

# Diocese of Lichfield

## Net Zero Carbon Action Plan

### 2024 - 30



Version	Author	Date	Updates
0.1	Emma Popo	26/09/24	First draft for comment from NZC steering group
0.2	Emma Popo and steering group members	31/10/24	Version one was edited by all, EP included feedback from 121 meetings and created v0.2 on 31/10/24. Version 0.1 is in the archive, 0.2 ready for presentation/review on 6 <sup>th</sup> November
0.2	Emma Popo, Steering Group	7/11/24	Incorporate slides into paper and revisions from 6 <sup>th</sup> November steering group meeting
1.0	Emma Popo	08/11/24	Finalised draft ready for submission

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# 1. Executive Summary

The Diocese of Lichfield is committed to responding to our call as Christians to be good stewards of the natural environment around us and push to a more equitable world, where communities in the global south do not disproportionately bear the unliveable consequences of the climate emergency. Through our multidisciplinary net zero team and church and parish leaders, we push to deliver an ambitious decarbonisation plan across all our estate. This includes over 500 churches, 300 clergy houses and vicarages and over 200 schools with one main office building closely located to the Lichfield Cathedral. We have already made great progress in making St Mary's, our main office, carbon neutral. Through the adoption of a fabric first approach, where the heat loss from a building is reduced as a priority before making changes to energy sources; secondary draft proof windows are being fitted as well as installation of PV solar panels to reduce reliance on gas-based energy sources. Given the heritage status of the building, this work leads by example, demonstrating that preserving the integrity of a building's heritage and achieving net zero carbon status are not mutually exclusive endeavours. Another great example of decarbonisation and championing the environment within the diocese is the gold Eco Church award of St Michael's in Rushall. The team at St Michael's worked tirelessly to keep eco matters embedded on the agenda all year round and built community links with the local council and wider community to help maintain the grounds. The team also demonstrated an acute awareness of becoming net carbon zero (NZC) through their keenness to share the importance of individual responsibility and participating in the Diocese Energy Footprint Toolkit (EFT), World Wildlife (WWF) carbon footprint and the Eco Church Survey.

Through the Demonstrator grant funding, we are beginning to see what NZC can look like in our clergy housing. Two very different house types; a 1990s estate and a 1930s house, are undergoing decarbonising upgrades such as installation of Solar PV with batteries, EV chargers and electric boilers. The learning from this project is vital to help us understand what NZC can look like across our most typical housing types and the upfront as well as ongoing costs.

Despite our commitment to push for NZC within our diocese, there remains some challenges both within and beyond our control that we must navigate successfully, if we are to achieve our targets by 2030. As a priority, the diocese must take action to understand its carbon footprint to enable effective targeting and planning of building improvement works. This includes increasing EFT participation in churches, exploring methods to understand usage in schools, accelerating the roll out of Eco Church whilst aligning it to the practical path to NZC and improving access to energy audits. Improving access to expert heating and lighting advice is also a priority for the diocese to ensure that churches and PCCs can act pre-emptively rather than be crisis led in their decisions around their heat and light sources. Continuing the work to raise awareness and gain the hearts and minds of others within the diocese is crucial too. Through a coherent communications strategy, eco matters will be regularly highlighted with a variety of audiences through accessible channels.

Some of the challenges that we face are beyond our control. These include the current cost per kWh of electricity in the UK. As we move away from oil and gas heat and light sources, electricity is the best and most affordable alternative. However, the costs of green electric tariffs make the ongoing costs of electric boilers very expensive compared to those that use fossil fuels and air source heat pumps are still prohibitively expensive for many buildings. The ongoing costs of electric boilers may be too expensive for some churches to sustain long term as well as well tenants within vicarages; until this is rectified nationally, it presents a threat to our mission to decarbonise by 2030. National infrastructure also needs to improve significantly to enable the installation of electric boilers and charge points, especially for our rural buildings. Some buildings are simply not supplied with the electricity required to power electric boilers and EV charge points, so require further investment to improve local infrastructure to sustain the changes.

Irrespective of the challenges, the diocese presents a plan to decarbonise all our buildings by the 2030 target set by General Synod in 2020. We will commit our finances and resources in a phased manner focusing on fabric first and data collection for our clergy housing and churches where

energy usage is high and where growth is observed. We will increase access to expert advice to support PCCs to navigate the route to decarbonisation and raise the profile of net carbon zero as a strategic priority. Great progress has already been made within our main office, some churches and houses, yet the diocese is still relatively early in its journey to net carbon zero. Many of the actions within this plan require further scoping and costing as more baseline information becomes available. The commitment to provide an annual update and refreshed plan to Diocesan Synod presents the opportunity to continually refine and present the details of our commitments, resources and financial investment as our understanding of what's required improves. This will ensure that our path to becoming net zero carbon by 2030 is a transparent and feasible one.

## 2. Introduction

The global climate emergency, once a distant threat on the horizon, now presents itself as a pressing reality that demands our full, urgent and collective attention. Temperature records continue to defy norms and weather events become more and more severe, causing unspeakable damage and grief across communities worldwide. The climate emergency drives injustice as populations in the global south primarily bear the worst impacts of extreme weather systems in their economies and ecosystems. It also delivers a frightening and uncertain world for future generations.

As we stand at this crucial point in human history, it is understood that the decisions we take today will determine the health of our environment and the inheritance for those who follow behind us. The time to act and unite in the mission for a liveable world, is now.

### Theology

The case for action isn't only based in our charge to make the world a more equitable place in relation to the impacts of climate change, but also our Christian foundations of faith. Biblical theology presents a clear basis for understanding the symbiosis between humanity and the world around us. It highlights our calls to be stewards of God's creation and recognition of the intrinsic value of the natural world.

