

Net Zero Carbon Action Plan to 2026



“To strive to safeguard the integrity of creation and sustain and renew the life of the earth’ is one of the five marks of mission of the Anglican Communion.

“The Church, living as the body of Christ, is the means through which Christ touches the earth now. Being part of the body teaches us about mutuality. Where one part of the body hurts, all are harmed. We are called to listen and see, seek and understand, to repent and change, and share what we have, especially with those already living under distress.

“There is a hungering and thirsting for righteousness in the Kingdom of God. Our theology of climate change should be unashamedly rooted in the theology which cares that human beings, made in the image of God, are suffering and will suffer, as a result of a warming planet. More widely, we share our single island planet home with the whole diversity of creation. Human flourishing depends upon nature’s biodiversity flourishing.

There is always the temptation simply to despair. Perhaps our biggest task as Christians is to hold a lamp of hope-filled light, the Christ-light, to lighten our path. Then we might just see and hear the cry of the poor, the groaning of creation, and the wonder of God’s world. The Psalmist was captivated by the natural world, speaking of ‘the heavens are telling the glory of God and the firmament proclaims his handiwork.’

I hope this Net Zero plan will help each of us to be re-inspired by the wonder of creation and, with thankful hearts, seek actions that give hope shape for those adversely impacted by climate change today, as well as the generations to come.”

The Rt Revd Graham Usher, Bishop of Norwich

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1. Executive Summary

As an essential response to the current climate emergency, the Diocese of Norwich has agreed a goal of reaching carbon net zero by 2030 in line with the Church of England General Synod's Net Zero Carbon Routemap. This document sets out an Action Plan to achieve this goal.

The Net Zero Carbon Routemap to 2030 covers carbon emissions from energy use in all buildings owned by the diocese or for which the diocese has a significant degree of influence (churches, in-scope schools, clergy housing, the cathedral, diocesan offices), and work-related travel emissions. Other sources of emissions are targets for reduction after 2030.

The Plan recognises that reaching the goal of net zero carbon by 2030 involves culture change across the diocese and requires the involvement of everyone to achieve this change. Within the plan we also recognise the importance of governance, leadership, and capacity building.

To ensure a sustainable future, we need to reduce overall energy use as well as carbon emissions. Ways of achieving this can vary considerably in cost, feasibility, and effectiveness. The plan recognises that appropriate actions will vary across buildings and across time as technologies develop. The Plan includes more detail in sections on churches, schools, and clergy housing, including indicative costs for schools and clergy housing, because these are the three areas responsible for the majority of the diocesan carbon emissions.

The Action Plan focuses on actions to the end of 2026, as well as laying a foundation for action that needs to be taken between 2027 and 2030.

2. Background

The world is facing a human-induced climate emergency already bringing suffering and hardship to many who have done the least to create it (1). This emergency has brought humanity to the point of major decisions that will determine the future of humanity and the rest of life on earth. The Diocese of Norwich recognises that this is the context in which we are called to live and preach the gospel.

Addressing the climate emergency provides opportunities as well as challenges. Opportunities include building community and openings for mission through working together and with those outside the church; implementation of the Church of England's fifth mark of mission; reorientating our thinking to recognise, as Rowan Williams puts it, "the world as existing in relation to the mystery of God"; adjusting our lifestyles in line with that thinking; loving our neighbours who are already suffering the effects of climate change. There are already good news stories across the diocese where such opportunities have been realised.

The Bishop of Norwich has provided strong direction in this area over the last four years as Diocesan Bishop, aligned with his national role at the lead bishop for the environment. A commitment to the environment was made clearly in the Diocesan Vision and Priorities agreed by Diocesan Synod in March 2021 – "We will work to ensure that ecological concerns are integral to our life together as we care for our single island planet home". This was reaffirmed in October 2022, when Diocesan Synod agreed a commitment to "strive to achieve Net Zero Carbon by 2030".

This is already part of our education performance objectives with a target of spending 15% of the annual School Condition Allocation budget on environmental projects, which is currently on target.

Following the Church of England General Synod's approval of the Routemap to Net Zero Carbon (NZC) (2) in July 2022 as a plan to be followed by the whole of the Church, the diocese is committed to achieving net zero carbon by 2030 through following this Routemap.

The task of planning delivery of this project has been given to the NZC Working Group, the current membership of which is listed at Appendix 1. It is this group that has developed this Action Plan. The

group is made up of Parish Support Team staff with related responsibilities, local leaders and representation from the Cathedral, with relevant experience and expertise.

As we anticipate the challenges of this commitment, including the funding required, we have an opportunity to exercise faith, putting our God-given calling to love our fellow human beings, future generations, and all creation above other concerns.

3. Purpose

The purpose of this Action Plan is to set out actions required to respond to the climate emergency by reducing carbon emissions in the Diocese of Norwich, in line with the NZC Routemap.

4. Scope

The scope of this Action Plan, in line with the NZC Routemap (see Appendix 2), includes energy use (gas, oil, other fuel, electricity) in buildings owned by the diocese or for which the diocese has a degree of influence (churches, church halls & ancillary buildings, cathedral, voluntary aided schools, clergy housing, suffragan bishops' housing and offices, diocesan offices, archdeacons' offices and other non-residential diocesan property). It also includes work-related travel. It does not include sources of emissions that are out of scope in the NZC Routemap prior to 2030, some of which are in scope at later dates. These sources include commuting; clergy, family and church member lifestyles; embodied carbon in major building projects; waste disposal; contractors; and land management. We expect that implementing the Action Plan will impact carbon emissions from some of these sources prior to 2030.

The Action Plan focuses on actions required by the NZC Routemap to 2026. Acknowledging the fast-changing pace of technology and inevitable increasing uncertainty about longer-term planning, the Action Plan contains less detail about actions after 2026. Environmental work within the diocese includes elements other than achieving net zero by 2030. Actions required to achieve strategic objectives outside of the NZC Routemap are not included in the plan. These areas, such as coastal erosion and biodiversity will continue to be overseen by the Environmental Working Group, with the support of the Diocesan Environment Officer. We recognise the unique situation of many of our buildings and parcels of land. The plan does not assume a one-size-fits all approach (see also below regarding churches).

5. Principles

This Action Plan has been developed and will be implemented in line with the seven principles in the NZC Routemap.

