DIOCESE OF BRISTOL
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Report Title	Diocesan of Bristol Carbon Emissions Report Report Years: 2021 -2023, with update commentary to 2025
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Introduction

This annual report shares the carbon emissions for the Diocese of Bristol for the calendar years of 2021 -2023.

The emissions categories contained in the report align with those included in the Church of England's Net Zero target. These are:

- Church buildings' electricity, gas, oil, LPG and any other heating fuels
- School buildings' electricity, gas, oil, LPG and any other heating fuels
- Clergy homes owned or managed by the Diocese - electricity, gas, oil, LPG and any other heating fuels
- DSS business travel and office buildings
- Clergy business travel
- School business travel
- Well-to-tank emissions and transmission and distribution emissions for heating fuels and electricity consumed.

Methodology

The emissions have been calculated using the DESNZ[1] emissions factors, applying a location-based method for schools, parish buildings, clergy homes, and the DSS offices. The overall site list for churches, halls, and clergy housing has been updated based on the National Church provisioned ARUP report for the reporting years 2022 and 2023.

Publshed in early 2025, it is to note that this report covers the period 2021–2023 data,therefore the Diocesan Net Zero programme which commenced midway through 2023's impact on emissions reductions is not yet reflected in the data. Net Zero progress is inherently recorded in arrears, as emissions data relies on

[1] Government Department for Energy, Security & Net Zero

completed annual reporting cycles in addition to the lag between the implementation of energy efficiency measures and their measurable effect on emissions.

Improving data accuracy across all building types will remain a priority, ensuring a more reliable foundation for measuring and reducing carbon emissions across the Diocese and we continue to persue National Church to support this.

Results

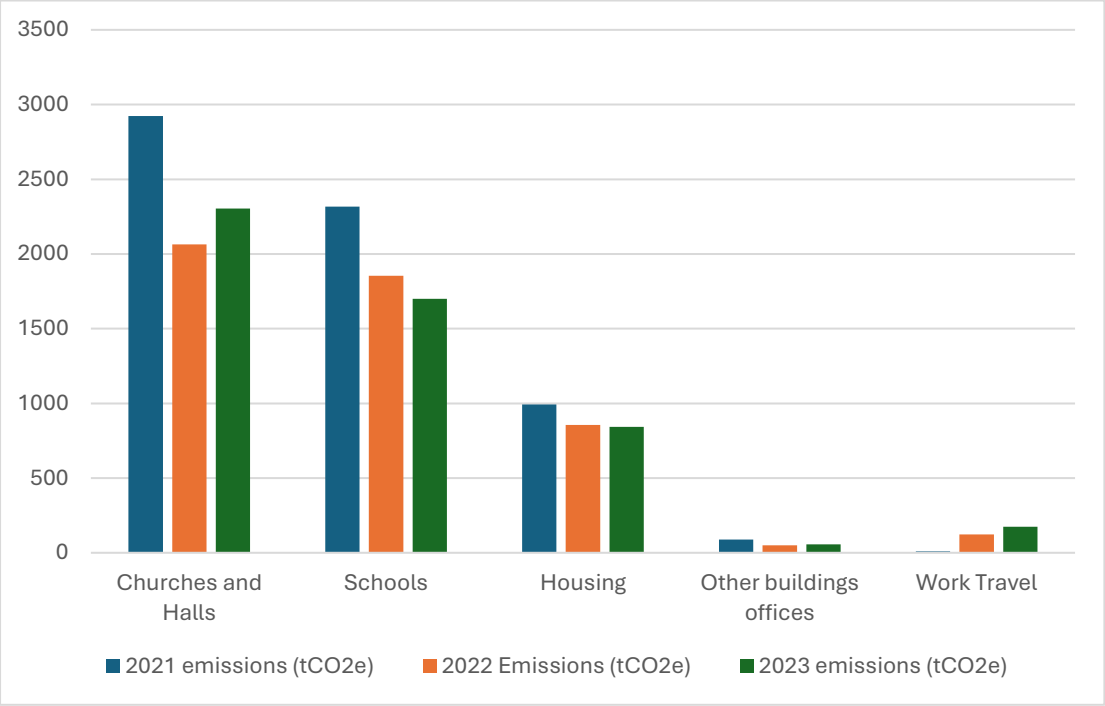
It is notable that there was a marginal increase in emissions between 2022 and 2023. This rise can likely be attributed to several contributing factors. In 2023, average temperatures in the UK were 1% colder, leading to a potential increase in energy demand. Additionally, emissions from grid electricity rose by 7%, and overall church attendance saw an increase from the previous year, which may have influenced energy consumption. Furthermore, the Diocesan Net Zero programme 'delivery' commenced towards the later part of 2023, meaning its impact on emissions reduction was limited during the year. A reduction in emissions is expected to be visible in 2024.

