



MANAGING YOUR JOURNEY TO A GREENER FUTURE



St Nicholas, Upper Cumberworth, HD8 8PA

Energy Opportunity Survey Summary & Recommendations

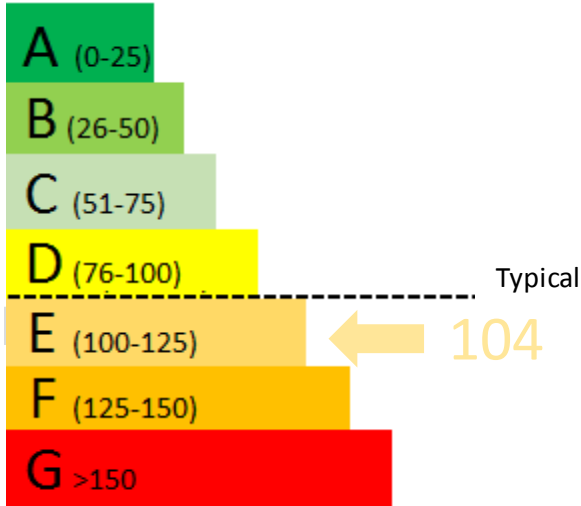
Green Journey Display Energy Certificate

St Nicholas
Upper Cumberworth
HD8 8PA

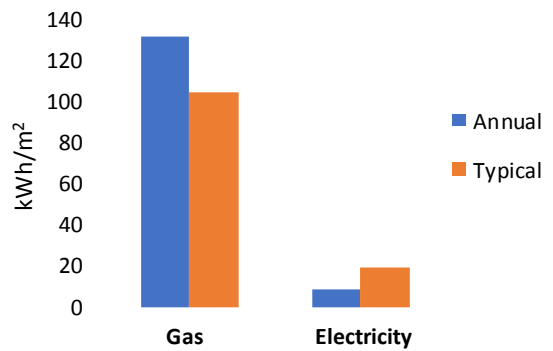


Overall Energy Performance

27/04/2017



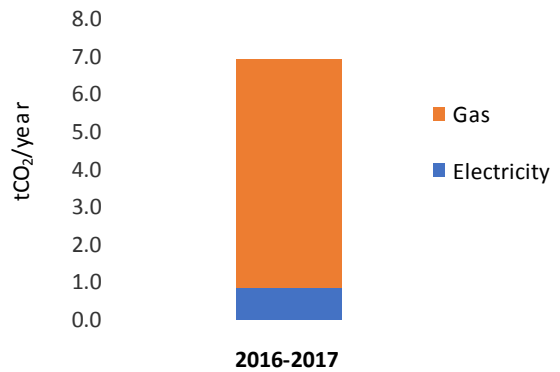
Energy Benchmarks



Information Summary

Annual Electricity Usage	1,958
Annual Gas usage	28,507
Main Heating Fuel:	Gas
Total Gross Floor Area (m²):	216
Annual Operating Hours:	116
LED Lighting (%):	6
Heating Controls:	Timer & Thermostat

CO₂ Emissions



	Gas (kWh/m ²)	Electricity (kWh/m ²)
Annual (kWh/m ² /year)	132	9
Typical (kWh/m ² /year)	105	20
Energy From Renewables	0%	0%

The Green Journey Display Energy Certificate describes your churches energy performance and efficiency based on the carbon emissions per m². A numerical rating above (below) 100 means your church has higher (lower) emissions than is typical.

Please note, that this certificate should not be used for compliance with the Energy Performance of Buildings Directive.

Introduction

Green Journey aims to help churches to put the stewardship of God's creation into practice. Reducing our energy consumption and cutting carbon dioxide emissions is of paramount importance for all of humanity, as together we face the effects of unprecedented climate disruption. The church can bring the gospel hope of a better future by transitioning to a low carbon society.

Electricity generation produces around 30% of the United Kingdom's carbon dioxide emissions. Renewable Energy (wind, wave, tidal, solar and hydro) is becoming an important partner to fight against climate change impact and maintain our energy needs. In 2015, renewables' share of electricity generation increased to 24.7% from 19.1% in 2014. The UK is moving toward a more sustainable future.

Green Journey's buying power allows us to offer renewable energy at the same price as standard energy. This allows all churches in the Green Journey to practise responsible stewardship, while also making a saving.

***"...the land is mine and you reside in my land as foreigners and strangers.
Throughout the land that you hold as a possession, you must provide for the
redemption of the land." Leviticus 25:23-24***

Green Journey will help you in your stewardship by reducing your electricity bills along with your carbon footprint and provide you with a report detailing your Church's energy consumption, sustainability, and how both can be improved.

***"To date, Green Journey has claimed back over £35,000 for the Church of England due to
misbilling and provided annual savings of over £85,000 in energy bills. "***

Consumption figures presented in this report are calculated from billing figures and information collected during the energy survey. An estimation of your electricity consumption breakdown is also included, for example lighting could be projected to comprise 60%, boiler pumps 10%, kitchen appliances 30%, etc. Due care has been given to ensure that these are as close to the observable figure as possible, however these should be considered as calculated approximations only.

