sustain

# Energy Audit of St Mary's Church, Upper Heyford

December 2013

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# 1.0 Introduction

This report has been prepared to detail the energy saving measures and renewable energy generation potential that exist at St Mary's Church, Upper Heyford.

The report was prepared following a site audit conducted by Emily Guilding, Sustain on 12th December 2013. She was accompanied by church warden Ian Lough Scott.

A summary of recommendations is made in Section 8.0 of this report.

The findings of this report in no way negate the PCC of St Mary's to petition for a faculty in order to conduct any works at the church. For further advice on the requirement for a faculty the church should seek advice from the DAC Secretary.

Further advice in planning and implementation of the recommendations may be sought from the Diocesan Advisory Committee (DAC).

***"…churches aren't just places of wonder, encounter and community; they're also real buildings which make an impact on the natural world, and it's our responsibility to make sure that their carbon footprint is as small as possible. We have over 800 church buildings in our diocese, and with all the people who pass through them in a year, we can influence literally hundreds of thousands more buildings."***

**Bishop of Oxford**

The energy audit has been carried out as part of a scheme to encourage and support church buildings in Oxfordshire to become more energy efficient. The scheme is being run by the Trust for Oxfordshire's Environment (TOE2) in partnership with the Diocese of Oxford, with Sustain as the delivery partner.

TOE2 is an environmental funder for Oxfordshire, supporting and developing projects which improve and benefit Oxfordshire's environment and local communities. TOE2 supports projects in 3 main areas: biodiversity, access to green spaces and energy efficiency and the sustainable use of resources.

This church energy audit scheme for Oxfordshire is being supported by TOE2 with funds from the Patsy Wood Trust, the Beatrice Laing Trust and Charlie Laing, with additional funding provided by the Bishop of Dorchester and the Diocese of Oxford.

For further information about TOE2 please contact: fionadanks@trustforoxfordshire.org.uk or www.trustforoxfordshire.org.uk.

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## 2.0 Church Details

St Mary's is the local rural parish church serving the community. It is located in Upper Heyford, Oxfordshire and dates back to 1425. The main body of the church was rebuilt in 1866 and the porch added in 1884.

## 2.1 Listed Status

St Mary's is of a Grade II* listed status. This listing has been taken into account when determining the recommendations for energy saving measures and renewable energy within this building.

## 2.2 Size

The approximate internal area of the church was measured as 207m$^2$.

From discussions on site during the audit it has been established that the typical usage of the church is 10.25 hours per month.

| | Description | Average Monthly Use |
|---|---|---|
| **Church Use** | Weekly Sunday service and Monday evening prayer. Occasional religious festivals, weddings, funerals | 10.25 hours/month |
| **Community Use** | n/a | |
| **Administration** | n/a | |
| **Catering and Events** | n/a | |
| **TOTAL** | | **123 hours/year** |

The average congregation size is around 10 people. The village has a village hall and reading room therefore the church is not required for community use. However, there is a desire to improve the efficiency of the church's heating in order to provide a more comfortable place of worship.

## 2.3 Current Energy Usage

Annual energy bills for the church have been provided and examined. These show that the current carbon footprint of the church is 6.05t$CO_2$e per year.