The following table shows the tonnes of CO_2 equivalent emitted during the calendar year in the different building types and activities.

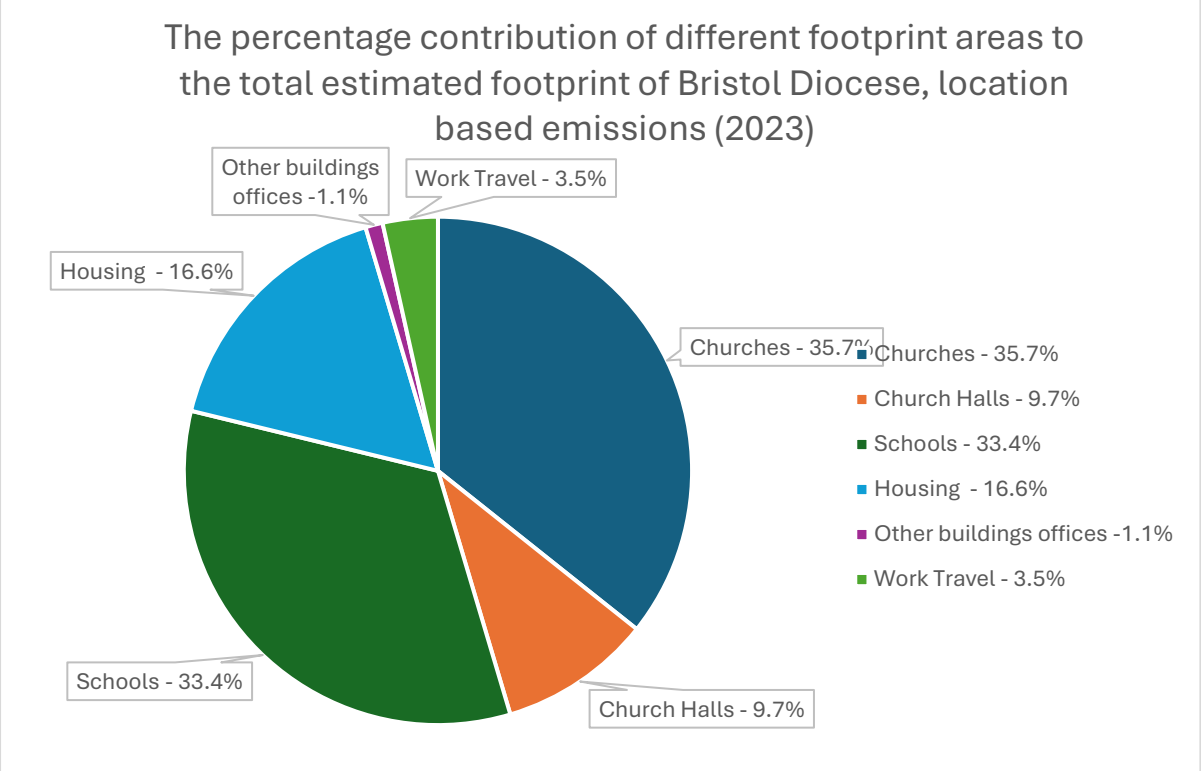
Breakdown of emissions

Building type	**2021 emissions (tCO2e)**	**2022 Emissions (tCO2e)**	**2023 emissions (tCO2e)**
Churches and Halls	2922.52	2064	2305
Schools	2317	1854	1700
Housing	993	855	842
Other buildings offices	89	49	56
Work Travel	10.4	122	175
Total emissions	***6331.92***	***4944***	***5078***

