20	2	List B	0.1
Window closure maintenance	2% 560	£10	£10	1	None	0.1
Install insulation	10% 2,800	£49	£3,300	67	List B	0.5
Obtain quotations for Solar Panels (for centre)	22,500	£3,360	£32,625	10	Faculty	5.7
Obtain detailed quotations for Heat Pump (Church)	28,000 gas 7,125 electric use	£270	£75,000	Not recovered	Faculty	3.3

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

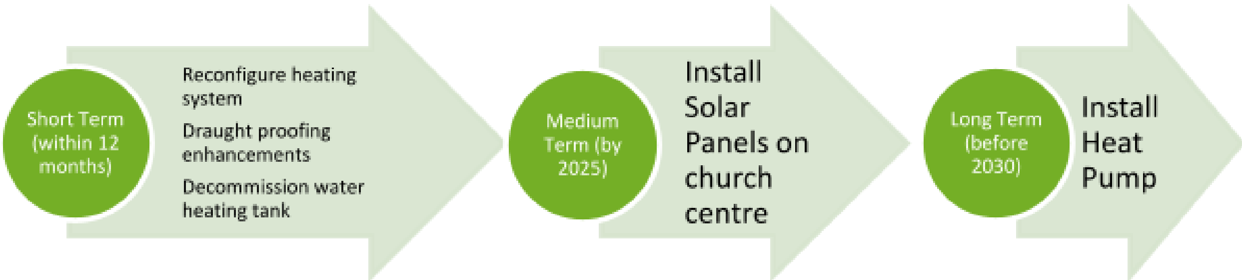
Based on current contracted prices of 14.9422p/kWh (day), 11.9239p/kWh (night) for electricity, and 1.7531p/kWh for mains gas respectively.

If all measures were implemented this would save the church around £800 in operating costs, plus over £3,000 saved in centre electricity costs per year.

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. St John's Church has joined the EcoChurch scheme and is planning environmental improvements to buildings and grounds.

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 St John's Church, Egham 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. Where future church development and reordering plans are known, the recommendations in this report have been aligned with them.

An energy survey of the St John's Church, Egham, High Street, Egham TW20 9HR was completed on the 26th April 2022 by Dr. Paul Hamley. Paul is an energy auditor with experience of advising churches and small businesses. He is part of the Church Energy Advisors Network developing advice for the Church of England and authored the "Assessing Energy Use in Churches" report for Historic England. He is a CIBSE affiliate member and a Chartered Scientist, with experience of the faculty process gained from chairing the building committee of a Grade I listed church and has been an assessor for EcoCongregation.

The church was represented by Chris Gray, Treasurer and Chris Peters.

St John's Church, Egham	
Church Code	617191
Gross Internal Floor Area	660 m^2 [not including crypt]
Listed Status	Grade II*
Historic England Reference	1189321

The church is typically used for 19 hours per week for the following activities:

Type of Use	Hours Per Week (Typical)	Average Number of Attendees
Services	7 hours per week	185
Meetings and Church Groups	6 hours per week	20
Community Use	5 hours per week	60
Occasional offices	4 Weddings 10 Funerals	100

Annual Occupancy Hours: 1,000

Estimated Footfall (church only: 19,000

4. Energy Procurement Review

Energy bills for gas and electricity have been supplied by St John's Church, Egham and have been reviewed against the current market rates for energy.

The current electricity rates are:

Day Rate	14.9422p/kWh	Below current market rates
Night Rate	11.9239p/kWh	Below current market rates
Standing Charge	31.5212p/day	N/A

The current gas rates are:

Single / Blended Rate	1.7531p/kWh	Below current market rates
Standing Charge	215p/day	N/A

Both utilities are supplied by Total Gas & Power via the Parish Buying group purchasing scheme.

This scheme offers 100% renewable electricity and a proportion of renewable gas and therefore are an important part of the process of making churches more sustainable.

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%	The correct VAT rate is being applied
CCL	not charged	The correct CCL rate is being applied.

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

Whenever monthly electricity consumption exceeds 1,000kWh, or gas consumption exceeds 4,397kWh (52,000kWh per annum), 20% VAT is charged unless the customer has submitted a VAT declaration form. This should always be done when changing supplier. The church is a charity and therefore can claim VAT exemption status. *Excess VAT paid can be reclaimed for the past three years.*

VAT declarations are available from the suppliers website and can usually be found by typing the suppliers name followed by "VAT Declaration Certificate" into most website search engines.