- The plan is based in theology that seeks to treasure, safeguard and sustain God's creation. We recognise that this may entail cost, and decisions will inevitably involve some complexity.
- The plan is designed to engage, enable and empower all those in the diocese to take action towards the goal of net zero by 2030, being mindful of diversity, particularly in relation to protected characteristics in the Equality Act 2010 (3). We will seek to ensure that the plan is relevant and widely understood as well as highlighting its urgency. We recognise much excellent environmental work in our local communities across Norfolk and Waveney, and the importance of working collaboratively with those outside the church.
- The plan is underpinned by continuous collection and review of data so that we can refine and continually improve our plan so that it is focused, and transparent. It recognises the unique situation of every church, school, and property, and that actions required in each situation need to be appropriate and proportionate. Further guidance and support is planned for churches of different sizes, ages and with different use patterns. The Plan also recognises the variety of options for reducing emissions, their advantages and drawbacks.
- We will take opportunities to discuss and share the plan to ensure that steps to reach net zero by 2030 are embedded in all we do.

- In line with research that indicates reducing energy could potentially reduce emissions by as much as 60% (1) the plan aims to reduce energy use, as well as sourcing energy from cleaner sources.
- The plan includes actions to ensure that work-related travel becomes increasingly sustainable.
- Offsetting will be reviewed at the end of 2026. We have no plans to offset prior to 2026.

6. Methods

The Action Plan was developed by the NZC Working Group with input from the Environmental Working Group.

The Action Plan covers six areas: Governance, leadership and capacity building; Churches; Diocesan Board of Education and schools; Clergy property; Cathedral; Offices and work-related travel. Each section lists actions required by the NZC Routemap to 2026 and additional actions required to support the culture and behaviour change needed to reach net zero by 2030. Additional actions include those concerned with policies, levers, systems, data collation and analysis, developing material and communication, specific support from technical experts, working with organisations, networks, and acting on “quick wins”. Actions are designed to lead to reduction in carbon emissions and overall energy use.

Ways of reducing carbon emissions and reducing overall energy use can vary considerably in cost, feasibility and effectiveness. For example, because heating is the main source of emissions across all our buildings, changing heating systems from oil or gas to heat pumps, underfloor heating, infrared heating and pew heaters/cushions can be very effective ways of reducing both emissions and overall energy use, but may be expensive and not feasible in some buildings. It is cheaper to switch to green electricity and gas tariffs, but green gas is not always available and its potential contribution to a carbon free UK is limited (4).

The Plan does not yet set an overall target for reduction in carbon emissions because the data available in all areas of the Plan does not yet enable a baseline to be set from which calculations can be made. This will be rectified at the earliest opportunity as part of regular updates to the Plan. Any targets set are within individual sections at this stage. We have built a robust system of monitoring and evaluation into the Plan (see section 8) and will ensure good records are kept so that any potential updates can be explained and agreed appropriately.

We have reviewed capacity to respond to the NZC Routemap, identifying gaps and funding needed wherever possible. This includes funding to implement our Action Plan and for resulting capital projects in some areas. Although we have not yet been able to finalise emission reduction and capital cost elements in all areas because of data issues, preparatory work has started using information from various sources including Church of England assumptions for costs of churches implementing the Practical Path to Net Zero (5), and the Energy Saving Trust (6). It has also been assumed that the UK energy grid will be decarbonised though more slowly than originally planned in 2021 (7).

7. Outline of costs and funding sources

The major costs of implementing the Action Plan are capital costs. For churches, schools and clergy housing, assumptions about energy reduction and decarbonisation actions, and associated costs to the end of 2026 are outlined in relevant sections, with total capital costs estimation to be confirmed once the information is available. The Diocesan Board of Finance are currently developing a Finance Strategy that will explore how to fund the capital costs of works required to achieve our goals, particularly parsonage houses. For churches and schools, we expect to need grant funding to cover a considerable part of the costs. Capital costs for the diocesan offices and travel will be considerably smaller and are included below where available at this stage. The Church of England is already planning some central projects to involve a small number of buildings as “demonstrators.”

We will appoint a full-time NZC officer in the Autumn of 2023. We have secured £146k from the Church Commissioners for a post until the end of 2025. Later sections of this Plan describe the role of the NZC Officer in more detail. However, an important part of their role will be to identify funding streams, support applications, and explore group procurement. They will be working with individuals in similar posts in the eastern region dioceses to maximise the potential for identifying and securing funding needed. This will complement the role of the recently appointed Diocesan Environment Officer that has been generously funded by the Anne French Memorial Trust. This role will support churches as they seek to develop their own NZC related plans. They will also work with a new Church Buildings Support Officer, and the Historic Churches Building Support Officer, both supported by recently secured external funding.

We expect to need further technical expertise to support churches, schools and the diocesan property team in major decarbonisation schemes. These staff or contractors will, for example, be able to explore alternative heating options with churches or plan or undertake some of the complex decarbonisation work. Possible sources of funding to cover technical staff or contractor costs are currently being explored.

8. Baseline data, monitoring and evaluation

The priority of the Working Group in the early months of its existence has been to determine the completeness and accuracy of data available to enable a baseline to be formed, targets for reductions set and costed actions to achieve the reductions planned and calculated.

As will be described, this data is not robust enough in every area to be relied upon at the current time to provide an overall emissions reduction target and further work will be required before reliable targets can be set, and actions costed.

Latest carbon emissions estimates for the Diocese, where we have them, are from 2021, except in the case of parsonage houses, which have been assessed over the previous ten years. It is worth noting that 2021 usage figures are from within the period of the Covid pandemic so should be treated with caution.

The three largest areas of carbon emissions are:

Churches - the Energy Footprint Tool (8) has been completed by 88 churches, which does not give a reliable picture of church usage so total emissions have not been estimated and targets have not been set at this stage.

Clergy housing – these properties all have EPC assessments in place that give an estimate of carbon emissions totalling 1,823 tonnes. It should be noted that although similar assessment criteria have been used, the timeframe over which these have been completed is lengthy, and the criteria need updating to take into account new technologies such as Air Source Heat Pumps. For these reasons, it is proposed to improve the data before setting an emissions reduction target.