*Matthew 6: 26-29: Look at the birds of the air; they neither sow nor reap nor gather into barns, and yet your heavenly Father feeds them. Are you not of more value than they? And can any of you by worrying add a single hour to your span of life? And why do you worry about clothing? Consider the lilies of the field, how they grow; they neither toil nor spin, yet I tell you, even Solomon in all his glory was not clothed like one of these.*

This scripture tells us that God cares about the natural world and therefore, so should we! It also leans into the wisdom of the environments in which we live and their natural order, we must take care to protect and maintain it. There are many more scriptures that set out the importance of the world around us and guide us in our understanding of our responsibilities. It is also succinctly set out in the Church of England's Fifth Mark of Mission, as believers we must;

*"Strive to safeguard the integrity of creation and sustain and renew the life of the Earth."*

### Time for action

General Synod voted in February 2020 for the whole of the Church of England to achieve net zero carbon by 2030. The vote recognised that the global climate emergency is a crisis for God's creation and a fundamental injustice.

The Synod asked for a plan to be made, setting out how to get to net zero carbon. That plan of action, called the Routemap, was approved by General Synod in July 2022. In a Motion that asked for the Routemap to be endorsed, every Diocesan Synod was asked to debate the Routemap as it applies to them, identify high energy users within the Church and draw up a programme of action based on the milestones within the Routemap. Progress reports to Synod are required every three years.

### Diocese of Lichfield – Our response

Responding to this call to reduce our carbon footprint is not without its challenges, especially in relation to funding but by faith we set out this action plan outlining what we know is within reach and where may require further support.

Our plan to becoming Net Zero Carbon includes:

- Material changes to our buildings – with a primary focus on fabric first initiatives
- Changing how we heat and provide light in our buildings
- Educating and motivating our people to change how we live and work

We are ambitious in our mission to make the Diocese of Lichfield Net Zero Carbon by 2030. Through our multidisciplinary green team, steering group, project management approaches and champions across parishes and wider diocese, we carefully but confidently present this action plan to detail our steps to completing this mission.

### 3. Principles

Our action plan is aligned to the seven foundational planning principles set out in the [National Routemap to Net Zero](#). They are the basis on which we have developed this document and set out our ethos and intentions.



More detail on each principle can be found in section 3 of the [Routemap to Net Zero Carbon by 2030](#)

## 4. Scope of the Net Zero Carbon Target

### What do we mean by ‘Net Zero Carbon’?

Within the context of this plan, we refer to the Church of England definition;

*The reduction as far as possible of all in-scope carbon emissions and the removal of an equivalent amount of carbon from the atmosphere for the remaining in-scope emissions by use of accredited offsetting schemes.*

The target year for delivering the in-scope Net Zero Carbon actions is 2030. Further actions are expected beyond that date, and some are out of scope of this plan. The table below outlines what is within scope and what is not:

### Within the scope of the Net Zero Carbon by 2030 target

#### 1. The energy use of our buildings;

- Gas, oil, or other fuel use
- Electricity purchased (no matter the source it is purchased from renewable electricity purchased is accounted for later)

For the following buildings;

- 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)
- Schools where 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
- Peculiars, 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.

*Including the “well to tank” and “transmission and distribution” factors involved in getting energy to the building. Note: Electricity used to charge EV vehicles will be included within the above.*

#### 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.

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.



**3. From this, and on the understanding that **real reductions in energy use have been made, the following can be removed:****

- 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

**To be achieved **beyond 2030****

**4.** All the emissions from major building projects (new builds and extensions, major re-orderings, solar panel installations, major new heating or lighting systems) \*

**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) \*

**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)

**7.** Upstream and downstream emissions from water and Drainage

**8.** Downstream emissions from waste disposal

**9.** Emissions from building contractors, plumbers, electricians and the like

**10.** Carbon generated from use of emails and the internet in work-based contexts

**11.** Diocesan investments, if they are a material amount

**12.** Air-conditioning gasses

**Not within the scope of the scope of our target**

**13.** Travel of staff and clergy to and from their usual place of work or ministry

**14.** The travel of the public to and from church, school, and church events.

**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.

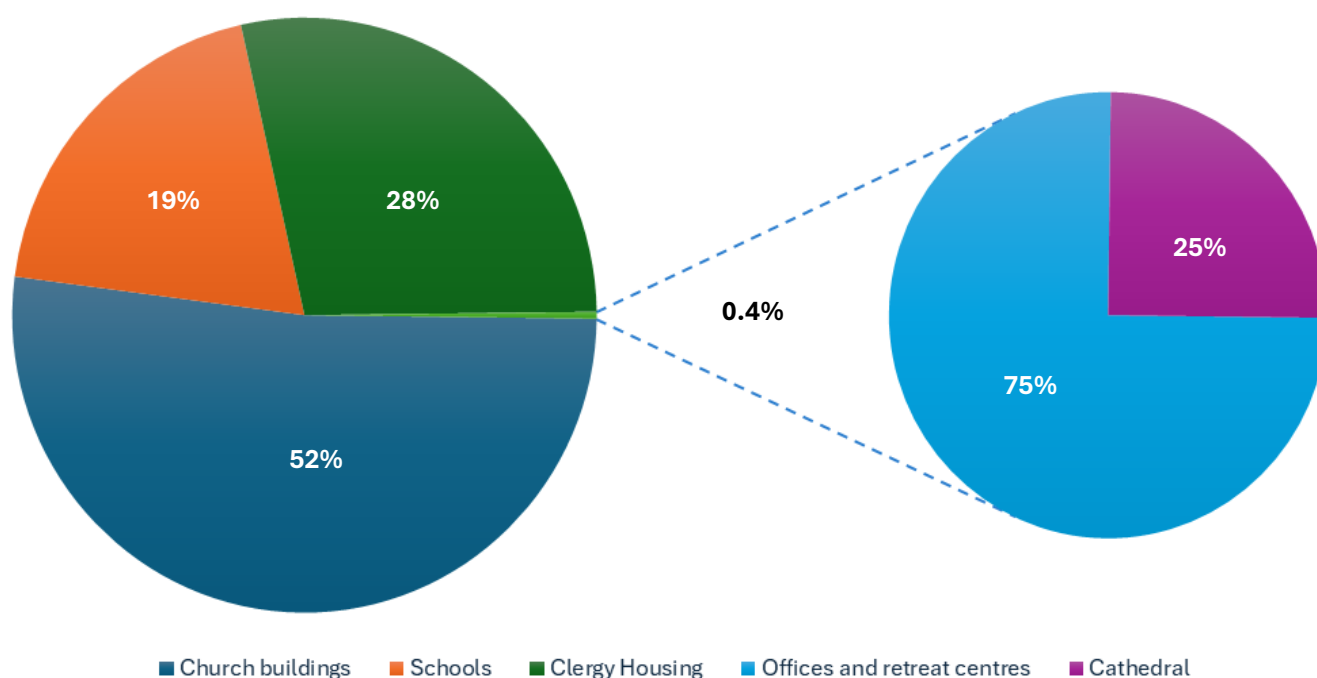
**16.** Personal GHG emissions from the lives of worshippers attending church, other church users (such as people attending a choir or playgroup), and overseas visitors