A detailed explanation is available here: https:// perfect-clarity.com/vat-on-church-utility-bills/#:~:text=There%20is%20no%20VAT%20chargeable%20on%20Church%20water%20bills

5. Energy Usage Details

5.1 Annual Consumption

Utility	Annual use/ kWh	from	to	Cost
Electricity				
Church	8,386	01/12/2020	30/11/2021	£1,268
Centre	22,388	01/12/2020	30/11/2021	£5,155
Caddey	1,260	01/12/2020	30/11/2021	£313
Gas				
Church	28,055	30/10/2020	31/10/2021	£1,331
Centre	91,553	30/11/2020	30/11/2021	£2,931
Caddey	2,594	30/11/2020	30/11/2021	£197

The electricity and gas consumption of the centre is much higher than the church. Fitting of a heat pump should be prioritised for the centre in the future for cost and carbon footprint reduction reasons. The centre boiler is only five years old and should be of high efficiency. The church boiler may require replacement first due to its age.

Utility	Meter Serial	Type	Pulsed output	Location
Electricity				
Church	E15UP 15361	Atlas Mk10D Three phase	Yes	Vestry, behind the piano
Centre	K13C 06804			
Caddey	E14UP 08319			
Gas				
Church	A 00074 14 A6			External, north wall outside vestry
Centre	K 01511 11 D6			
Caddey	K 05120 14 D6			External, north end of building

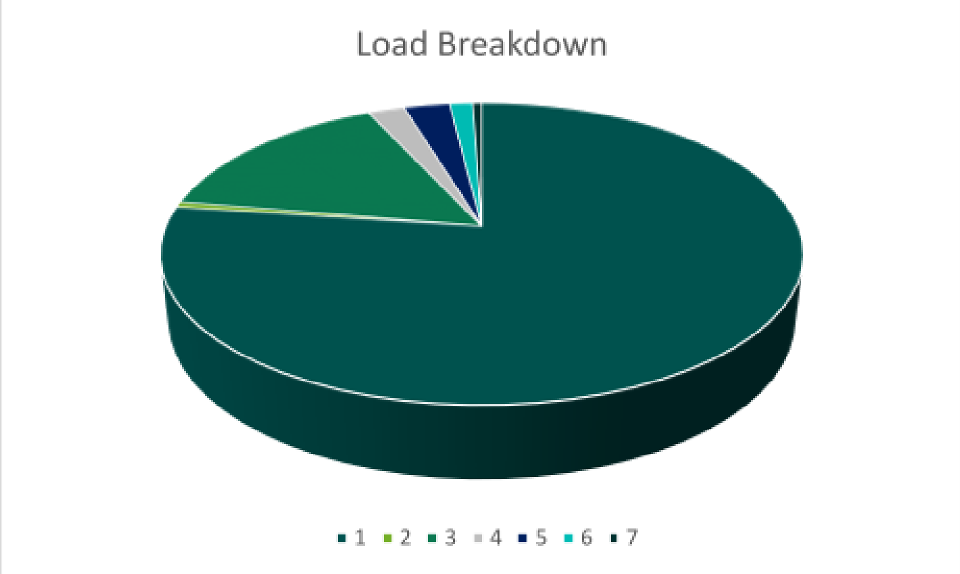
Where AMR connected meters are installed an energy profile for the entire energy usage should be obtainable from your supplier.

5.2 Energy Profiling

The main energy consuming plant can be summarised as follows:

	Equipment	Power kW	Annual Consumption kWh	Portion
Heating [Gas]	1 x MHS Strata HE 75 boiler 69kW output at 80° Flow ~ 400 hours use in 2021	75	28,000	77.1%
Heating [Electric]	Boiler circulating pumps 400 hours use	0.25	200	0.6%
Lighting [Internal]	Mix of LED plus CFL units Nave 10 spotlights x LED 6W Balcony 16 uplights x 3 x 32W CFL Under balcony 34 x GU10 mostly LED x 5W 20 x CFL x 18W Chancel 8 x T5 F20W 2 x floor mounted LED flood x 120W (rarely used) Vestry **1 x 70W halogen** **1 x 200W incandescent** East Lounge 9 recessed ceiling LED x 5W 2 uplights LED x 10W Toilets 3 x bulkhead CFL x 40W TOTAL	60W 1536W 170W 360W 160W 240W **70W** **200W** 45W 20W 120W 2.8kW	5,600	15.4%
Lighting [External]	Sodium SON floodlights	300	800	2.2%
Hot Water	**Wall mounter water heater** **Heatrae Sadia 20 litre** **(normally switched ON)** **Constant heat loss of around 100W**	3 (max)	**1000**	2.7%
Sound, Music	Organ Sound system	1 0.5	200 300	1.4%
Other Small Power	Vacuum cleaner	1.5	200	0.6%