Schools – 33 voluntary aided school sites and 53 academy school sites are in scope for emissions reduction by 2030. It is estimated that there are annual emissions of 5,334 tonnes. This is based on independent energy surveys at 20 schools that have been extrapolated across the estate on a m2 basis.

In addition, it is estimated that there are 580 tonnes from offices/other buildings; . The total mileage for 2022 was 71,245 miles. This includes the mileage of Parish Support Team members of staff, Archdeacons, Diocesan School Support Officers, Rural Deans and volunteers.

Progress will be reported and reviewed annually by Diocesan Synod and at least quarterly by the NZC Working Group, including reports on the progress of emissions reduction annually for churches and more often for schools and clergy housing. We will also report on progress to the diocese more widely. In the first quarter of 2025, as required by the NZC Routemap, we will prepare a progress report

detailing successes and explaining reasons for delays to progress which will be collated with the reports of other dioceses to present to General Synod.

Plan to 2026

9.1 Governance, leadership and building capacity

9.1.1 Introduction

It is proposed that Bishops' Council of Trustees have responsibility for monitoring progress of this work, supported by the Vision Programme Board, reporting to Diocesan Synod on progress on an annual basis. Day to day responsibility for implementation lies with the Net Zero Carbon Working Group (the membership of which is listed at Appendix 1), chaired by the Diocesan Secretary, and supported by the soon to be appointed Net Zero Carbon Officer.

The diocese has a long history of concern for the environment and a longstanding Environmental Working Group to support and encourage this. The Chair of the Environmental Working Group is a member of the NZC Working Group to ensure effective collaboration around our wider environmental agenda as a diocese. The DEO will be establishing a network of Environment Champions across the diocese to ensure, as far as possible, that everyone is included in the journey and to build capacity to understand and facilitate the transition to NZC, particularly amongst churches. The aim is to have at least one advocate in each deanery. We also recognise the importance of working with local communities, local authorities, organisations and networks also working towards carbon net zero in Norfolk and Waveney.

Enhancing relevant opportunities for everyone in the diocese to contribute to specific direction and to learn from each other and those with more experience and expertise is key to ensuring the Plan is inclusive and effective. Training will be provided for clergy, lay ministers, and all those involved in and interested in environmental work across the diocese, with appropriate input to ensure its effectiveness, as well as more informal opportunities for discussion to support the work needed. Some of these opportunities are discussed in more detail in the NZC Communication Strategy, subject to approval, which includes a focus on churches and schools, areas contributing 60% of diocesan carbon emissions in 2021, and therefore key to emissions reduction. The NZC Communication Strategy aims to ensure that, across the diocese, communication supports and encourages church congregations, clergy, teachers, pupils, diocesan staff and others to understand environmental issues particularly the current climate emergency, put these in a theological context, and find ways to address them.

The diocese has registered with eco-diocese planning to achieve a bronze award by 2024, silver in 2026 and gold in 2029. Achieving these various eco-awards requires some of the training listed in this section to be in place and requires offices to reach the relevant eco-church award (see section 9.6). The A Rocha website provides detail on requirements (9).

Diocesan Synod recognises that the way the diocese invests its resources is an important element of its commitment to net zero carbon and called for divestment from fossil fuel investments before the end of 2022, which was achieved.

9.1.2 Opportunities

There is strong support among those involved in governance of the diocese and a long track record of previous action that provides firm foundations for future action. With the new staff resource obtained, there is a great opportunity to encourage and plan wider involvement in short- and longer-term action that will reduce carbon emissions and reduce energy usage. The increasing profile of the climate emergency with those in our churches, schools and communities provides fertile ground for a message of positive change and action.

9.1.3 Actions

Action	Who responsible
2024	
Appoint and embed the new staff members to support NZC and wider environmental work	Diocesan Secretary
Further develop the membership of the NZC Working Group to ensure the right skills mix	NZC WG
Develop and implement the NZC Communications Strategy	Comms Manager
Capture existing baseline data position and develop further to effectively measure progress	NZC WG
2025	
Develop, implement and train an Environment Champions network to increase local capacity, learning and mutual support.	DEO
Identify high level policy changes and levers required to implement actions in this Plan	BCT
Promote Eco Church to all churches to increase registration up to 30%, with at least 20% awarded.	DEO
2026	
Initiate discussions with local authorities about low carbon heat networks and other opportunities to collaborate on environmental improvements	NZC Officer
Work across all departments and with our churches to achieve Eco Diocese Silver by end 2026	DEO

9.1.4 Challenges

The primary challenge is that of capacity, both for those employed at a diocesan level, and parish clergy, who will be undertaking these tasks as additional work alongside a heavy load of existing commitments. This will hopefully be helped by newly funded staff and their focus on growing local capacity through networks and upskilling through training.

9.1.5 Indicative Costs

There are no costs related to capital or technical expertise in this section. There will be relatively low-level operational budgets for the NZC Officer and DEO to utilize in their engagement work across the diocese, which will total £9k to 2026.

9.2 Churches

9.2.1 Introduction

Churches in the Diocese of Norwich vary widely in their carbon footprint, from small, little-used and unheated rural churches to major churches in daily use for services and community activities. 160 Churches are registered with Eco Church. Our information base is limited: in 2021, only eighty-eight of our 658 churches completed the Energy Footprint tool, making it difficult to set any baseline targets at this stage. However, energy-efficient LED lighting and infra-red heaters are in increasing use across the Diocese. Two of our biggest churches, St Peter Mancroft in Norwich and Great Yarmouth Minster, have major solar panel/heat pump projects in hand. We intend to put these forward as Demonstrator Churches in the first tranche of CBC supported projects, together with two other churches with interesting energy-efficient projects.

In addition to the demonstrator project, we propose to encourage parishes to reduce their energy footprint through four publicity/consciousness-raising campaigns: (a) LED lighting (b) move to Green Gas tariffs (c) move to Green Electricity tariffs (d) replacement of oil-fired boilers with alternative energy sources. The first of these campaigns will launch in the next couple of months.

9.2.2 Opportunities

There is widespread interest in many parishes in contributing to the NZC target. The variety of churches in the Diocese offers opportunities to experiment with a range of measures adaptable for different circumstances.