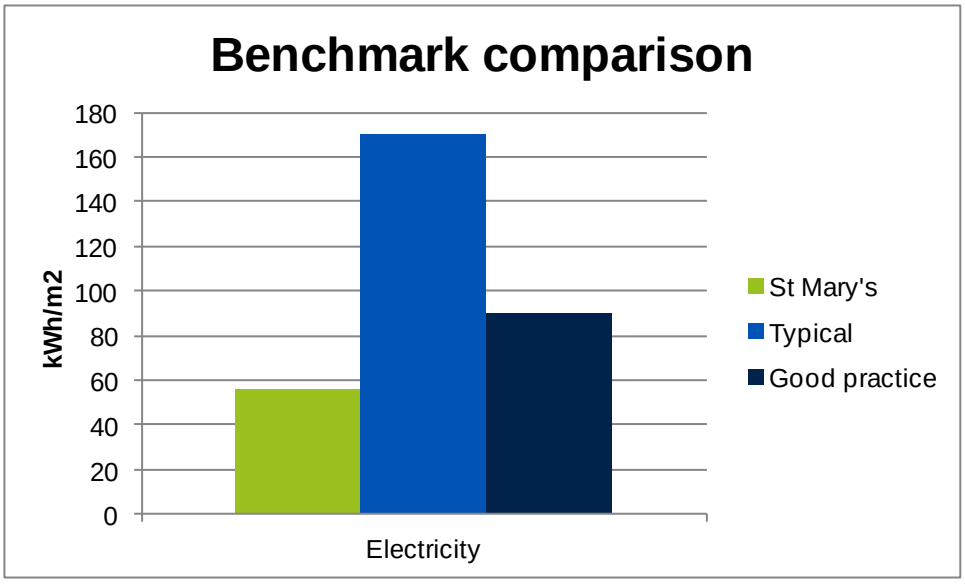
The annual energy consumption has been taken from the energy bills provided from 25th October 2012 to 22nd October 2013. These may include the use of estimated readings where actual readings have not been taken.

| | kWh/year | Cost/kWh | Total £ | Total $CO_2$e (tonnes) |
|---|---|---|---|---|
| **Electricity** | 11,520 | 11.13p | £1,282 | 6.05 |
| **TOTAL** | **11,520** | | **£1,282** | |

*Note: The above costs are for the energy only and do not include standing charges, VAT etc*

Typical and good practice energy benchmarks[1] exist for non heating electricity use and gas use for churches with gas heating. It is difficult to compare a church with electric heating to these as we do not know the proportion of electricity that is used for heating. We have therefore presented just the overall picture below. This shows St Mary's is consuming less electricity than would be expected for a church of the same size. This is positive but there will certainly be room for improvement. The main limit to benchmarking is that it does not take into account occupancy hours. The recommendations within this report should help to bring the church further below the expected benchmarks.

| | St Mary's kWh/m$^2$ | kWh/m$^2$ benchmark (typical) | kWh/m$^2$ benchmark (good) |
|---|---|---|---|
| **Electricity** | 56 | 170 | 90 |




All energy bills should apply the VAT rate of 5% due to the charitable status of PCC's and this is being correctly applied at St Mary's.

## 2.4 Energy purchasing

The church may benefit from obtaining reduced energy rates by switching energy suppliers or tariff. The church is currently on a single rate tariff. Dual tariffs have a cheaper off-peak rate which would likely reduce the electricity bills as the majority of the use is at weekends. The church could also use the opportunity of switching suppliers to explore 'green electricity' options.

The Church of England has created the National Parish Buying scheme to provide churches access to negotiated schemes with energy providers and pool their energy to buy

[1] CIBSE (2012) *Guide F Energy Efficiency in Buildings*

in bulk with an ‘energy basket’ – in the first instance this is a ‘brown energy’ basket, but a ‘green’ version will be available if enough churches express an interest, so please specifically register an interest in a ‘green option’ when contacting Parish Buying. By bulk buying energy it is anticipated that the costs will be 10% lower compared to buying alone.

Alternatively the Diocese of Oxford has negotiated green electricity schemes with both Good Energy and Ecotricity, who supply electricity from renewable energy sources at competitive prices.

For more details on all the above options visit: http://www.oxford.anglican.org/mission-ministry/environment/resources/switch-your-church-to-green-electricity/.

It is further recommended that any cost savings obtained from improved rates through the purchasing scheme are re-invested in the energy saving measures outlined within this report.

# 3.0 Electrical Saving Recommendations

## 3.1 Internal Lighting

The energy used for the internal lighting within electrically heated churches typically makes up the second largest use of electricity and therefore savings made to this area can result in significant overall reductions to energy usage.