Annual electricity consumption, 2021 = 8,386kWh



KEY 1 Gas Heating 2 Electric Heating 3 Lighting internal 4 Lighting external

5 Hot Water 6 Sound, music 7 Small power

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. Hot water electricity use can be minimised.

5.3 Energy Benchmarking

In comparison to national benchmarks for church energy use[1] St John's Church, Egham uses 53% less electricity and 73% less heating energy than average for a church of this size.

	Size (m² GIA)	Annual Energy Usage (kWh)	Actual kWh/m²	Benchmark kWh/m²	Variance from Benchmark
St John's Church, Egham (elec)	660	8,386	12.7	27	-53%
St John's Church, Egham (gas)	660	28,000	42.4	156	-73%
TOTAL	660	36,386	55	183	-70%

There is currently no benchmark data available which takes hours of use and footfall into account.

[1] CofE Shrinking the Footprint – Energy Audit 2013

6. Efficient / Low Carbon Site Heating Strategy

The energy used for heating a church typically makes up around 80% to 90% of the overall energy consumption. Heating often uses gas or oil as its primary fuel, fossil fuels with high carbon emissions and with little opportunity to decarbonise in the future. Electricity currently has carbon emissions of around the same level as mains gas but the carbon emissions associated with electricity are reducing rapidly as the UK builds more renewable energy and decommissions its remaining 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'. It is therefore important to develop a plan for a more efficient and less carbon intensive heating system. One way to achieve this is to consider a transition to electrical heating where this also represents a more efficient and comfortable solution for churches.

Currently, the site's ratio of electricity price / gas price is high, due to very low group purchasing gas rates. Changing from gas to direct electric heating would result in an increase in expenditure by a factor of about six (depending on the ratio of day and off peak electricity used). With a heat pump supplying four times as much heat as electricity consumed, this is not enough to offset the increase.

However, the current trend of a faster increase in gas price compared to electricity will mean that in future, cost factors will make heat pumps more favourable.

6.1 Obtain Heat Pump Quotations for Entire Site

The centre is believed to have been constructed with the opportunity to retrofit a heat pump. A plan should be developed for this for when the centre's boilers require replacement in the future, the boilers are currently 5 years old. As a regularly used building with good insulation levels, heat pump technology is an appropriate replacement.

The church has previously received a quotation for a Ground Source Heat Pump (around a decade ago) and since then the technology has matured and capital costs reduced. It is recommended that quotations are sought for the centre and church, as independent systems but also combined systems (i.e. one plant room serving the centre and church underfloor heating system).

The churchyard contains graves and also listed memorials, so it is likely that a borehole Ground Source system will be recommended by installers. The car park area may offer an opportunity to lay a pipe array underneath which can capture summer heat and prevent depletion of the underground heat store, which would be advantageous.

Because of the existing church underfloor heating system, good levels of insulation in the centre, the adjacent car park, and the opportunity for installing solar panels on the centre roof to contribute to running the heat pump system, then the extra expense of a Ground Source system will give benefits of lower operating costs compared to an Air Source system.

7. Current Church Heating System Recommendations

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.

The church is heated by a 75kW gas boiler serving:

- An underfloor heating system
- Eight cast iron radiators located around the balcony walls
- Two pressed steel radiators in the recently constructed East Room