9.2.3 Actions

<i>Actions</i>	<i>Who responsible</i>
2024	
Implement a first tranche of a 'NZC Demonstrators Scheme' Sept 23	Church Care and Devt Mgr
Run a publicity/briefing/conscious-raising campaign on LED lighting.	Church Care and Devt Mgr
Implement a second tranche of a 'NZC Demonstrators Scheme'.	Church Care and Devt Mgr
Run campaigns on green power tariffs, green gas tariffs and phasing out of oil-fired boilers.	Church Care and Devt Mgr
Encourage churches to complete the Energy Footprint Tool through various communication tools.	Church Care and Devt Mgr
2025	
Review the Energy Footprint Tool data, feedback to the diocese and deaneries: continue to increase where possible.	Church Care and Devt Mgr
Continue to support NZC Action Plans by highest energy supporting churches.	Church Care and Devt Mgr
Review issues churches have with developing sustainable travel options.	Church Care and Devt Mgr
Continue to encourage churches in progress on environmental issues registration for Eco-Church and progression through the award system.	Church Care and Devt Mgr
2026	
To continue to deliver any plans worked up through 2024 and 2025.	Church Care and Devt Mgr

9.2.4 Challenges

The installation of LED lighting is an 'easy win' intervention: it is more energy-efficient than conventional lighting. However, both Green Gas and Green Electricity tariffs can be markedly more expensive than standard tariffs, raising difficult decisions for cash-strapped parishes. In more remote rural areas, oil-fired boilers can be the only viable option. Parishes are often understandably reluctant to invest in replacing heating systems that are functioning reasonably effectively with a future lifespan of several years. There is wide interest in solar panels and heat pumps, but these projects are frequently more complex and expensive than expected. Heritage bodies and Local Authority planning departments can be resistant to the installation of solar panels.

9.2.5 Indicative costs

It is not currently possible to establish a realistic indicative cost for adapting churches fully to NZC compliance. Parishes are increasingly balancing competing demands for funds: for maintenance of church buildings, support for mission locally, parish share, insurance and utilities. The likely trajectory is a piecemeal response by parishes as they respond differently at local level to these priorities.

9.3 Diocesan Board of Education and Schools

9.3.1 Introduction

Both DNEAT and St Benet's Multi Academy Trusts are in the process of data collection of utility usage, this data is gathered using smart meters in the academies that feedback to our energy broker, subsequently this falls in line with our display energy certification allowing us to determine how energy efficient both Estates are. We are currently using our School Capital Allocation to help achieve better sustainability across the trust, each time a project is undertaken the goal is for these to be as carbon neutral as possible at the same time as improving both MAT Estates.

Both MAT's combined total fifty-three buildings across Norfolk with one academy in Suffolk. Given how difficult it is to make adjustments to some of our buildings with issues such as being listed or shrouded by trees, our current direction of travel is to offset the carbon usage as a whole rather than trying to achieve this individually. Our focus over the last two years and continues to be to install LEDs across the estate where we are around 70% complete, we have targeted the larger academies first to help with the reduction of carbon and we plan to do a minimum of 5 a year until completed. In conjunction with the VA schools, we are trialling a substance called Hydromx which is designed to improve heating efficiency.

We are currently exploring Solar panels and trialling on an academy with an agreement with Solar for Schools, how this project runs will determine if we pursue Solar for Schools to work with more academies. Other projects we are working on and will continue to improve our estate with are window replacement schemes, roof replacement and correct servicing of carbon creating items to run cleaner where possible.

There are currently thirty-three voluntary aided school sites that are in receipt of School Capital Allocation. For 2 years now the Diocese have ring fenced 15% of the annual allocation towards direct Net Zero Carbon measures. It is worth noting that core uses such as re-roofing and windows replacements do make an important contribution to the overall goal of net carbon zero due to substantial improvements in building regulations affecting insulation values compared with the media being replaced. We are also looking to fund solar panel installations to offset areas of particularly high carbon use. This may also be achieved with Power Purchase Agreement (PPA) models to enable capital repayments to be made over the lifetime of the project and to help accelerate the pace of the rollout.

The process of replacing fluorescent lamps with LED lighting has been ongoing for several years now. There have been 15 LED installations so far this year, and currently over 80% of school have moved over. In the knowledge the older lighting fittings are being discontinued in 2023. Two schools will also be trialling Hydromx this year and depending on the performance (estimated 30% fossil fuel savings), further installations will be considered. We are currently investigating a range of smart meter upgrades that will enable schools to track their own usage and set reduction targets. Voluntary Aided schools are looking to collaborate ever closer to the Academy trusts, since it is envisioned that one day all schools will become academies.

It is estimated that there are annual emissions of 5,334 tonnes. This is based on independent energy surveys at 20 schools that have been extrapolated across the estate on a m2 basis.

9.3.2 Opportunities

The Diocese are in receipt of School Condition Allocation, and schools Devolved Formula Capital, available for the maintenance of school buildings. This funding provides opportunities to maintain schools and also improve the insulation levels of buildings as well as installing energy saving equipment like LED lighting across the board and small solar panels arrays. There is also Public Sector Decarbonisation Scheme (PSDS) allows public serving bodies such as schools and Diocese to bid for funding that would allow fossil fuel heating systems to be removed and replaced more expensive low carbon alternatives.

9.3.3 Actions

Action	Who responsible	Estimated Cost
2024		
Install LEDs into a further five academies across the Academy Estate targeting the remaining large buildings, and 3 VA schools.	Schools Estates and Finance Manager.	£120,000.00
Solar for Schools first install on one academy and one VA school to confirm agreement viability.	Head of Estates & Schools Estates and Finance Manager.	£0 (cost recharged through saving)
Trust funded solar panel install at newest built academy (£50k), VA school to have Solar panels installed funded from SCA to offset heat pump costs (£100k).	Schools Estates and Finance Manager.	£150,000.00
Upgrade 3 VA schools to smart meters with energy guardian to gain better understanding of usage.	Schools Estates and Finance Manager.	£12,000.00
Window replacement scheme at one academy (£60k) and one VA school (£90k).	Schools Estates and Finance Manager.	£150,000.00
Additional re-roofing and solar project at 1 VA schools	Schools Estates and Finance Manager.	£220,000.00
Replacement of two inefficient boilers in academies and one at a VA school.	Head of Estates & Schools Estates and Finance Manager.	£180,000.00
Trial Hydro Mix at one academy and two VA Schools	Head of Estates & Schools Estates and Finance Manager.	£30,000.00
2025		
Install LEDs into a further five academies and 3 VA schools	Head of Estates & Schools Estates and Finance Manager.	£110,000.00
Potential Solar for Schools with the aim to install at 3 more academies and 2 VA schools.	Head of Estates & Schools Estates and Finance Manager.	£0 (cost recharged through saving)
Upgrade 14 VA schools to smart meters with energy guardian to gain better understanding of usage.	Schools Estates and Finance Manager.	£56,000.00
Window replacement scheme at two academies and further one in a VA school.	Head of Estates & Schools Estates and Finance Manager.	£180,000.00