Site Summary

St Nicholas

Upper Cumberworth

HD8 8PA

Energy Consumption

In the 12-month period between November 2015 and October 2016, the site used a total of 30,465kWh/year. This is comprised of gas (28,507kWh/year) and electricity (1,958kWh/year).

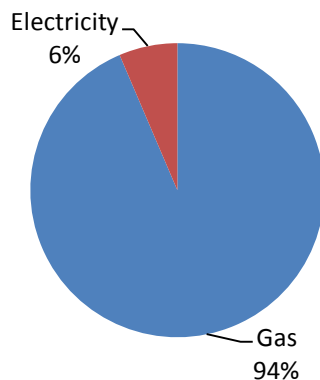
Metering

Your church has 1 gas meter and 1 electric meter. A breakdown of your church's energy consumption profile is provided below.

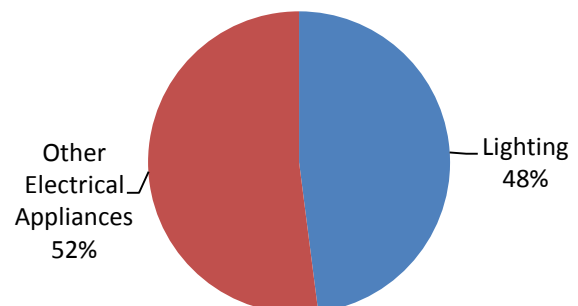
Total Energy Breakdown

The chart on the left provides a breakdown of energy consumption for the church whilst the chart on the right provides a breakdown of the electricity consumption. These breakdowns are based on observations made at the site and discussions with the church representative during the site visit.

Total Energy Breakdown



Electricity Breakdown



Sustainability Overview

The following paragraphs contain information on the energy efficiency and sustainability of your church. This draws on observations made on, but is not limited to, building structure, lighting and space heating (such as boilers, electric heating). The remit of this report also extends to profiling your water usage and how this can be optimised to contribute to your church's sustainable practices.

All recommendations provided within the report are intended to help your church streamline its energy consumption, reducing costs and ensuring the sustainability of your church is as near to what is deemed to be practically feasible. If you would like to follow up/seek further advice on any of the recommendations made here, please get in touch and we will be happy to assist.

Note that should you wish to proceed with any of the recommendations in this report you are advised to speak with either the DAC Secretary or your Archdeacon to ascertain if a Faculty decision will be required, and if so to find out how your PCC should proceed.

Windows

The windows at the church feature single glazed fittings.

It is understood that due to the restrictions on this Grade II listed building it is not deemed possible to improve over the current windows without consent, due to the Planning (Listed Buildings and Conservation Areas) Act 1990. However, it may be possible to improve the areas around the windows. For instance, make sure that there are no gaps between the fixture and the wall as this could be a source of heat loss within the building.

Mains Heating - Gas

The church has one gas fired AHU which accounts for 100% of the total gas consumption.

Due to calculations on the gas consumption and heating usage it is apparent that the AHU is operating the hours in which the church is open to the public, meaning that it is consuming gas and electricity throughout the year. Thus, **we would advise** that the scheduled usage of the boiler be examined to identify potential reductions in gas consumption. For example, during summer months the heater usage could be reduced or even withdrawn.

We would advise that a timer and thermostat control mechanism be configured on the heater in order to reduce energy consumption, by ensuring the heater is only operated when required. This could then be reconfigured depending on the time of the year to further reduce consumption.

Please note that the heater is consuming gas, as well as electricity during operation. The electric fan motor, united with the AHU, is an electrical appliance, and due to the extended hours this is operating for, the electrical total yearly consumption can be highly influenced.

Lighting

In total, lighting contributes 48% of the site's total electric consumption. Lighting fixtures within the church are predominantly halogen lights, for example the thirteen 80W halogen spotlights.

We would advise replacing the existing light fixtures with LED equivalents. This could manifest as a proactive LED retrofit scheme or as a reactive scheme whereby current fixtures are only replaced at the end of their working life.

It is suggested that the 80W halogen spotlights be prioritised for replacement. Halogen lighting has a high-energy consumption/light emittance ratio, which means its efficiency is low. As an illustration, 80W halogen spotlights can typically be replaced by 7W LED equivalents. Thus, the same quality of light can be produced by an LED equivalent with a 91% reduction in energy consumption being observed.

Current 80W Halogen Spotlights:



Proposed 7W LED Retrofits:



Appliances

In total, appliances contribute 52% of the site's total electric consumption. Appliances within the church include, but are not limited to, a projector, a kettle and a microwave. This is also inclusive of the fan within the air handler.

We would advise, that should the recommendations in the heating section of the report, relating to the length of time the boiler is operated, be acted upon, a subsequent reduction in the heater motor's electricity consumption would be observed.