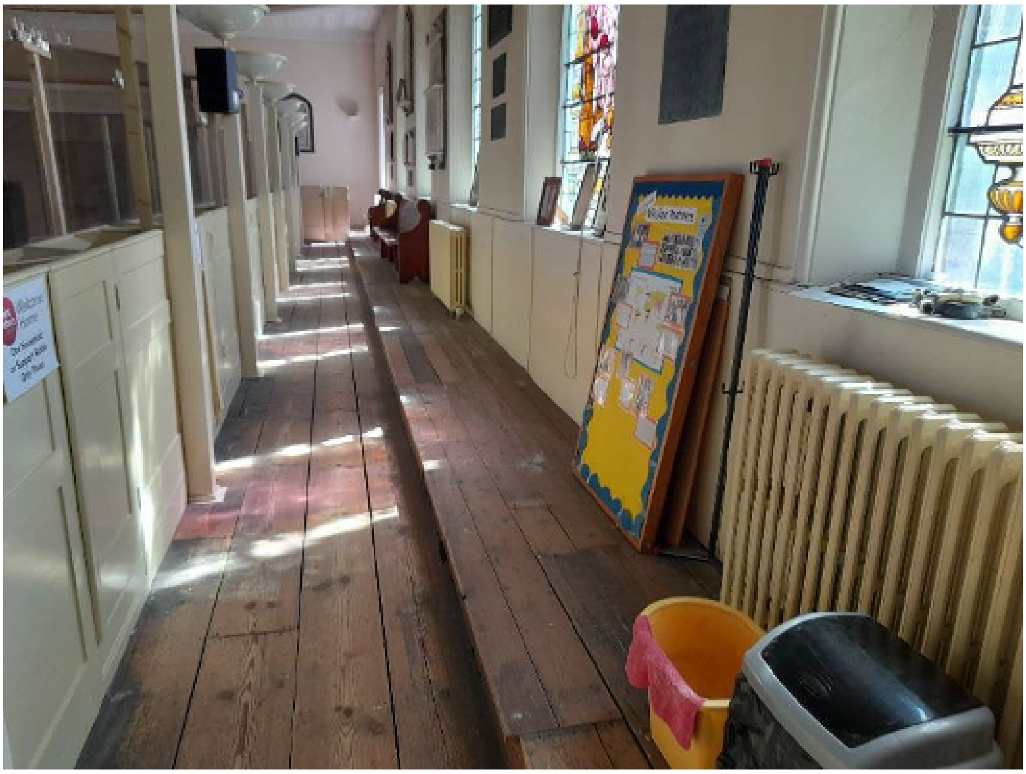
The recommended improvements include:

7.1 Disconnect Balcony Radiator Circuit

The balcony radiators supply warm air to the ceiling, where it cools. Gradually, the level of warmer air (at about $25^{o}C$) lowers, and will eventually reach the lower areas after many hours.

The balcony box pews are shielded from any radiant heat which the radiators provide. The heat is delivered to the wrong place (the ceiling). It is recommended that the entire radiator circuit is disconnected to obtain the following advantages:

- Allow the underfloor system to be optimised with the boiler
- Reduce / remove the circulation of sludge from corrosion within the radiator system which fouls the underfloor pipework.
- Reduced heat supply to the radiators can allow longer hours of operation of the underfloor system for less overall gas use.



7.2 Connect East Room Radiators to Centre Heating System

Currently, the East Room can only be heated when the entire church system is heated.

This is inefficient if it is desired to use the room for small meetings (it is equipped as a lounge with sofas and can accommodate small meetings of up to ten people).

It is recommended that the new radiators in the East Room are connected to the Easter Centre heating system which serves a space below this room.

As the centre is in regular daily use, heat would then be available for this room without firing up the church boiler to heat the whole church space as well. Radiators would be controlled by their own thermostatic valves and turned on an hour or so before the room was required.

7.3 Operate Boiler in Condensing Mode

The balcony radiators are only effective when hot and the result is that the boiler is currently set to deliver water at around 70ºC, which gives a specified output of 69kW. Isolating the radiators and reducing boiler set output temperature to 50ºC allows waste heat to be recovered from the flue gases, with boiler output then increased to 75kW.

This is an 8% rise in available power and will save 8% of gas use. Since underfloor systems raise the floor plate temperature to no more than 30ºC, supplying water at 50ºC is appropriate.

Flow temperature should be reset to lower levels for the autumn heating season.