Roof repairs and replacements to make them viable to have Solar panels installed. (c.£400k Academies, £200k VA Schools).	Head of Estates & Schools Estates and Finance Manager.	£600,000.00
Assess condition of boilers and upgrade one of the most inefficient in academy and another in a VA school.	Head of Estates & Schools Estates and Finance Manager.	£140,000.00
Install Hydromx in five more academies and VA schools if data from 2024 proves to be successful.	Head of Estates & Schools Estates and Finance Manager.	£75,000.00
2026		
Install LEDs into a further five academies and 3 VA schools	Head of Estates & Schools Estates and Finance Manager.	£110,000.00
Potential Solar for Schools with the aim to install at 3 more academies and 2 VA schools.	Head of Estates & Schools Estates and Finance Manager.	£0 (cost recharged through saving)
Upgrade 15 VA schools to smart meters with energy guardian to gain better understanding of usage.	Schools Estates and Finance Manager.	£60,000.00
Window replacement scheme at two academies and one VA school	Head of Estates & Schools Estates and Finance Manager.	£180,000.00
Roof repairs and replacements to make them viable to have Solar panels installed. (£300 academies, £200 VA schools)	Head of estates & Schools Estates and Finance Manager.	£500,000.00
Assess condition of boilers and upgrade one of the most inefficient (academy and VA).	Head of estates & Schools Estates and Finance Manager.	£140,000.00
Install Hydromx in five more academies and VA Schools if data from 2024 proves to be successful.	Head of Estates & Schools Estates and Finance Manager.	£75,000.00
Ensure all academies and VA Schools are on green energy tariffs supported by energy broker.	Head of Estates & Schools Estates and Finance Manager.	-

9.3.4 Challenges

The largest issue we are facing is funding, DNEATs resources are limited and are focused on delivering a safe, warm and dry environment and St Benet's currently receive no School Condition Allocation due to pupil numbers meaning all planned projects are currently on hold. To be able to achieve net carbon neutral by 2030 the MATs would require a large cash injection for sustainability projects.

Our plans will constantly change due to new academies joining the trusts frequently and will add to our existing carbon output.

A main challenge for the VA schools is that when Capital projects are planned via SCA the schools have to fund 10% of the project, the challenge here is that if the schools' finances are not able to support the project then we would see delays begin to occur.

9.3.5 Indicative Costs

The Diocese Multi Academy Trusts and Voluntary Aided schools have an estimated combined net carbon output of 5334 tonnes per year. This is based on independent energy surveys at a sample of 20 schools extrapolated across the school estate on a Gross Internal Floor Area (m2) basis. The surveys

completed in 2021 relied on 19/20 data so it is anticipated that Covid will have some impact on the figures.

The table in 9.3.3 shows the estimated costs we could expect to incur. To achieve the plan in 9.3.3 we would need to spend £3 million. Along with the improvements made between 2020-2023, we estimate that carbon savings of over 25 % can be made by 2026.

The table below shows the carbon saving over 20 years by upgrading one of our largest academies to LEDs which alone will justify the above estimated spend.

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 10	Year 20
Current CO2 Emmissions (kg)	17,441.78	34,883.56	52,325.34	69,767.12	87,208.90	174,417.80	348,835.60
CO2 emmissions After Upgrade (kg)	7,460.90	14,921.80	22,382.70	29,843.60	37,304.50	74,609.00	149,218.00
CO2 Savings (kg)	9,980.88	19,961.76	29,942.64	39,923.52	49,904.40	99,808.80	199,617.60

Going forward we will be able to accurately model baseline carbon output year to year with the installation of smart meters and a culture change towards carbon counting. It is also anticipated the installation of smart meters and energy guardian software across the estate will significantly reduce carbon waste and improve knowledge and understand among the building users.

9.4 Clergy Housing

9.4.1 Introduction

The Diocese of Norwich currently has 250 Rectories, Vicarages and Curate houses ranging in build-date from 1700 through to 2021. The property team has completed a review of the EPC's for each property, and all have a current Energy Performance Certificate. Within the Portfolio there are seventy-five properties which use oil as their fuel source for heating, of those seventy-five properties 33 have oil boilers that are more than 15 years old which in the trade means these boilers are considered obsolete and difficult to obtain replacement parts.

When we replace a 15+ year old fossil fuel boiler with an equivalent modern fossil fuel boiler there is a fuel efficiency saving of up to 30%, when upgrading we also look at the radiators and controls which should also aid fuel efficiency.

There are also 167 properties with gas boilers of which fifty-seven are more than 15 years old, the efficiency savings can be slightly less than 30% when upgrading gas boilers but there are still significant efficiency savings to be had.

As initial exemplar projects, the Diocese has retrofitted two properties with triple glazed windows, Air Source Heat Pumps together with Solar Panels and Battery Storage, and battery storage to one further property that already had Solar Panels. This will allow us to review performance and identify any potential issues with this type of retrofit installation.

As the Clergy are responsible for their own energy bills, we do not currently hold data to identify those on a "Green Tariff" and are therefore not able to identify the potential carbon savings achievable by running an energy switching campaign.

All the actions we are proposing, relate to Net Carbon reduction in operation rather than carbon embedded in the production and destruction of materials used.

Our properties all have EPC assessments in place that give an estimate of carbon emissions totalling 1,823 tonnes. It should be noted that although similar assessment criteria have been used, the timeframe over which these have been completed is lengthy.

9.4.2 Opportunities

With encouragement and good communication, we should seek the buy in of all clergy occupiers to complete the energy toolkit and look to switch to green energy tariffs. This information will help to improve our base line knowledge plus reduce CO2 emissions in production.