The internal lighting within the church has been surveyed and it is recommended that the following improvements are made:

### 3.1.1 Replace bulbs within existing fittings

The following lights can simply have a new low energy bulb fitted to them to generate an energy saving. This should be done as the old lamps fail. The low occupancy hours mean that the savings are quite small. The nave pendant lamps are low energy bulbs so do not require replacing.

| Location | Existing Lamp Type | Recommended Lamp Type | Cost | Annual Saving | Example Source |
|---|---|---|---|---|---|
| Large floodlight fixed to railings facing into Chancel (Figure 1) | High Pressure Sodium SON-E, estimated 150W | 40W LED corn light | £76.16 Replacement is expensive so would only be worthwhile if the light is extensively used | £2/year | http://www.lampshoponline.com/60w-led-corn-light-mh-son-replacement-ges-e40-cap/ |
| 5 x candle bulbs in chandelier in Lady Chapel (Figure 2) | Incandescent candle bulb, estimated 60W | 11W fluorescent low energy candle bulb | Total cost for 5 bulbs = £15.50 | £3.40/year | http://www.tlc-direct.co.uk/Products/LALEC11ES.html<br><br>Check if bayonet or screw cap fitting before purchase |

Figure 1. High pressure sodium lamp in Chancel

Figure 2. Chandelier in Lady Chapel

We have assumed that the church can safely purchase and install the new lamps themselves without use of an external contractor. The changing of lamps within existing fittings will not require a faculty.

The lights are currently controlled by a bank of labelled switches located near the south porch entrance.

### 3.1.2 External Lighting

This church has minor external lighting with one low energy fluorescent lamp on the porch and a large flood light. The flood light is used to light up the church on anniversaries throughout the year. We recommend that when the flood light fails it can be replaced with a lower wattage LED lamp.

| Location | Existing Fitting | Recommended New Fitting | Cost | Annual saving | Example Source |
|---|---|---|---|---|---|
| Flood light under tree (Figure 3) | High pressure sodium lamp SON-T GES/E40 cap, believed to be 250W | 60W LED | £99.34 | £6.45 – but depends on the number of nights used. This saving calculation is based on 50 nights a year | http://www.lampshoponline.com/60w-led-corn-light-mh-son-replacement-ges-e40-cap/ |

**Figure 3. External flood light**

We have assumed that the church can safely purchase and install the new lamp themselves without use of an external contractor.

The external lighting is controlled by manual switches. This is appropriate as long as the lights are not left on when not required.

## 3.2 Small Power

During the site visit it was noted that there were three portable electric heaters in the church. These are used to boost the heating for the occasional larger service such as a funeral. The use of these should be minimised where possible and turned off as soon as the service finishes.

An oil filled 1.6kW electric heater (figure 4.) is sometimes used in an attempt to combat damp problems in the church. A single electric heater is unlikely to resolve the damp issues. The root cause of the damp should be investigated by a specialist and the appropriate action taken.

**Figure 4. Electric plug in heater**

# 4.0 Heating System Saving Recommendations

## 4.1 Heating

The church heating is provided by 6 wall mounted radiant heaters (figure 5). Each heater is 3kW with a pair of 1.5kW elements in each unit. The heaters are turned on manually just before a service and turned off straight after. Radiant heaters are often the most appropriate heating method in a low occupancy church. Radiant heaters are turned on as required and provide instant heat. They heat the occupants rather than attempting to heat the whole space which would be very expensive.

**Figure 5. Radiant heater**

If the church wishes to increase the temperature in the church this is ultimately going to use more energy and will require investment. There are several options that are available to achieve this: improve the electrical heating (section 4.1.1); install a gas boiler and heating system (section 4.1.2) and; install a biomass heating system (section 6.7). The advantages and disadvantages of each system is covered in the sections below, the church will need to use this information to decide which the best option is.

The church is considering moving the weekly service into the Lady Chapel. Curtaining of this area will give a smaller space that will be easier to heat adequately either with electric or biomass heating.

### 4.1.1 Improve electrical heating

At the current electricity rate of 11p per kWh of heat, electricity is the most cost and carbon intensive fuel. However, electrical heaters are easy and fairly low cost to install with minimal maintenance costs.