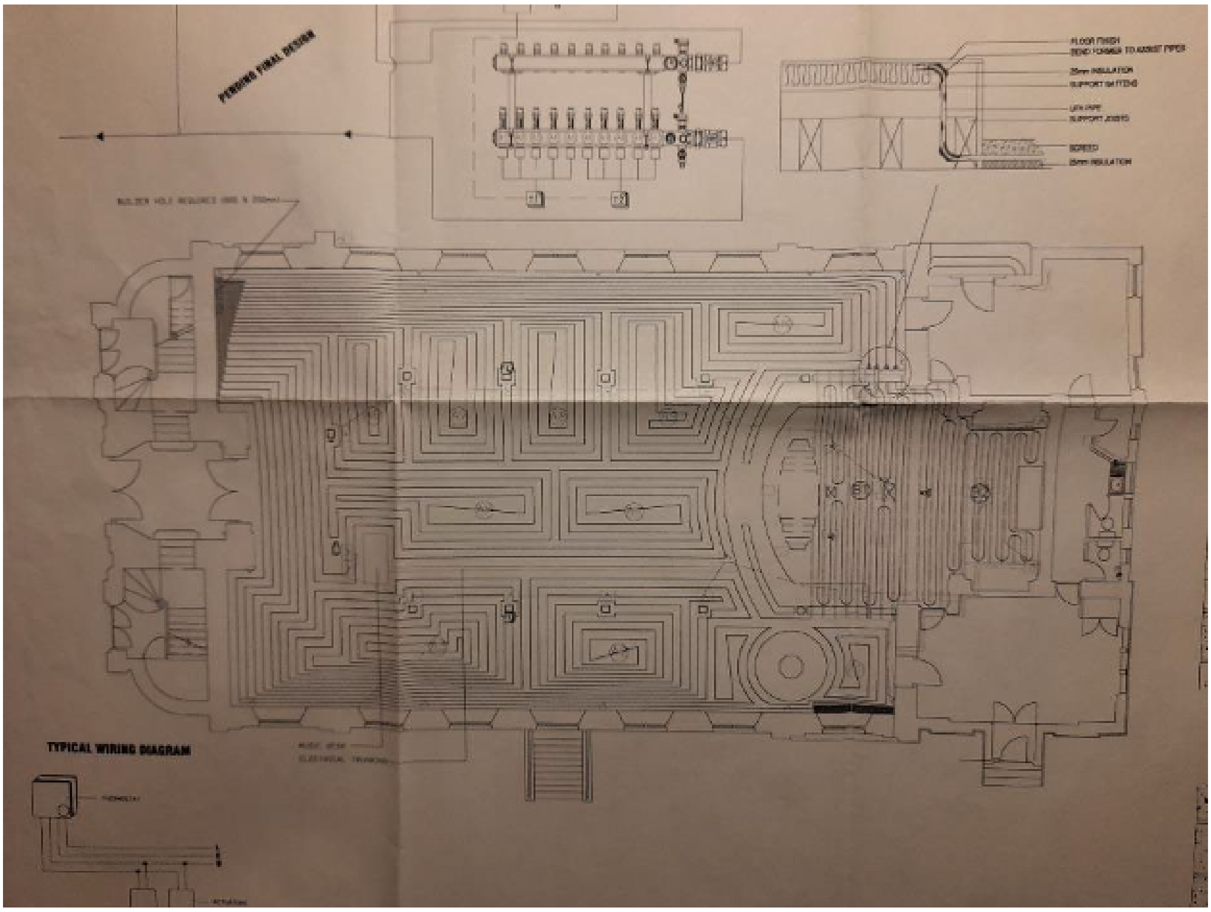
7.4 Clean the Existing Heating System

Magnetic sludge is seen to be circulating by viewing the underfloor heating manifold flow meter glasses.

It is strongly recommended that the heating system is cleaned to remove this sludge once the radiator network has been disconnected from the underfloor system, this is done by using a chemical clean and/or power flush procedure where cleaning chemicals are put into the system which is then turned on and run through a filter consisting of high power magnetics to remove the sludge.

The cleaning of a heating system can be carried out by any competent heating engineer and typically increases the efficiency of a system by between 10 to 15%. This can dramatically improve comfort for the congregation.

Black magnetic sludge can be seen in the sight glass flow meters of the underfloor heating manifold.



The whole of the ground floor, apart from the entrance area to left, vestry and link to centre to right are served by underfloor heating.

7.5 Install Magnetic Particle Filter

In addition, a magnetic particle filter should be fitted to keep the underfloor system clean.

8. Energy Saving Recommendations

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

8.1 Turn off Fixed Hot Water Heater.

A Heatrae Sadia 20 litre fixed water heater is located behind the flower arranger's sink near the entrance area at the west of the building, however it is understood that the need for hot water is infrequent. The tank can supply ten litres of hot water, then another ten litres of warm water (as it refills with cold) and a wait is then necessary before further hot water is generated.