**17.** Schools over which we have very limited influence (generally Voluntary Controlled Schools which are fully controlled by Local Authorities)

What is within the scope of the DoL Net Zero Carbon target?

Building Type	Number	Further information
Churches	550	
Offices	1	St Mary's House, Lichfield
Schools	206	20 Voluntary Aided 75 Voluntary Controlled 75 110 academies Cathedral school
Clergy Housing	300	
Cathedral	1	Lichfield Cathedral
Retreat Centres	2	Dovedale House: <a href="http://www.dovedalehouse.org">www.dovedalehouse.org</a> Shallowford House: <a href="https://www.shallowfordhouse.org/about/">https://www.shallowfordhouse.org/about/</a>

Proportional representation of building types across the Diocese of Lichfield



## 5. Methodology

This plan has been co-developed by the NZC Steering group. To produce well informed and feasible actions; each of the routemap milestones was baselined using recent and available data and insights by the most appropriate lead. Priority actions were then highlighted, agreed and included in the plan.

Our plan covers these key areas:

- Governance and building capacity
- Steps to decarbonise our churches, clergy housing, offices, schools and the Cathedral
- Policy reform to improve travel and environmentally friendly ways of working.
- Good practice examples
- Monitoring and reporting

Many of the building updates or quick wins that we plan to undertake to decarbonise our estates involve some financial investment. Where funding has been identified, it will be presented within the plan. Where funding has not yet been identified or accessed, it will be flagged as a funding gap. Other gaps or challenges that may prevent the delivery of the milestones within the desired target will also be highlighted, alongside mitigating actions wherever possible.

### How will we monitor the delivery of plan?

Project management capacity and tools will allow the robust monitoring of the plan through shared delivery and performance trackers, RAG ratings and narrative updates. This approach will provide visibility to all aspects of the plan, tracking delivery of agreed actions and highlighting any divergence from expected trajectories at the earliest point. Reports will be submitted readily to the Diocesan and National oversight groups at agreed intervals.

Like most plans of this size and scale, details can change, especially as national energy and green policy becomes more refined. Through linking into wider national networks, the project team will stay abreast of new developments and update milestones and actions accordingly. To ensure that the plan remains relevant, it will be reviewed and refreshed on an annual basis.

## 6. Diocesan governance, policy and building capacity

This action plan has been developed for the approval of Diocesan Synod in November 2024. Once approved, the work of monitoring and reporting the delivery of the plan will begin in earnest. This section details what the central diocesan teams will work to achieve to support the parishes, schools and other members of staff to decarbonise their buildings and set out the governance that will be adhered to give oversight of progress.

### Building capacity

The plan spans the next 6 years, involves all our buildings and calls for the involvement of most of our staff and associates. In August 2024, the diocese accessed funding from the National church and recruited one 1.0 whole time equivalent (WTE) Net Zero Carbon Project Manager to add capacity to the multidisciplinary net zero carbon team and coordinate the many strands of the action plan. The role is shared between two individuals: one with varied project management experience across industries to support the development of the NZC action plan and its monitoring and the other, with vast NZC knowledge and expertise in leading churches to Gold Eco Church status.

### Policy updates

#### Embedding theology

Our decision to decarbonise the diocese is fundamentally based in our responsibility as Christians to tend carefully to God's creation and protect it. This is our **why**. To ensure this foundational principle of our mission is not lost in the growing policy work and action plans, we must embed the Fifth Mark of Mission and relevant theology in all our policies and the work of Diocesan Advisory Committee. Our Green and NZC project teams help us to achieve this by engaging clergy and influencing strategic work to consider our responsibilities as Christians and promote environmentally friendly practices.