The current radiant heaters warm the occupants sat in the direct line of the heaters. Additional wall mounted radiant heaters such as the Dimplex Quartz 3kW heater could be installed to heat more occupants. However it should be noted that wall mounted radiant heaters are not currently favoured by the DAC.

Alternatively, modern slim line heaters such as the Dimplex 500W SCH5 could be fitted on the back of the pew in front. These heat the person sitting in the pew more directly than an under pew heater but are more visible. The heaters should be wired into individual switched fused spurs with a neon indicator so that the heater to each pew can be switched off individually. They should be fitted in the most frequently used pews and only turned on when the pew is occupied.

The electrical distribution board is likely to require upgrading if the electrical load is increased by additional electrical heaters.

### 4.1.2 Gas boiler and central heating system installation

At 4p per kWh gas is a cheaper and lower carbon heating fuel than electricity but the capital required to install a boiler and wet heating system is greater and would be a more intrusive installation process. It would also depend on getting a connection to mains gas which is approximately 140 meters away in the village. A gas heating system would be low maintenance, requiring only an annual service.

The church would require a gas boiler which could be located in the vestry and a wet distribution system via radiators around the church. To give an idea of the cost of such a system a similar sized church was quoted approximately £38,000 (exc. VAT) for a low-pressure hot water system with a 80 kW wall-mounted, gas-fired condensing boiler serving a total of 14 radiators (this does not include the cost of connecting the church to a mains gas supply). The church should ensure that the system specification provides good controls and maximum efficiency with individually controlled radiators, well lagged pipework and connections and an antifreeze based inhibitor put in the system which reduces the need for boiler frost protection.

See Biomass heating option in section 6.7.

## 5.0 Building Fabric

While it is acknowledged that the potential to undertake significant improvements to the traditional and protected fabric of the church is limited, there are a number of areas discussed below where improvements can be made which will result in a reduced amount of energy consumed and improved levels of comfort being achieved.

### 5.1 Roof

Re-roofing of the Chancel is already planned. This includes insulation although the depth has been restricted by the small size of the void. This will help reduce heat loss through the roof in this area.

It is believed that the nave roof does not have a void suitable for insulation.

It is thought that the north aisle has a roof void which could be suitable for insulating. This should be investigated. Care should be taken in the installation of the insulation to maintain good levels of ventilation to the roof by using a breathable insulating material and not a foil backed material. Options include mineral wool, dry cellulose (recycled newspapers) or sheep wool. Ensure the material is treated with vermin repellent.

### 5.2 Walls

Given the listed and historic nature of the building and that the walls are exposed externally no improvement recommendations have been made in this regard.

### 5.3 Floors

The nave and Lady Chapel floor boards have a void beneath them. These boards could be lifted, insulation added beneath them and then the boards replaced. This could include sealing the joints to prevent cold draughts from rising up from the floor and would result in significant comfort improvements. An inspecting architect should be consulted to ensure that there will still be adequate ventilation under the boards to avoid wet and dry rot. A breathable insulating material that has been treated with vermin repellent should be used. Options include mineral wool, dry cellulose (recycled newspapers) or sheep wool.

Some of the pews have carpet fitted which will help reduce draughts and improve thermal comfort.

### 5.4 Windows

The church windows are in a generally good condition, although there are a couple of missing panes which should be replaced.

### 5.5 Doors

The main south aisle door has gaps beneath it (figure 6) which will allow warmer air in the church to escape and cold draughts to enter when the wind is blowing in the direction of the door. A brush seal on each door leaf could be fitted to the bottom of the door to stop this.

Draughts could also be felt around the external door in the Lady Chapel. There is already a curtain and floor draught excluder in place but if the church decide to move its regular services to this area it may be beneficial to improve the draught proofing. Draught proofing using the Quattro seal method suitable for historic buildings is recommended (www.quattroseal.com).

**Figure 6. Gap under south aisle door**

## 6.0 Renewable Energy Feasibility

This section reviews the viability of renewable technologies at St Mary's church and indicates if it would be possible for each of the technologies to be installed.

More details on the major technologies can be found by going to the following website: www.oxford.anglican.org/mission-ministry/environment/resources

Also included in this website is a directory of installers who will be able to help you in providing you with specific costs for either a feasibility study or installation at your church depending on what your requirements are.