This tank has been left on constantly, and whilst it is insulated, but the copper exit pipe is not. This is hot to the touch, and the hot/warm length is about 30cm. This is easily losing as much heat as a traditional light bulb - around 100Watts. Since the unit is on constantly, 8,760 hours annually amounts to 876kWh. With day/ night rates of 13 and 10p/kWh, this is over £100 wasted. Therefor it is recommended that the unit is turned off.

If necessary, hot water can be provided by a point of use heater (like an electric shower), giving heat only on demand. Although for infrequent use, a kettle may suffice.

Suitable detergents are available for use with cold water for handwashing (Section 9.1).

8.2 Light Bulbs

The Vestry was found to be lit by one 70W halogen bulb and one 200W incandescent bulb.

These should be replaced immediately by LED (or CFL) bulbs of 18W or less. Incandescent bulbs in stock should be disposed.

8.3 Lighting Controls (Internal)

The Crypt lighting is reported as having been left on for long periods by a user who failed to switch them off. It should be fitted with a timer offering long periods of use.

An example is www.danlers.co.uk/products/switches/time-lag-switches/interior-time-lag-switches/tlsw-ms1246

8.4 Draught Proof External Doors

The West Entrance doors are not hinged and swing on pivots and the doors close against the stone doorway (which is hollowed out to permit the edge of the door to open into a recess).

The portion of stone frame which projects closest to the front face of the door may be fitted with a sealant strip which would be compressed when the door is closed which would face inwards.

This image shows the door fully open with its outer edge in the curved recess. The thin stone edge which continues over the door is a good location for a draught seal strip. An alternative would be to install a strip fixed to the door itself to locate against this stone edge when closed.

The Vestry door on the north side of the building is infrequently opened and light could be seen around the frame which would benefit from a thin sealant strip insert into the gap where it would not be visible.

8.5 Windows

The balcony windows are fitted with opening semi-circular upper lights, operated by a cord wound screw mechanism. Some windows require adjustments to the cords where knots prevent the screw being wound to the end of its travel, thus the window is not closing. This may be achieved by either a longer cord, or careful splicing together of the cord ends to avoid a knot.

8.6 Insulation to Roof

The loft space between the ceiling and pitched roof was not inspected. If the church building is brought into greater use then fitting of ceiling insulation up to the 270mm recommendation should be completed. It is unclear if there is existing insulation; installing the full amount ($350m^2$) at £9.50/m^2 would cost in the region of £3,300. If the building is to be used at low occupancy, this would not be a priority.

8.7 Power Management Settings on Computers

Where computers are used in the church centre, they should be set to go into hibernate mode after a short period of time of not being used.

This can be set on the computers by going into the Power Options settings on the computers control panel and adjusting the times on the 'change when computer sleeps' option. It is recommended that computers should turn off their display after 2 minutes and put the computer to sleep after 5 minutes. Putting the computer to sleep will not lose any unsaved work but will require the user to power up the computer again when returning to their desk. Having shorter hibernate modes not along helps to save energy but also improves security by reducing the time that computers are left on but unsupervised.

9. Saving Recommendations (Water)

9.1 Detergents for Cold Water Hand washing

Use of cold water for hand washing can be just as effective as using hot. This would remove the need for a water heater to serve the toilet at the west end of the building.

https://www.nhs.uk/news/lifestyle-and-exercise/cold-water-just-as-good-as-hot-for-handwashing/

9.2 Tap Flow Regulators

The over provision 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 such as those manufactured by neoperl (http://www.neoperl.net/en/) 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.

10. Other Recommendations

10.1 Electric Vehicle Charging Points

The church centre has a car park adjacent to it. In order to make a visible statement on the churches mission of stewardship and to facilitate more sustainable transport choices by those both visiting the church and using the hall, the church may wish to consider installing an electric vehicle charging point, probably on the side of the church hall to allow visitors to charge their electric car.

Installing a unit such as a Rolec Securi-Charge http://www.rolecserv.com/ev-charging/news/view/Robust-EV-Charging-With-Rolecs-SecuriCharge-EV-Wall-Unit-Coin-Token-PAYG would allow the organisation control over who is allowed to use the unit with a key operated system. Or given the type of use of the building and control over the usage of the car park as a whole a simple 32 amp type 2 wall pod type charger may be most suitable and these are widely available through many suppliers such as http://www.rolecserv.com/ev-charging/product/EV-Charging-Points-For-The-Home.