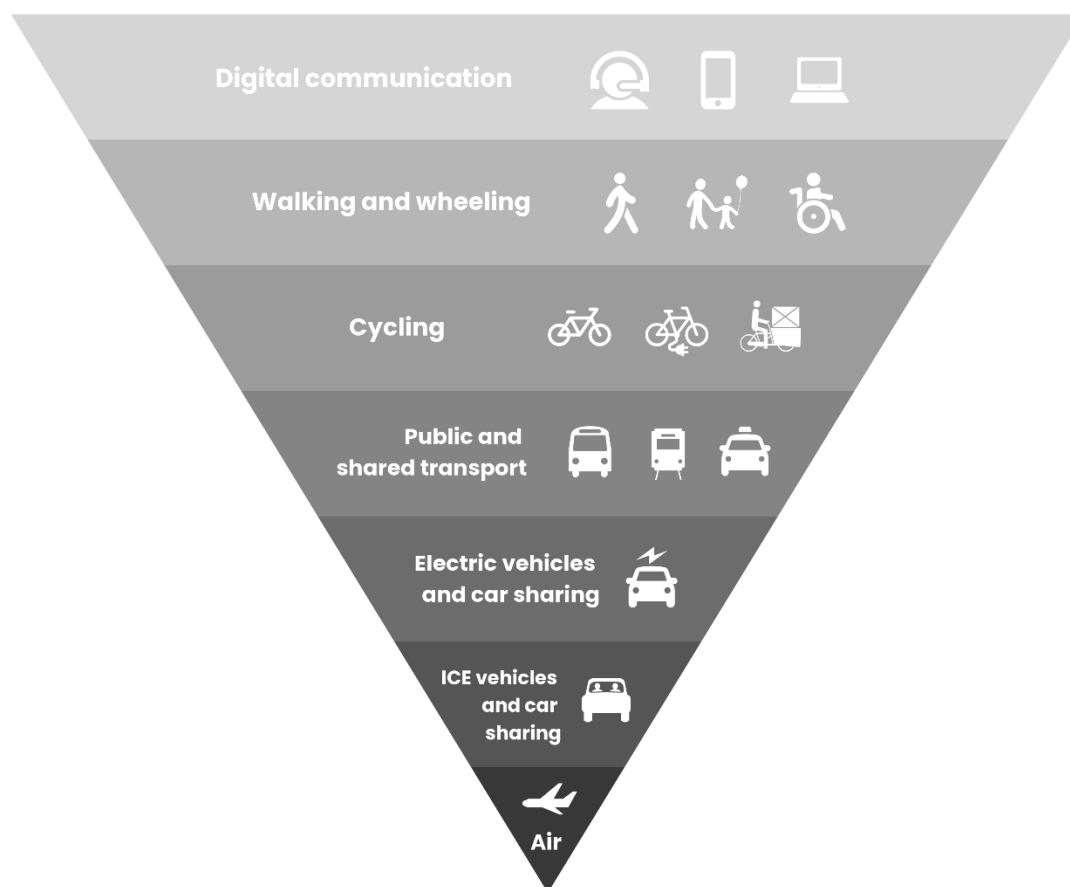
#### Travel, Electric vehicles (EVs) and charging points

Theology gives us the reason **why** decarbonisation is important, and this plan will detail all the ways we will achieve it, the **how**. How we travel is a major contributor to our net carbon emissions and our travel policies play a role in influencing behaviour at work in a way that will move the diocese closer toward being net zero carbon. Through encouraging sustainable travel options such as remote work, cycling, public transport (trains and buses) and the use of electric vehicles, we can reduce our carbon footprint by changing our day-to-day behaviours. Including these expectations in employee contracts and induction programmes, demonstrates that we are committed as an organisation to decarbonising every part of our work and supporting staff to take collective action to reduce travel related emissions, not just commission changes to our buildings.

The conversations we have as a steering group and as strategic leaders of the diocese, about how we travel to and from our places of work, is not removed from discussions around the roll out of EV charging points and encouraging the use of EVs more widely. The two are inextricably linked, if we support more remote working then fewer people will be available make use of the charger points, whereas if we mandated a number of office-based days per week from all our staff we have more likelihood of usage but also more emissions from road travel. The need to implement EV charger points needs to be modelled against demand, the demand will be driven by the travel policies we agree and encourage staff to follow. For this reason, the action plan, at this time, does not focus on setting targets for the numbers of EV charger points established in our office or churches; but rather understanding how the fabric of our building can be improved and how we can best use them. This knowledge will provide the basis for any travel policy updates and new directives.

## Sustainable travel hierarchy

<https://energysavingtrust.org.uk/an-introduction-to-the-sustainable-travel-hierarchy/>



## Communications

To achieve any major change or transformation within an organisation, raising awareness and understanding of key messages and gaining buy in from relevant stakeholders is essential. Within this plan the key stakeholders include clergy and PCCs, school leaders, church goers, diocesan staff, tourists, lay leaders and volunteers. A coherent communications plan is needed to coordinate tailored messaging around all aspects of the NZC strategy. The diocese has recently appointed a new Communications lead who will work closely with the NZC project team to develop the communications strategy, aligning campaigns to priority actions and stakeholder groups and due process. The communication plan must include consideration of the following:

- Theology: Keeping the why in mind
- Schools: Promoting smart meters and participation with the EFT
- Parishes: Eco Church registration and EFT participation
- Policy updates – changes to travel expectations
- Celebrating good and great practice

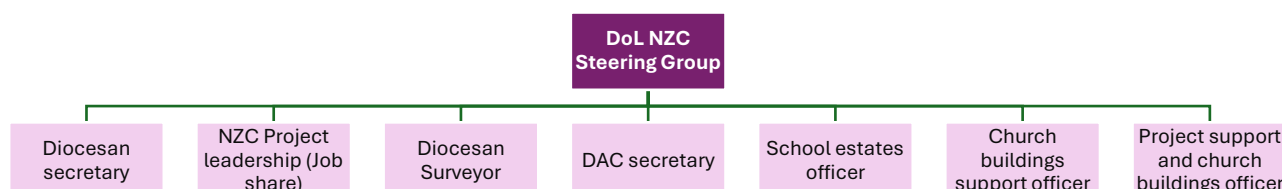
## Governance

### NZC Steering group

The NZC Steering group was originally formed in 2021. It is a multidisciplinary group that provide insight, oversight and expertise across the breadth of the strategy. The group have been meeting over the past three months to formulate this action plan for approval by Diocesan Synod. To ensure

oversight of this plan, the group will meet formally on a quarterly basis and commit to check ins at the midpoint between meetings. Upon approval, the group will play a key role in ensuring the delivery of the actions.