## 6.1 Solar Photovoltaics

The current planning guidance does not support solar photovoltaic (PV) arrays on Grade II* buildings if they are visible but this may change in time.

The nave roof (figure 7) is orientated south and would make a suitable location for a solar photovoltaic (PV) array, which could be kept out of sight behind the parapet. The roof is thought to be of sound structure and it is not shaded. The shallow pitch will keep the visibility of the panels to a minimum. The cable routes could run down the tower to the distribution board located in the base of the tower, where there is space for an inverter if required. It is likely the distribution board would need updating, which would be an additional cost.

**Figure 7. Aerial image of church**

Ideally a solar PV system should face between south east and south west, and be free of shade. For best performance they should be angled at 30 to 40 degrees – although it will still catch a reasonable level of sunlight at angles of 20 – 50 degrees. Solar panels can be fairly heavy, so the roof must be strong enough to hold them; however Solar PV systems are easy to install, need virtually no maintenance and are estimated to last 40 years. The solar PV systems generate electricity from the solar radiation from the sun, and any electricity that is being generated can be used within the building or fed back to the National Grid.

An initial assessment indicates that there would be space for a 9kWp installation with a yield of approximately 7,650 kWh. The size of the installation could be reduced in line with the available church funds. The church will be able to use this electricity when it is occupied during the day, reducing the electricity bill. The installation would be eligible for Feed-in Tariff payments. This means the church will be paid for the electricity generated by the solar panels and the electricity that is not used and exported back to the National Grid. The export rate is currently 4.64p per kWh of electricity exported. The generation rate is dependent on the church's EPC rating. If this rating is D or higher the higher FIT rate is applicable (currently 13.5p/kWh). If it is below D, the lower rate is applicable (currently 6.85p/kWh). Due to the historic nature of the church it is unlikely that it will gain an EPC band D even with energy efficiency improvements.

Our calculations assume the church would receive the lower generation rate. Depending on the amount of electricity generated and exported, the church could expect to pay off the

initial investment within 18 years. However this would be variable depending on the exact make and model of the PV units being considered.

## 6.2 Micro-Wind

Micro-wind units require highly exposed sites and should be located 250m away from buildings. They are not suitable to be located in the curtailage of listed buildings. Given these parameters it is concluded that micro-wind generation is unsuitable at this site.

## 6.3 Micro-Hydro

Hydro electricity is a highly efficient source of renewable energy but requires a flowing body of water with a differential height, this is not present at this site and therefore such an installation would not be feasible.

## 6.4 Solar Thermal

Solar thermal installations are best suited to heat water for use in washing up, hand washing and bathing. The demand for hot water is very minimal within the church and therefore the use of renewable heat for such a small demand is not recommended.

## 6.5 Ground Source Heat Pump

Given the church grave yard has been used for burial it is not recommended that consideration is given to the feasibility of ground source heating. Ground source heat pumps often work most effectively with an underfloor heating system in a well insulated building; therefore are not recommended for this site.

## 6.6 Air Source Heat Pump

Air source heat pumps are most effective in very well insulated buildings with long occupancy hours. They are also unlikely to be approved by the DAC therefore not deemed appropriate for this site.

## 6.7 Biomass

Biomass is a carbon neutral fuel often suitable for rural locations which do not have access to mains gas. Depending on the type of biomass fuel used it has a similar cost per kWh to gas heating There are two types of biomass heating which could be appropriate for St Mary's:

### 6.7.1 Biomass boiler and wet heating system

A biomass boiler and wet heating system could be a heating option for the church. A biomass boiler and system is more expensive than a gas system due to the increased complexity of the system required. The cost of the installation of the boiler would need to be obtained from installers due the specific requirements of the church. A biomass boiler can cost between £5,000 to £11,000, however the cost of the installation, distribution system, radiators and boiler room would all also need to be included. As these costs are specific to the church we are not able to provide an estimate as the parameters are wide ranging.