Because of the parish office within the centre building the church as be considered as a place of work and as such installation grants are available through the work place charging scheme https://www.gov.uk/government/publications/workplace-charging-scheme-guidance-for-applicants-installers-and-manufacturers which will fund 75% of the installation cost up to £500.

11. 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	On centre roof
Battery Storage	If demand is suitable
Wind	No – no suitable land away from buildings
Micro-Hydro	No – no water course
Solar Thermal	No – insufficient hot water need
Biomass	No –urban air quality issues
Air Source Heat Pump	Yes, but ground source offers lower operating costs
Ground Source Heat Pump	Yes

11.1 Solar Photovoltaic Panels

The church is Grade II* listed and the roof is visible from the ground, so it is unlikely to gain permission for solar panel installation. The electricity consumption of the adjacent, and linked Easter Centre is around three times that of the church, so the centre building, below, should be considered first for solar panels.

The centre roof offers an area of around 150m². This could generate 0.15kWpeak/m² giving a 22.5Wpeak system. A 1kWpeak system can generate up to 1,000kWh annually, giving a total annual generation of around 22,500kWh. Orientation factor (roof slope and angle from south) would be optimised.

Annual Generation (kWh) = Area x 0.15kWp/m² x K factor x Orientation Factor x Overshading Factor

= 150m² x 0.15kWp/m² x 1000kWh/kWp x 1 x 1

= 22,500kWh

This is similar to the church centre's annual recent electricity use (22,388kWh in 2021). If a heat pump were installed, this would require extra power. With most power being used, a battery would not be needed.

Using average 2019 installation costs (£1,450 per kWpeak); a 22.5kWpeak system would cost £32,625.

Sources: Tables H3 & H4, SAP 2009, http://www.bre.co.uk/filelibrary/SAP/2009/SAp-2009_9-90.pdf

11.2 Heat Pump Overview

Electrically operated heat pumps can provide between 2.5 times and 5 times the amount of heat in kW which they consume in electricity (This is termed the Coefficient of Performance, CoP). They are compatible with underfloor heating, which typically runs at fairly low water temperatures, but not with high temperature heating systems. When replacing gas boilers directly, sometimes larger radiators are required, or fan assisted radiators, or running the system for longer periods to achieve the same temperature (but at less power input).

With electricity prices now only three times more per kWh than gas (it was about four times), heat pumps are becoming steadily more cost effective. Refrigeration technology is mature and reliable; the units appear to offer lower maintenance costs compared to gas boilers.

Ground source systems are more efficient (since the average ground temperature is higher than the average air temperature), but require either a borehole, or extensive trench digging.

Air source systems deliver between 2.5 and 4 times the amount of heat in kWh to water that they consume. Air to Air systems deliver warm air through indoor fan units and have a CoP rating of up to 5 and they can also provide cooling. The latter would be suitable where there are no radiators, or life expired / poorly sited units and spaces heated intermittently.

Ground Source Heat Pumps supplying water at around 50°C are more efficient than their Air Source equivalent. Where a site has a daily requirement for heat (and thus high daily expenditure), the lower operating costs of a ground source pump outweigh the higher capital costs. For this site, it is recommended that quotations for Ground Source Heat Pumps be obtained.

11.3 Heat Pump Costings

The church annual gas consumption (around 28,000kWh for the church building only) and boiler power (75kW) are known.

The Church building has around 1,000 hours of use, with 375 heating hours (assuming the boiler is operating at full power).

For the centre, the figures are 91,500kWh consumption. Estimated 1,800 heating hours at 50kW.

Building	Annual Gas Use kWh	Estimated Heating hours	Power kW	GSHP Power Needs kW	GSHP Electric Needs kWh	Operating cost	Capital cost
CHURCH	28,000	375	75	19	7,125	£1,064	£75,000
CENTRE	91,500	1,800	50	12	21,600	£2,836	£50,000
Totals					28,725	£3,900	

The car park area offers the potential for ground source pipe array allowing for seasonal summer heat capture, preventing long term depletion of the ground temperature. Some installers offer this technology, including ICAX.

12. Funding Sources

There are a variety of charitable grants for churches undertaking works and a comprehensive list of available grants is available at www.parishresources.org.uk/resources-for-treasurers/funding/

This includes a 77 page guide to funders and their criteria:

https://www.parishresources.org.uk/wp-content/uploads/Charitable-Grants-for-Churches-Jan-2020.pdf .

13. 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.