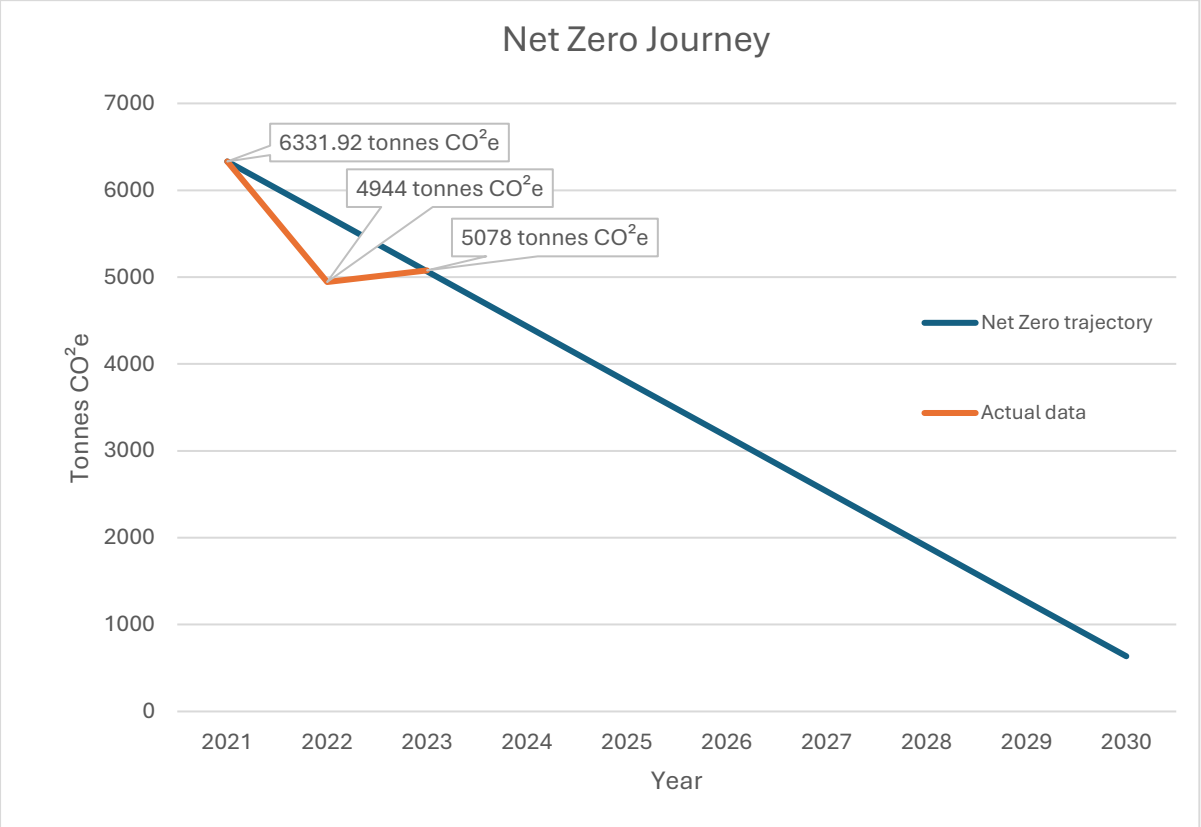
Emission breakdown across churches, halls, schools, housing, offices and work travel across 2021, 2022 and 2023



2023 Carbon footprint breakdown



Net Zero Journey to date



Analysis

Churches and halls

There was a significant increase emissions in 2023 when compared with 2022 for churches and halls. This could be due to the reasons already commented upon.

Another likely contributer is the proportion of buildings assessed using proxy data has decreased significantly in 2023 compared to 2022. This is due to the increase in the completion rate of the EFT year on year. When PCCs don't complete the EFT, ARUP estimate the emissions based on proxies, this presents a risk that they may be underestimating the emissions when calculating emissions based on these proxies.[2]

As the accuracy of data improves year-on-year, with more parishes completing the EFT, buildings transitioning from proxy-based estimates to actual data may appear to increase emissions. To enhance the reliability of proxy-based estimations, minor adjustments have been made to certain more accurate assumptions since the initial iteration of ARUP's analysis.

Inspired Efficiency, the organisation responsible for conducting energy audits, has produced comprehensive reports for each audited building, outlining a clear and

[2] The carbon values included in the Diocese charts within this report use estimated (proxy) values where actual data was not available. These have been estimated using various methods based on actual collected data for each footprint type.

structured pathway toward achieving Net Zero. Each report includes a detailed list of costed recommendations aimed at improving energy efficiency and reducing carbon emissions. It is important to note that these recommendations represent best-case scenarios, and multiple more cost effective approaches may be available.

The current position at 2025, is 175 out of 205 churches and 45 out of 81 halls have received an energy report. An analysis of 119 church reports and 45 hall reports indicates that if all recommended measures were implemented a total cost of 19,695,624.71 would be required for Churches and £4,565,800.80 for halls to undertake infrastructure changes to meet Net Zero.

This estimate encompasses a range of interventions, including energy efficiency upgrades, PV installations, heat pumps and infrared heaters. As more churches progress on their decarbonisation journies, further insights into cost variations and potential funding opportunities will be essential for supporting long-term Net Zero efforts.

Grants are available from organisations such as WECA, National Churches Trust, Benefact Trust, and the Centre for Sustainable Energy are providing vital financial support for our churches in working towards Net Zero. Accessing further and new sources of external funding will be crucial in accelerating decarbonisation efforts while reducing the financial burden on individual parishes in addition to further lobbying of National Church to release further significant financial support (far ahead of any 2030 deadline) and to secure partnerships and ensure we continue to push for government fund and support.