### *Who sits on the NZC Steering Group?*



### *Specific contributions across the roles in the steering group*

<b>Diocesan Secretary</b>	Provides senior, strategic oversight.
<b>NZC Project manager</b>	50% Project management expertise 50% Eco Church and decarbonising churches expertise
<b>Diocesan surveyor</b>	Expertise of fabric first, audits and other decarbonising building works.
<b>DAC secretary</b>	Church estates, navigating policy and due process.
<b>School estates officer</b>	Insight and expertise of the decarbonising schools.
<b>Church building support officer</b>	Assists with the delivery of Net Zero Carbon milestones for churches such as EFT and Eco Church participation
<b>Project support and church buildings officer</b>	Insights into funding and microcommissioning

### *Green Team*

The Green Team are an informal network in the diocese who aim to connect and empower ministry in the diocese with a concern for creation care, the environment and climate change. They are not commissioned by the diocese but drive progress to the diocesan target of Net Carbon Zero by 2030 through supporting clergy to understand the theological basis for our duty toward the world around us.

The green team comprises of reverends, retired clergy, diocesan staff and rectors. Recent activity includes:

- Presentation at Diocesan Synod
- Supporting the capacity building work for the Net Zero Carbon team
- Developing and rolling out the Consider the Lilies workshop series

The NZC steering group and Green team work well together because the steering group focuses on driving the delivery of the NZC routemap actions within the diocese and the other supports the 'hearts and minds' piece across parishes, laying the ground work for greater compliance with requests such as the EFT return and Eco Church

## Diocesan Advisory Committee (DAC)

Across our churches, some use more energy than others and some are more advanced along the path to becoming a NZC church, some also find themselves needing to make various building alterations to keep them as functional spaces. The DAC supports the goal for all church buildings to become 'net zero' by 2030 by providing information and advice on green heat and light sources, as well as support with navigating policy and process when making changes to buildings.

## Reporting

The Routemap outlines that all dioceses are to contribute to a national Net Zero Carbon report in March 2025, 2028 and 2031 (7.1.3). The project manager will use the monitoring tools that have been developed alongside this plan to ensure that all reporting requests can easily be responded to and that there is strong corporate memory of the plans progress. In addition to this, an annual report will be submitted the diocesan synod to provide oversight of the delivery of the action plan. This model of layered governance will ensure that all stakeholders have some visibility of the diocese's progress against its commitments and have a clear understanding of what is working well, not so well and where the priorities lie.

### Visualisation of the governance structures and reporting timelines

Governance	Frequency	Year						
		2025	2026	2027	2028	2029	2030	2031
General Synod	Triennial	●			●			●
Diocesan Synod	Annual	●	●	●	●	●	●	●
NZC Steering group	Quarterly	●●●●● ●●●●●	●●●●● ●●●●●	●●●●● ●●●●●	●●●●● ●●●●●	●●●●● ●●●●●	●●●●● ●●●●●	●●●●● ●●●●●

## SWOT analysis

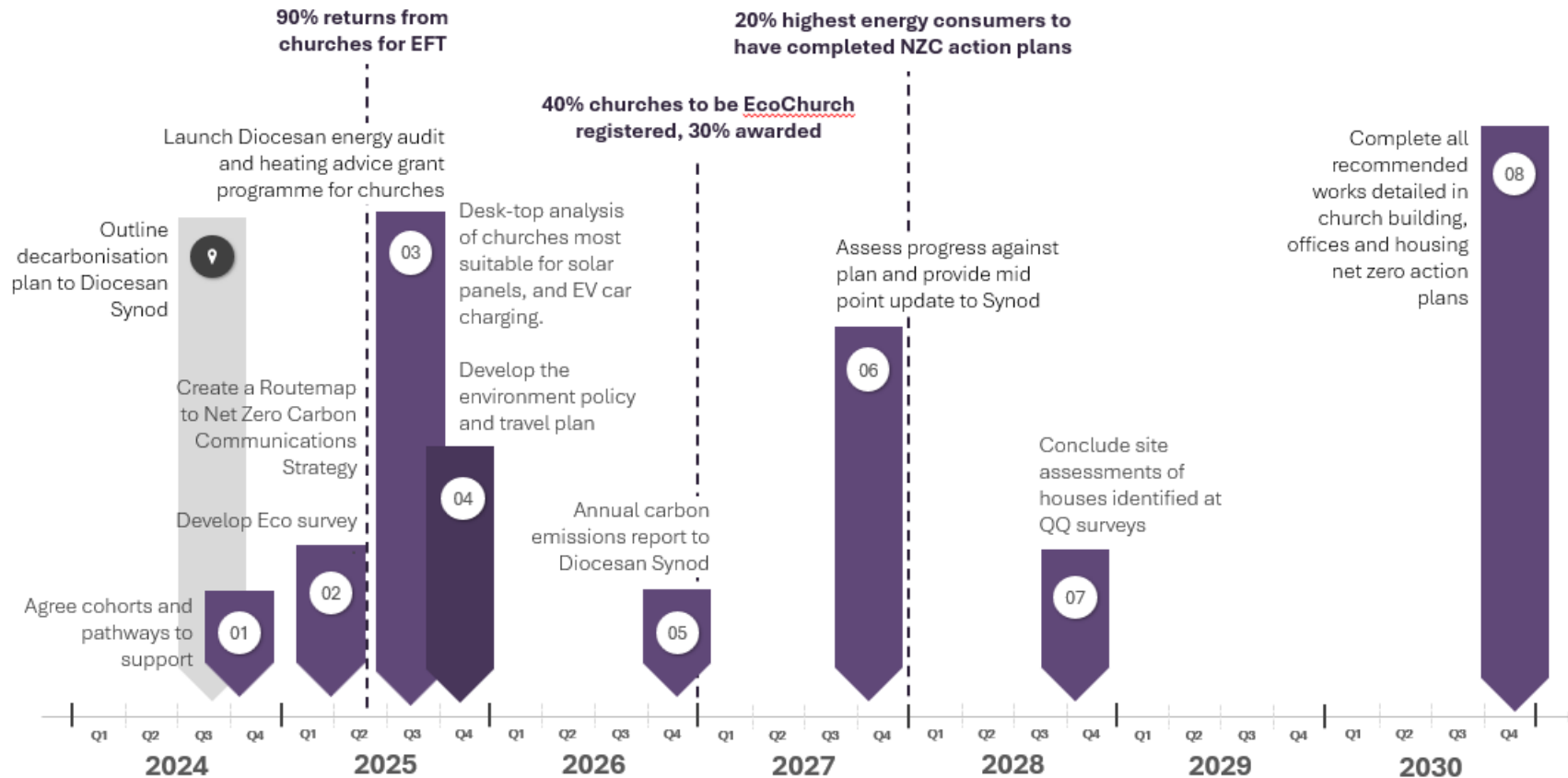
Strengths	Weaknesses
National funding increasing project management and church support capacity	Steering group all very busy with existing workloads  Project management capacity is part time across a huge agenda  Current comms not fit for purpose
Opportunities	Threats
New Communications lead to support building a coherent approach to environmental and NZC messaging  Multi-disciplinary steering group to oppose silo working and align efforts wherever possible	One policy for many settings – buildings are of varying statuses and contexts – localised approaches may be necessary  NZC one strategic objective of many – change fatigue?