In order to yield reductions in appliance energy consumption, **we would advise** that the church ensures that appliances have a scheduled switch off time. This could be achieved by installing plug timers on the wall sockets, this acts as a failsafe should the appliances accidentally be left on.

Furthermore, **we would advise** that, where finances permit, the church seeks to purchase only equipment which has a high energy efficiency rating. Ratings typically go from "A" to "G" however some appliances, such as fridges and freezers, go up to A+++.

Summary of Recommendations

The recommendations below can help to reduce the ecological footprint of your church:

- As a priority over other recommendations; configure timer controls for the gas-fired AHU to ensure your church is only heated within the times of scheduled church usage, and adjusted depending on the time of year. We believe this could be the greatest driver in reducing the church's carbon footprint and operating costs.
- Maintain the area surrounding the windows to ensure that there are no damaged areas around the windows that could be a source of additional heat loss.
- Where applicable, replace non-LED light fixtures with LED equivalents to aid in reducing energy consumption. This may also reduce expenditure in the mid-long term as replacement lighting will be required less often (due to LEDs having a longer working life).
- Install plug timers to ensure appliances are not accidentally left switched on or left in standby mode outside of their intended operating hours.
- Where possible, adopt an energy efficient procurement policy, whereby any appliances are replaced by more energy efficient alternatives at the end of their working life.
- Appoint an 'Energy Champion' to ensure appliances and energy consumers are switched off when unnecessary.
- You can seek further advice from the Diocesan Environment Officer or visit the Environment pages on the Diocesan Website.

Water Overview

As of 1st April 2017, the water market in England became deregulated. This allows non-domestic entities to switch water suppliers, the Church of England is included within this. Green Journey is delighted to be able to provide water efficiency and procurement services to churches. It is important to note that your church's water consumption will be billed based on one of the two tariffs outlined below:

- 1) **Non-metered Value** – In this case, your consumption is estimated based on an estimated water consumption, in addition to a Rateable Value (RV) attributed to your church. RV is a value given to all buildings in the U.K based on the area and operation of the building.
- 2) **Metered Value** – In this case, volumetric consumption data can be recorded and transmitted to your water supplier, this may also extend to surface water/sewerage charges, where a secondary water meter exists.

For more information on the above, please get in touch with Green Journey whom can help you secure the most competitive water rates. In the meantime, there are a number of ways your church can improve its water consumption, as detailed below.

We would advise that the church install rainwater harvesting technology. This involves rain water being collected in outside tanks, which can then be reused. This will reduce the volume of water the church uses, as they harness rainwater for usage in urinals/toilets and other greywater facilities. As such, your church will require less water by volume, allowing it to improve its water efficiency.

We would also advise installing tap aerators, which can reduce water supply rates by as much as 60% per minute. Older taps, such as those installed within churches, supply water at an average rate of 15 l/s, compared to 6 l/s when having an aerator installed. This will reduce your annual water consumption, especially where your kitchen and toilet areas are in frequent use. Aerators can be installed on most taps; Green Journey can facilitate this should your church wish to go ahead with it.

Sustainability Pointers

Energy

Ensure that lights are switched off when not in use.

Turn your thermostat down two degrees. This can reduce your energy consumption by up to 20 %.

Don't leave televisions and appliances on standby. As a general rule, switch all plugs off at the wall socket at night.

Don't overcharge appliances and unplug the charger once the appliance is charged.

When you change your white goods (fridges, freezers etc), try to buy >A rated goods.

Create an energy policy that helps people understand why it is important to reduce the church's energy consumption and sets forward ways in which this can be done.

Waste

Ask the council to supply appropriate bins for your church to recycle glass, metals and paper.

Buy composters for food and gardening waste.

Reduce packaging and waste – Buy loose fruit and vegetables.

Reuse what you can—e.g Plastic bottles.

If you have a printer, set it to print on both sides of the paper.

Recycle print cartridges. Many charities collect them to raise funds.

Give clothes, books and toys to charity shops.

Dispose of unwanted furniture by donating it to a local furniture recycling centre.

Remember to buy recycled products (office stationery, glassware, printing paper etc).

Join or arrange a clean-up in a part of your neighbourhood that needs it.

Transport

Walk to church.

Use public transport.

Make sure the churchyard or area around your church is an attractive place to rest for walkers.

Organise car-sharing to go to church, if you can't walk.

Cycle instead of using the car and carry out regular maintenance on your car.

Buy a smaller and more fuel efficient car.

Lifestyle

Buy local produce.

Support local farmer's markets.

Use fair-trade products.

Buy animal friendly cosmetic products.

Buy seasonal organic products.

Biodiversity

Look for opportunities to create suitable habitats for insects, birds and small mammals.

Plant a wide variety of plants, flowers and trees around your church.

Encourage your church to enter for wildlife awards, often organised by local wildlife trusts.