Building type	Number of buidlings	Reports analysed	Cost of recommendations	Average cost per building	Estimate for portfolio
Churches	210	119	£11,160,854	£93,789	£19,695,624.71
Church Hall	81	45	£2,536,556	£56,367.91	£4,565,800.80

Analysis - Clergy Homes

Significant progress was made in late 2023 towards Net Zero for clergy homes, including the installation of photovoltaic (PV) panels, insulation improvements, and heat pumps. As emissions calculations are currently based on average property sizes using Energy Performance Certificates (EPCs), these decarbonisation efforts have not been reflected in the 2023 figures. A significant reduction in clergy homes emissions is expected to be visible in 2024 and 2025 as the data quality increases.

The current position at 2025, is that we have completed 51 Photovoltaic (PV) installations, 8 heat pump installations and 22 properties have received fabric upgrades. For 2025, we have scheduled in a further 30 PV installations and 11 Heat Pump installations. This will deliver in total 19 Net Zero Clergy homes by the end of the year. We currently have 8 clergy homes that are Net Zero. All clergy homes are eligible for the £7,500 Boiler Upgrade Scheme (BUS) government grant.

We continue to make conscious and purpousful decisions where houses become vacant or additional require to ensure any new or opportunity for replacement are either well positioned for CNZ already, improvement suited and present affordability for our clergy occupants.

Works: EPC, heat pump/ other, design, PV, surveys cavity, loft and other associated decarbonisation works	**Average unit price**	**Estimate for portfolio (132 properties)**
Total	**£39,005** per property	**£5,148,660** for portfolio (132 properties)

Analysis – Schools

Emissions data for schools is currently derived from Display Energy Certificates (DECs). Over the coming year, efforts will focus on improving the accuracy of data collection, monitoring, and reporting. With Diocesan investment into PV installations for VA schools, there are 4 major PV installations scheduled for 2025, alongside additional decarbonisation works, will result in significant reductions in emissions across our VA schools.

With the closure of the Diocese of Bristol Academy Trust in 2024, emissions associated with our in-scope schools will be reduced.

Voluntary Aided (VA) and Voluntary Controlled (VC) schools will be encouraged to participate in sustainability initiatives such as Eco-Schools and Let's Go Zero to support their environmental commitments.

Currently, cost estimates for the decarbonisation of VA schools are unavailable. However, the National Church has provided funding for a comprehensive analysis of four VA schools to support with Public Sector Decarboniastion Scheme (PSDS) application, this analysis will be conducted in 2025.

Analysis – DSS

Electricity Use

The DSS office is heated and cooled using an air-to-air heat pump, while hot water is provided through point-of-use systems. No gas or other fuel sources are used on-site, meaning electricity is the sole source of emissions.

In 2023, the DSS office transferred to a renewable energy tariff.

The DSS offices are leased to 2027 and therefore investment for further decarbonisation work is being investigated with the landlord in line with lease review.

Hillside House Eco Champions are engaged in encouraging behavioural change within the office to reduce emissions e.g. Electricity use/ wastage, hybris working and promoting lift sharing and avoiding unnecessary journeys. The office also provides an electric bike for short trips and we are actively persuing our upgrade from Eco Diocese Bronze to Silver in 2025 and further Carbon literacy training.

Business Travel

Business travel has increased, this is possibly a reflection of increased numbers of clergy reporting their travel data on the EFT tool in 2023 compared with the input from 2022. There is insufficient data to determine the purpose of these journeys and fully understand the detailed reasons behind this rise. It is anticipated that business travel will continue to increase due to Transforming Church. Together, as parish-facing roles and activity increases.

Enhancements to our new financial management system will enable the recording of vehicle and engine types, along with journey details. This improvement will enhance the accuracy and reliability of our business travel emissions.

Data Quality

The calculation of carbon emissions for churches, church halls and clergy travel is dependent on parishes completing the Energy Footprint Tool (EFT). In 2023, EFT completion reached its highest level to date (84%), providing a significantly more accurate and comprehensive picture of emissions from these buildings.

Energy data for schools has been sourced from a combination of actual data supplied by schools to the Diocese and Display Energy Certificate (DEC) records. DECs are required for schools and other public buildings, with annual updates mandated for those with a floor area exceeding 1,000 m², and updates every 10 years for buildings below this threshold. This year, efforts will be focused on improving collaboration with schools to enhance data collection and, where possible, backdate emissions records.

For clergy homes, limited data is available to capture actual energy consumption, to date this has been based upon Energy Performance Certificates (EPCs) which are estimated on average emissions from similar-sized residential properties. We continue to support national church in improving calculation methods to ensure data is as accurate as possible.

It is important to note that a common limitation in carbon footprint assessments arises when new data becomes available in subsequent years, capturing past

activities that were previously unreported. This challenge is widely recognised across organisations managing emissions data.

Moving forward, improving data accuracy across all building types will remain a priority, ensuring a more reliable foundation for measuring and reducing carbon emissions across the Diocese.