## Actions for the diocese

Action	Responsible	Routemap Milestone
<b>To be delivered by the end of 2024</b>		
All dioceses provide an outline of their decarbonisation plans to Diocesan Synod as a Net Zero Carbon Action Plan	NZC Project manager	4.1.4
Create a Routemap to Net Zero Carbon by 2030 Communications Strategy. <ul style="list-style-type: none"> <li>• <i>Include messaging to churches and schools - focus on the 'why', the theology, and messaging around switching heat sources, green tariffs and behaviour change</i></li> <li>• <i>Sharing good practice examples – e.g. clergy housing demonstrators, Gold Eco Churches</i></li> <li>• <i>Avoid fatalism</i></li> </ul>	Communication Lead	4.1.3 5.1.3
Rank churches from highest to lowest carbon emission and develop a targeted campaign for the top 50% highest energy users for Eco Church Registration and to explore routes to NZC (e.g. decarbonisation plans and heating resilience)	NZC Project manager, Church Buildings support officer	4.2.9
Commence the development of net zero carbon action plans for the top 20% of energy-consuming churches as part of the national Parish Buying Energy Audit and Action Plans project	Mondes	4.2.4
Scope options to replace fossil fuels, all churches that remain with gas heating, support them to switch to a 'green' gas tariff at the point of contract renewal	DAC	4.2.10 4.2.11
<b>To be delivered by the end of 2025</b>		
(1) Prepare a report on progress on the milestones detailing the successes and explaining the reasons for any delays to progress.	NZC Project manager	7.1.3
Set up diocesan grant system for energy audits and expert heating and lighting advice	NZC Project manager, Dir. Of Finance	
Identify further funding and fundraising opportunities	NZC Project manager, NZC steering group	5.2.10
Ensure 90% compliance with the EFT Returns process and prioritise high energy users for support to develop NZC action plans that include heat decarbonisation <ul style="list-style-type: none"> <li>- <i>Baseline carbon emissions from churches</i></li> </ul>	NZC Project manager, Church Buildings support officer	4.2.4
Implement comms strategy with relevant and tailored messages for churches, vicarages and schools.		4.1.3
Green team to deliver a workshop to DAC	Green team	4.2.12
Green team to support the diocesan leadership and NZC project team to develop the environment policy, ensuring strong theological basis	Green team, NZC Project team, DAC	
Seek a firm who will carry out a free desk-top analysis of the churches most suitable for solar panels, and potentially EV car charging.	Diocesan Surveyor	5.3.6
Review opportunities to install electric charging for coaches for those cathedrals and churches that are tourist destinations.	Diocesan Surveyor	5.3.6
Develop or update a Travel Plan and policy that includes 'no travel' options, link to planning around EV charging points		
<b>To be delivered by the end of 2026</b>		
As the EFT submissions improve, provide an annual carbon emissions report to Diocesan Synod using the results provided by the national Carbon Emissions report from Research and Statistics.	NZC Project manager, Church Buildings support officer	4.1.2
Audit their landholdings and develop a land management plan.		4.1.6
<b>To be delivered by the end of 2027</b>		
Complete all recommended works detailed in church building and hall net zero action plans	NZC Project manager, Church Buildings support officer	4.2.4



## Milestone timeline



## 7. Offices

### Overview

St Mary's House is a medieval Grade II listed building and is the main office for the Diocese of Lichfield. The maintenance of it is the responsibility of the Lichfield Diocesan Board of Finance. It is in constant use and is currently undergoing many pioneering decarbonising building works:

- secondary draft proof windows were fitted in 2021 to reduce the heat escaping the building,
- the re-roofing of the building with limited insulation is currently being concluded,
- the installation of 3.5kW PV solar panels in the valley gutter to reduce reliance on gas-based energy sources,
- a new heating system is also being sought and costs are being scoped.