We aim to reduce the reliance or consumption of fossil fuels in our properties. In the short term this would be by looking to like for like swaps for all oil-fired boilers that are 15 years or more old. New condensing boilers should show an improvement on CO2 emissions plus saving on fossil fuel use. With time we will look to swap both oil and older gas fired boilers for Air Source Heat Pumps. This normally requires the house to be re-piped and larger radiators fitted which can only realistically be done when the house is vacant.

When preparing a house for new occupation we will look to swap all light fittings for LED ones, when an existing light fitting fails in a property we will look to replace with an LED fitting. This will reduce the use of energy.

As part of Quinquennial inspections, we will seek to ascertain if the property has cavity wall insulation and sufficient insulation in the roof space. If not, then we will look to fit or improve. This will improve heat loss and therefore reduce use of fossil fuels.

Future opportunities include the replacement of existing double-glazed windows for triple glazed windows and doors, subject to planning constraints, as a number of our properties are listed or within a conservation area.

Working with our four immediate neighbouring dioceses, we are each producing exemplar properties where energy efficient upgrades and system replacements have been undertaken, with a view that we can share the value of the benefits obtained and have actual costs for the works undertaken in order to inform with accurate costs our improvement programme going forward.

9.4.3 Actions

<i>Actions</i>	<i>Who responsible</i>
2024	
Having undertaken research of the marketplace in order to provide recommendations, run a diocesan wide education campaign to encourage occupiers of our properties to switch their energy tariff to a green tariff.	Director of Property Services/ Diocesan Surveyor
Encourage all clergy occupiers to complete the energy toolkit in order to improve our baseline knowledge.	Director of Property Services/ Diocesan Surveyor
Quinquennial inspections to include visual inspection of insulation and upgrade to recommended levels, as required.	Diocesan Surveyor
Continue to review the marketplace for best practice and emerging energy efficient measures suitable for our properties.	Diocesan Surveyor
2025	
Continue to replace as necessary double-glazed windows and doors with triple glazed windows and doors rather than repair existing.	Diocesan Surveyor

Continue to review the marketplace for best practice and emerging energy efficient measures suitable for our properties.	Diocesan Surveyor
2026	
Create programme to swap oil boilers for Air Source Heat Pumps	Diocesan Surveyor
Create programme to swap double-glazed windows for triple glazed windows	Diocesan Surveyor
Continue to review the marketplace for best practice and emerging energy efficient measures suitable for our properties	Diocesan Surveyor

9.4.4 Challenges

The cost and funding for all measures proposed is a challenge. Also, the availability of both materials and contractors to fit as everybody is considering taking the same route as the diocese with their own property portfolios.

Changes in technology as alternative heating systems evolve and other heating innovations enter this very fast-moving marketplace.

In order to produce our base line figures we are having to extrapolate figures from Energy Performance Certificates that are themselves based on costs matrix that can be several years old. Our knowledge and accuracy will improve as more real time data is collected.

The installation of complete new heating systems are extremely disruptive with the need to take floors up and pipe and re-radiator every room in the property. This means that realistically this work can only be undertaken when the property is vacant.

Challenges in relation to the reduction of the carbon footprint of diocesan property include the types and age of properties. In rural areas the challenge is to find a suitable alternative form of heating, the options may change as advances in technology are made.

In urban areas where gas is an option any new boiler installed has the ability to run on hydrogen and in the same way that advances in technology will change the rural landscape it will also impact on the options for urban properties.

We are currently extrapolating basic national average figures in relation to usage costs, because, as yet we do not have access to detailed/accurate data. Occupiers of our properties have free choice of who they use as their energy supplier(s) and pay for their usage direct to their supplier.

8.4.5 Indicative Costs

In order to identify the costs in this section we have utilized the figures in the properties' EPC's together with costs from existing projects to extrapolate across the portfolio, it is probable that we will need to replace some fossil fuel boilers before we are able to install green alternatives and the costs shown represent that.

The spread of costs will be between £65,000 and £137,000 per property, this gives a total figure of some £21 million across the whole portfolio.

It should be recognised that some of the costs contained within the EPC documentation are not necessarily achievable in the commercial marketplace and there are some works such as internal ground floor insulation which are not cost effective to carry out but have been included for completeness.

9.5 Cathedral

9.5.1 Introduction

Norwich Cathedral has achieved its silver eco-church award and is working towards its gold award. The Cathedral and all properties used by the Dean and Chapter are on a green electricity tariff. In 2016 a new LED lighting scheme was introduced into the Cathedral. A sustainability review has been received. The Dean and Chapter are committed to reducing their overall energy consumption and by good use of heating controls achieved a 20% reduction in energy used in 2022 and are exploring options to help with further reductions going forward. We are also committed to raising the EPC of all buildings in Chapter's ownership. As the county's largest tourist destination, we promote cycling and the use of public transport for those visiting the cathedral. Chapter has its Environment panel to oversee achieving Net Zero by 2030 and the environmental impact of all decisions taken is a standing item on the agenda for all Chapter and Senior Management Team meetings.

9.5.2 Opportunities

Working towards net zero provides important opportunities for partnership working:

- **Cathedral Community:** As we are working on a more sustainable rhythm for the Cathedral, we have encouraged members of our Cathedral Community to similarly reflect on their own lifestyles and commitment to net zero. A Leaflet has been produced with ideas and suggestions.
- **Diocese and Parishes:** The Cathedral's commitment to net zero is integral to the wider diocesan commitment. The Cathedral is keen to support the wider work across the diocese and within parishes and to share learning from its own experience with others.
- **City and County:** Where appropriate the Cathedral aims to work with partners in the community both in moving towards net zero and the wider green agenda. E.g., we are currently working with Norfolk Good Journey to encourage car-free visits to the Cathedral.

The Dean and Chapter will complete the energy footprint tool by the end of 2023 and will continue to explore ways of reducing their overall energy consumption. We are working towards LED bulbs across all public spaces on our site and raising the EPCs on all our properties as they become vacant. In 2024 we will be negotiating a new gas contract and will seek to move this to a green tariff. Conversations have also begun about introducing solar panels on some roofs to generate electricity for the Cathedral. Our ongoing progress towards the Church of England Net Zero goals will be monitored by the Chapter's Environment panel.