The most advanced boilers are fully automatic. They control the amount of fuel and air supplied to the combustion chamber. As a result they are highly efficient and emissions are low. They are fed with the biomass fuel from a large hopper sited nearby. If there is space, manufacturers recommend a hopper that's big enough to hold a year's supply of fuel. This

minimises transport and delivery costs for fuel, as well as work for the owner. The boiler will need to be cleaned and ash removed about once a month. The maintenance costs are likely to be higher than a gas system due to its complexity and a maintenance contract should be put in place for this.

Biomass boilers burn logs, wood chips, wood pellets or other forms of biomass. During the church visit it was mentioned that the local farmer may be able to provide straw to fuel the boiler. Straw fuelled boilers are available. These use a specific type of fuel feeding mechanism. This means that the fuel type cannot be easily switched if the source of straw stopped.

If the chosen fuel is to be delivered to site, there appears to be suitable access. A new external boiler house and fuel store would need to be built. A possible location for this would be on the north side of the church out of view of the main entrance (see figure 7). The new structure would need to be in keeping with the adjacent building.

**Figure 8. Possible location for external fuel store and boiler house**

Depending on the fuel used, the system may be eligible for the Renewable Heat Incentive. This means the church will be paid for the energy generated by the boiler. The rate depends on size of boiler installed; for a small commercial biomass boiler it is currently 8.6p/kWh.

### 6.7.2 Biomass wood pellet stove

An alternative biomass heating solution would be a biomass wood pellet stove located either in the main body of the church or in the Lady Chapel (if the decision is taken to move the weekly services into there). This would be a direct source of renewable heat to that area and would not require installing a distribution system. It would require a flue to be run up through the roof (probably with a black enamel finish). Stoves can fire automatically and have up to a 12kW output. For further details contact suppliers such as http://woodpelletstove.co.uk/ . The stoves utilise pellets, a biomass product made of renewable substances, generally recycled waste wood and sawdust and also short rotation coppice wood. A fuel store would need to be built if there is not a suitable existing space.

This type of biomass stove is not eligible for the Renewable Heat Incentive.

You also might find it useful to contact Oxfordshire Woodfuel Programme (setup by TOE2) who provide advice and support in this area www.oxonwoodfuel.org.uk.

# 7.0 Energy management

Energy savings can be achieved by simply keeping a closer eye on your church's energy use and communicating your carbon footprint to the congregation. Typical steps would be as follows.

## 7.1 Measure

- Nominate someone to have lead responsibility for energy management
- Take monthly meter readings and keep a record of these
- You could even take a meter reading at the start and end of when your church is used on a Sunday and use this to calculate the carbon footprint and costs of the service
- If you would like to establish how much it costs to run the church heating per hour you could take a meter reading at the beginning and end of an hour when only the heating is on (e.g. before a service if the heating is turned on more than an hour in advance).

## 7.2 Calculate and monitor

- Calculate the energy use using the meter readings and look for any stories behind the numbers e.g. how does this year compare with last? If it's greater, what are the reasons behind this? Is there anything that could be done to mitigate the increase?
- Calculate the church's carbon footprint
- If you have not joined the scheme already, in order to provide more detailed review and measurement of the church's carbon footprint in the future, we recommend that the church join the CofE's national Shrinking the Footprint Energy Monitoring Scheme with sMeasure or a similar energy monitoring scheme. This will help the church estimate its future costs of energy and report on its carbon
- For more information on the scheme visit www.oxford.anglican.org/mission-ministry/environment/resources/energy-monitoring-scheme

## 7.3 Communicate

- Let the congregation know the carbon footprint of the church and the annual energy running cost
- Ask them to consider energy efficiency where it is under their control
- Ask for suggestions and ideas on how to reduce the church's carbon footprint
- Communicate to the congregation with a poster for example the latest carbon footprint figure each month / quarter and how it compares with the same period last year

## 7.4 Housekeeping

- Write up a procedure for energy efficiency in the church and associated buildings to help users of the building use the space more efficiently and effectively, and giving them the ability and know-how to make these changes
- These procedures could include what to turn on (such as lighting and heating) when the building is being used for difference functions, e.g. open for pubic during the day, services on a Sunday and midweek or larger public events such as flower displays.