The diocese is leading by example by balancing heritage conservation with NZC innovation through its programme of improvements that will help make St Mary's more energy efficient and reduce its carbon emissions. Early benefits are already being realised as the solar panels are generating electricity, proving their potential to reduce reliance on energy generated by the gas boiler. Boiler solutions are still being scoped because an acceptable balance between front loaded and ongoing costs needs to be achieved. An air source heat pump (ASHP) would be the most efficient choice and have much lower ongoing costs, but initial outlays are prohibitive at around £100k. On the other hand, a cheaper to install electric boiler incurs much higher ongoing costs due to the current rates on green electric tariffs. In addition to the building work, quick wins are also being considered. This includes improve the lighting to LEDs and potential to install movement activated auto lights.

### Challenges

There is currently no way to assess the impact of the building work on the carbon emissions of the office because it doesn't yet have an energy performance certificate, therefore there is no baseline. The EFT returns process used for churches isn't entirely appropriate to assess the carbon footprint of St Mary's, an adapted process is required that uses EPCs.

Another challenge is that parking is a challenge on busy days, scoping the installation of EV charging points is needs be completed alongside the development of the Travel plan and policy, so high demand days can be managed to ensure the charge points can be accessed.

Finally, despite an electric boiler being the cheaper choice as the new heat source for St Mary's, there is the possibility of additional initial costs to upgrade the electricity supply to the building to power the boiler and other electric upgrades due to the medieval infrastructure of the building and surrounding areas. Given its heritage designation, this needs to be managed carefully.

## SWOT analysis

Strengths	Weaknesses
<ul style="list-style-type: none"> <li>· Already implemented works to reduce the carbon footprint with new solar PV panels and draughtproofed and secondary glazed windows.</li> <li>· Replacement of the gas boiler with an electric boiler already in motion.</li> </ul>	<ul style="list-style-type: none"> <li>· The necessity to retain the external and internal historic character of the Listed Building does limit the potential for fabric first and other carbon reduction measures, such as solar panels.</li> </ul>
Opportunities	Threats
<p>As a Grade II* Listed Building, St Mary's House shares many similarities with other heritage buildings in the Diocese. So, the carbon reduction measures carried out at SMH could prove a useful testbed, and inspiration, for similar measures elsewhere.</p>	<ul style="list-style-type: none"> <li>· The cost per kWh of electricity remains higher than fossil fuels making a non-fossil fuel-based heating (full electric or ASHP) more costly to run.</li> <li>· The building becomes less relevant if other carbon reduction measures, such as dissuading driving or parking in urban areas, becomes more prevalent.</li> <li>· There is a significant increase in remote working and remote meetings.</li> <li>· Historic buildings become less valuable assets if they come to be regarded as less sustainable than modern buildings.</li> </ul>

## Actions

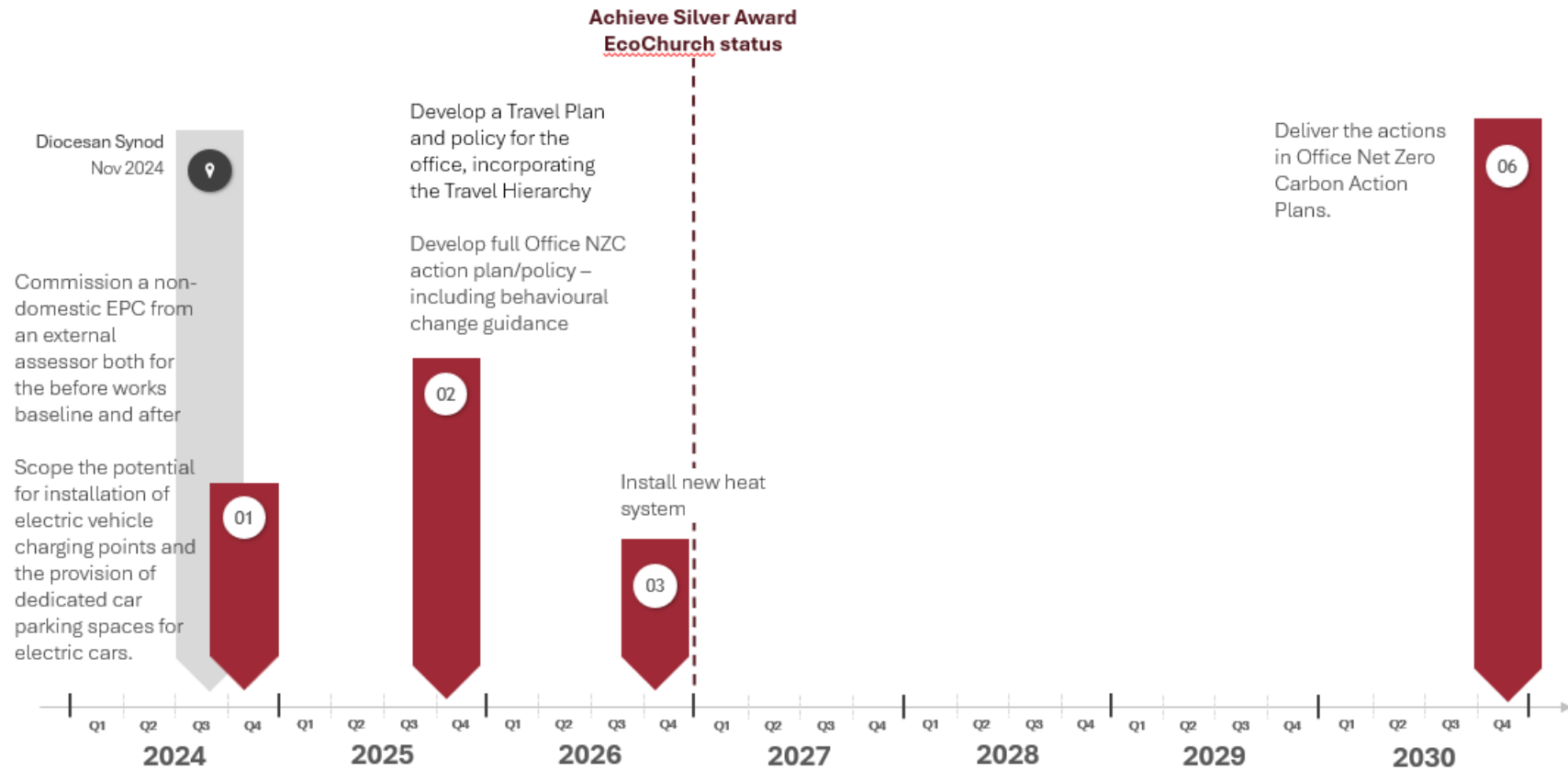
Action	Responsible	Routemap Milestone
<b>To be delivered by the end of 2024</b>		
Achieve a bronze Eco Church award by 2023	NZC Project manager	4.6.1
Establish the best process to report carbon emissions into the Energy Footprint Toolkit	Diocesan Surveyor	4.6.2
Scope the potential for installation of electric vehicle charging points and the provision of dedicated car parking spaces for electric cars. If appropriate, then move ahead to installation	Diocesan Surveyor	4.6.4
Switch to a green electricity tariff at the point of contract renewal.	DAC	4.6.5
Scope options to replace fossil fuels, all churches that remain with gas heating, support them to switch to a 'green' gas tariff at the point of contract renewal	DAC	4.2.10 4.2.11
Commission a non-domestic EPC from an external assessor both for the before works baseline and after	Diocesan Surveyor	
<b>To be delivered by the end of 2025</b>		
Measure and report on their carbon emissions by inputting utility bill information and floor area into the Energy Toolkit.	NZC Project manager	4.6.2