9.5.4 Challenges

Working towards net zero on a large estate of historic buildings is particularly challenging along with finding the funding necessary for the changes and improvements needed. There is also the uncertainty about which technology will be best future proof especially when it comes new sources of heating, and it is not always easy to find LED bulbs for some of our light fittings. Whilst the current focus is on net-zero we are also aware of the need to move forward on the wider green agenda.

9.5.5 Indicative Costs

The Cathedral is financially independent of the diocese so its net zero needs will not be a cost to the diocese.

9.6 Offices and Work-related travel

9.6.1 Introduction

The Diocese of Norwich Parish Support Team primarily operate from offices at Diocesan House (DH), Easton amounting to about 573 sq m (6,000 sq ft) and two small satellite offices at the property locations of the Bishop of Lynn & Thetford.

Around 55 members of staff are based at DH with a single staff member plus an archdeacon and bishop from each satellite office.

DH is a former parsonage house in 1.37ha (3.3 acres) sitting in part heavily wooded grounds with parking for about 100 cars.

The satellite office in Dereham is formed from an extended double garage, and at Wymondham from converted outbuildings.

Diocesan expense claims for travel in 2022 show an estimated mileage of over 70,000 by car.

We are working from accurate 2021 base line figures.

9.6.2 Opportunities

We are able to choose our energy suppliers for Diocesan House and how and when the building is used. We actively review on a regular basis the green energy supplier market to ensure we are using most appropriate supplier for each office location.

In 2021 we changed the boilers at DH from 30-year-old oil fired boilers to new ones, which secured a 30% improvement in operating efficiency.

We will continually review DH's building structure to improve on heat loss by improving items such as insulation, double glazed windows and doors.

We will continue to review alternative forms of heating and electricity generation for our offices and adopt and change as appropriate.

We are operating a change to LED lighting policy as existing fittings fail.

We are investigating provision of charging points for electric vehicles at DH and ongoing cost management to provide electric supplied to users.

We continue to review that we are making best use of our wooded grounds both for biodiversity and ecology.

We will look at more agile working within DH to make more effective use of the space to take the benefit of any on cost savings.

We will continue to remind existing staff and educate new staff in energy saving measures such as not leaving electrical items on standby when they are not in use.

We will review occupation of DH and whether it is the most suitable building for the diocese to occupy in terms of energy efficiency alongside the diocese's operational needs.

Improvements in rural broadband will increase the effectiveness of holding meetings and communicating through video platforms and we will review the appropriate balance for regularly scheduled meetings.

9.6.3 Actions

Actions	Who responsible
2024	
Review energy and fossil fuel suppliers and use green source supplies	Diocesan Surveyor
Review energy usage and seek savings through usage, working practices and improved insulation measures	Diocesan Surveyor
Continue change of light fittings to LED	Diocesan Surveyor
Re-review potential for installation of EV charging points at offices & provision of dedicated EV charging points.	Diocesan Surveyor
Consider different venues for meetings and alternatives to face-to-face meetings.	SLT
2025	
With others, look to enhance an agile working practice at DH	Diocesan Surveyor/SLT
Continue to review heat loss and energy usage at DH and seek to improve insulation and education of staff to be mindful and put into practice energy saving measures.	Diocesan Surveyor /Comms
Develop a Travel Plan and review the expenses policy to encourage sustainable and environmentally friendly travel.	SLT
2026	
Look to provide electric charging points at DH – subject to practical consideration such as need for 3 phase supply	Diocesan Surveyor
Look to change existing double-glazed windows and doors for more thermally efficient ones.	Diocesan Surveyor
Implement Travel Plan through appropriate communication.	SLT

9.6.4 Challenges

Cost and funding for actions proposed that have a cost element are the largest challenge.

A fast-changing market ranging from green tariff energy supplier market to technology and supply of energy efficient measures shown under actions above.

Possible staff resistance to changes to current working practices will need good education/communications to ensure buy in to any change proposed.

The geographical size of the diocese, together with limited rail network and rural bus routes makes work-related travel by public transport difficult.

9.6.5 Indicative Costs

A reduction in car mileage could result in a decrease in claims for travel expenses.

Whilst a number of actions proposed do not have a physical cost, they do have a staff time cost in reviewing marketplaces and implementing any resultant change.

To replace the existing double-glazed doors and windows at DH for more energy efficient frames and fittings plus triple glazing, a cost in the order of £40,000 + VAT is anticipated.

10 Summary 2026- 2030

After 2025 the NZC Routemap contains far fewer specific actions. It requires all cathedrals, the top 20% high energy use churches, and all offices to have delivered their Climate Action Plans, smart meters to be installed in all clergy housing, and all dioceses to have developed a land management plan. We will develop plans for the further reduction of carbon emissions between 2027 and 2030 based on the work done between 2023 and 2026 and taking into account changes in culture, technology, and political environment in relation to addressing the climate emergency. This is likely to include the introduction of more heat pumps and solar panels, the use of hydrogen, and other heating solutions drawing on newer technologies and experience across the Church of England and particularly the eastern region dioceses with whom we are working closely to share experience and lessons learnt.

10 Glossary

NZC	Net Zero Carbon
DEO	Diocesan Environmental Officer
SLT	Senior Leadership Team
EFT	Energy Footprint Tool
DAC	Diocesan Advisory Committee
DBE	Diocesan Board of Education
NZC WG	Net Zero Carbon Working Group
EWG	Environmental Working Group
BCT	Bishop's Council of Trustees
Dio Sec	Diocesan Secretary
MAT	Multi Academy Trust

12 References

1. <https://cat.org.uk/info-resources/zero-carbon-britain/research-reports/zero-carbon-britain-rising-to-the-climate-emergency/>
2. [Net zero carbon routemap | The Church of England](#)
3. <https://www.legislation.gov.uk/ukpga/2010/15/contents>
4. <https://bigcleanswitch.org/news/will-green-gas-help-climate-change>
5. <https://www.churchofengland.org/sites/default/files/2021-01/the-practical-path-to-net-zero-carbon-numbered-Jan2020.pdf>
6. <https://energysavingtrust.org.uk/>
7. <https://www.edie.net/uk-off-track-to-deliver-net-zero-power-grid-by-2035>
8. https://www.churchofengland.org/sites/default/files/2022-12/Energy%20Toolkit%20Report%202021_final.pdf
9. <https://ecochurch.arocha.org.uk/denominational-awards/eco-diocese/>