## 8.0 Summary of Recommendations

This report has made numerous recommendations on improvements that can be carried out to reduce energy and carbon emissions from the operation and use of this church.

These have been summarised here in short, medium and long term measures taking into consideration the payback, capital investment and ease of carrying out each improvement.

These recommendations and this report should be presented to the next available PCC meeting and an action plan developed to implement as many of these actions as possible.

The costs below are indicative only based on our experience and are not specific to this church. The savings are based on the occupancy hours given therefore may change depending on occupancy and heating hours of the church.

| **Short Term Improvement Measures** | | | |
|---|---|---|---|
| **Description** | **Estimated Cost** | **Estimated Saving** | **To be actioned by** |
| Measure | £0 | Low for this church but there will be small saving | |
| Calculate and monitor | £0 | | |
| Communicate | £0 | | |
| Housekeeping | £0 | | |
| Turn off plug-in electric heater | £0 | Depends on use but estimated £152/year | |
| Replace chandelier bulbs in Lady Chapel | £16 | £3.40/year | |
| Replace sodium lamp in Chancel | £76 | £2/year | |
| Replace external flood light | £99 | £6.45/year | |

| **Medium Term Improvement Measures** | | | |
|---|---|---|---|
| **Description** | **Estimated Cost** | **Estimated Saving** | **To be actioned by** |
| Draught proof south aisle door and Lady Chapel door | £250 | £21/year | |
| Investigate insulation potential of north aisle roof | Depends on type of insulation used but likely to be in the region of £600 | £40/year and improved comfort | |
| Insulate under floor boards | Depends on type of insulation used but likely to be in the region of £1000 | Improved comfort | |

| **Long Term Improvement Measures** | | | |
|---|---|---|---|
| **Description** | **Estimated Cost** | **Estimated Saving** | **To be actioned by** |
| Increase electrical | Approximately £50 | Improved comfort | |

| | | | |
|---|---|---|---|
| heating | per pew heater and £350 per Quartz heater plus installation costs | | |
| Install gas boiler and central heating system | £38,000 | Difficult to quantify as depends on increasing the use of building. Gas heating per kWh is lower cost than electrical | |
| Commission feasibility study for biomass heating options | Biomass boiler approx £5k - £11, plus cost of installation, distribution system, radiators and boiler/fuel store | To be calculated as part of biomass feasibility study | |
| Install a biomass pellet stove | £4000 | Improved comfort | |
| Consider solar PV installation on the south facing slope of the nave roof | £18,000 | Approximately £1100/year. Payback of around 18 years. | |

## 9.0 Funding options

You may wish to consider seeking funds to implement the energy efficiency improvements recommended in this report. For further information please contact:

- **Diocese of Oxford** – for the latest funding advice for energy efficiency improvements that the diocese is aware of please contact the Diocesan Environment Officer using environment@oxford.anglican.org or 01865 208745.

- **TOE2** – can consider applications for up to £10,000 for works recommended in the Sustain report, usually supported with funds from Grundon Waste Management through the Landfill Communities Fund (LCF). www.trustforoxfordshire.org.uk

- **Other Landfill Community Funds** – the following organisations may consider applications from projects within 10 miles of the relevant landfill sites.
  WREN – www.wren.org.uk
  Viridor Credits – www.viridor-credits.org.uk
  Biffaward – www.biffa-award.org

- **Renewable Technologies** – Technologies that produce heat or electricity may be eligible for an on-going payment based on the amount of energy produced.
  - For heat generating technologies, such as biomass boilers, the Renewable Heat Incentive (RHI) might be applicable. For further information, please go to www.energysavingtrust.org.uk/Generating-energy/Getting-money-back/Renewable-Heat-Incentive-RHI
  - For electricity generating technologies, such as solar PV, the Feed In Tariff (FIT) will be applicable. For further information please go to www.energysavingtrust.org.uk/Generating-energy/Getting-money-back/Feed-In-Tariffs-scheme-FITs