Appendix 1: Membership of the Net Zero Carbon Management Group 2023

Tim Sweeting (Diocesan Secretary – Convenor to *date*)
Revd Canon David Longe (Chair of Environmental Working Group)
Revd Canon Nigel Tuffnell (Member of Environmental Working Group)
Revd Canon Sally Theakston (Bishop’s Chaplain)
Nick Cannon (Church Care and Development Manager)
Alan Cole (Director of Property Services)
Reverend (Canon Andy Bryant, Cathedral Representative)
Charles Thurston (Diocesan Surveyor)
Sam Witton Schools (Estates and Finance Officer)
Darren Williams (Head of Estates at Diocese of Norwich Education Services Company)
Barbara Bryant (Diocesan Environment Officer)
Mr. John Packman, CEO, The Broads Authority
Elizabeth Humphries - Communications Manager
Julie Smith Strategic - Programme Manager
Net Zero Carbon Officer – to be appointed

Appendix 2: Scope of the national Net Zero Carbon Target

(Taken from appendix 1 of the Routemap to Net Zero Carbon by 2030)

2030 NET ZERO	2030 NET ZERO	2030 NET ZERO
<p>These are in scope of our "net zero by 2030" target.</p> <p>We will aim to measure and report these as soon as possible, as a first step towards making real and sustained reductions.</p> <p>The national EWG will review, and potentially expand this scope, every three years, from 2022 onwards, in line with reporting to General Synod.</p> <p>1. The energy use of our buildings;</p> <p>Gas, oil, or other fuel use</p> <p>Electricity purchased (no matter the source it is purchased from – renewable electricity purchased is accounted for later)</p> <p>For the following buildings;</p> <ul style="list-style-type: none"> Churches, including church halls and ancillary buildings. (This includes non-parochial churches, BMOs and others if they have their own utility supplies.) Cathedrals (all buildings within the green line forming part of the precinct) 	<ul style="list-style-type: none"> Schools where the DBE has a significant degree of influence (generally Voluntary Aided & Diocesan Academy Trusts) including halls/other buildings Clergy housing, bishop's housing, and other staff accommodation wholly owned by the Church (based on EPC grades and average reasonable use, not actual usage) Church bodies' offices including Church House Westminster, diocesan offices, and bishops' offices Peculiar, only if they come under faculty jurisdiction Other diocesan property, including common parts of tenanted properties Theological Education Institutions which are part of the Church of England For all the above, tenants' energy use and mobile phone masts should be excluded if possible, e.g. if on their own sub-meters. Floodlights managed and paid for by the local council should also be excluded if possible. <p><i>Including the "well to tank" and "transmission and distribution" factors involved in getting energy to the building.</i></p> <p><i>Note: Electricity used to charge EV vehicles will be included within the above.</i></p>	<p>2. All work-related travel (e.g. the petrol / diesel used by archdeacons on visitations, CBC / DAC members on visits to discuss projects, reimbursable clergy and ordinand travel, reimbursable staff and volunteer travel, reimbursable train journeys, staff and clergy making reimbursable flights for work or ministry, coaches hired for school trips etc).</p> <p><i>In standard Greenhouse Gas reporting definitions, these are our "Scope 1" and "Scope 2" emissions and some small elements of Scope 3 which are operationally simpler to include.</i></p> <p>3. From this, and on the understanding that real reductions in energy use have been made, the following can be removed:</p> <ul style="list-style-type: none"> Excess energy generated on site (e.g. from solar PV) and exported to the grid 100% renewable electricity purchased either from the Green Energy Basket or agreed companies, reviewed annually, having regard to the criteria used by the Big Church Switch Green gas [those certified each year.] – see note on Green Energy Tariffs Other reliable offsetting schemes, meeting national criteria to be developed – see note on Offsetting

NET ZERO AFTER 2030	NET ZERO AFTER 2030	NOT INCLUDED IN TARGET
<p>These will be in our next phase of work.</p> <p>Some dioceses may opt to include these in their diocesan 2030 targets.</p> <p>4. All the emissions from major building projects (new builds and extensions, major re-orderings, solar panel installations, major new heating or lighting systems) *</p> <p>5. Emissions generated from the farming / management of Church land (including church yards, unless fully controlled by local councils, and glebe land) less emissions sequestered through the farming / management of Church land (such as tree planting, soil improvement, and other nature-based solutions) *</p> <p>6. All the emissions (including upstream process & transport) from the procurement of any items we buy (e.g. pews for churches, paper & printing for offices, new cars for bishops, catering for events)</p> <p>7. Upstream and downstream emissions from water and drainage</p>	<p>8. Downstream emissions from waste disposal</p> <p>9. Emissions from building contractors, plumbers, electricians and the like</p> <p>10. Carbon generated from use of emails and the internet in work-based contexts</p> <p>11. Diocesan investments, if they are a material amount</p> <p>12. Air-conditioning gasses</p> <p><i>In standard Greenhouse Gas definitions, these are those parts of our "Scope 3" emissions which are within our influence to a significant degree.</i></p> <p><i>* To be specifically reviewed in 2022, with the potential to bring them into scope of the 2030 target, only after consultation, and if feasible methodologies have been developed</i></p>	<p>NOT INCLUDED IN TARGET</p> <p>Out of scope of our target (but still within our mission to influence)</p> <p>13. Travel of staff and clergy to and from their usual place of work or ministry</p> <p>14. The travel of the public to and from church, school, and church events.</p> <p>15. Clergy family's & residents' GHG emissions (consumer goods, travel, holidays). The energy used to heat and light the housing, if over the average reasonable use above.</p> <p>16. Personal GHG emissions from the lives of worshippers attending church, other church users (such as people attending a choir or playgroup), and overseas visitors</p> <p>17. Schools over which we have very limited influence (generally Voluntary Controlled Schools which are fully controlled by Local Authorities)</p> <p><i>In standard Greenhouse Gas definitions, see below, these are either out of our scope or are scope 3 but largely outside our influence</i></p>