Developing a Travel Plan and policy for the office that incorporates the Travel Hierarchy – <i>consider demand for EV charge points and access (4.6.4)</i>	NZC Project manager, NZC steering group	2.6.8
<b>To be delivered by the end of 2026</b>		
Install new heat system	DAC, Diocesan Surveyor	4.6.7
Achieve a silver Eco Church award by 2026.	NZC Project manager	4.6.1
<b>To be delivered by the end of 2030</b>		
Deliver the actions in their Net Zero Carbon Action Plans.	NZC Project manager, NZC Steering Group	4.6.8

## Indicative costs

The replacement heating system for St Mary's is still being scoped so the total costs of the renovation will be unknown until later in 2025. It is a priority to commission a non-domestic EPC from an external assessor to establish a baseline understanding of current emissions and then assess the impact of the building works on reducing emissions in the longer term. The cost of this can be provided at the next update to synod.

## Milestone timeline

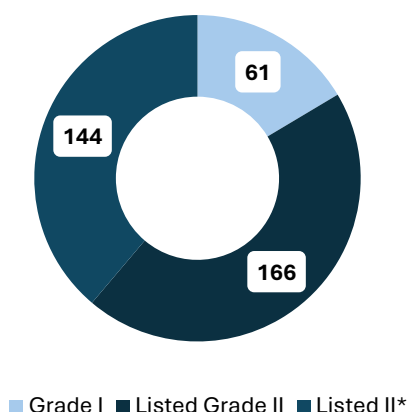


## 8. Churches

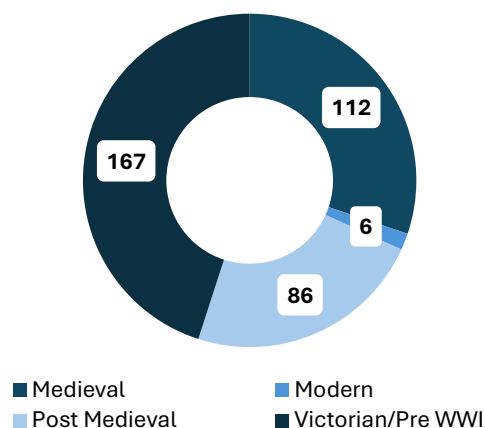
### Overview

There are 544 churches plus 6 special situations (550 in total), representing 52% of all the buildings within the scope of this plan. The profile of our churches is below:

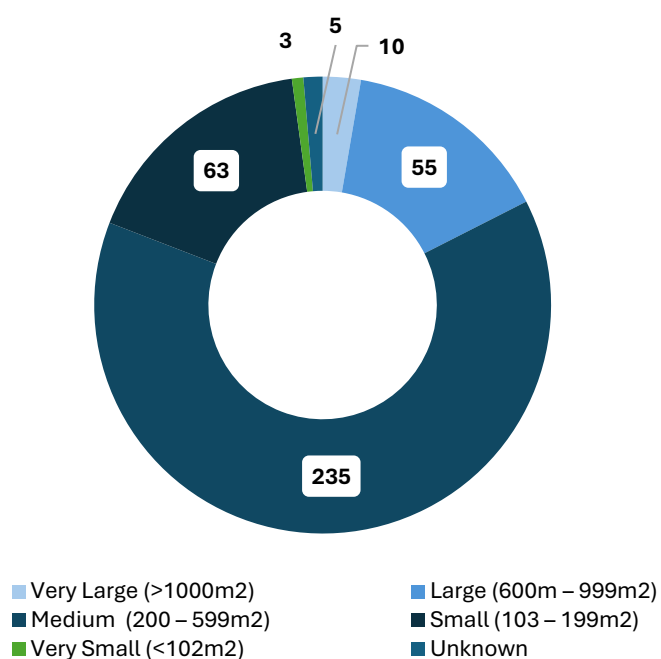
**Listed Buildings**



**Era of listed buildings**



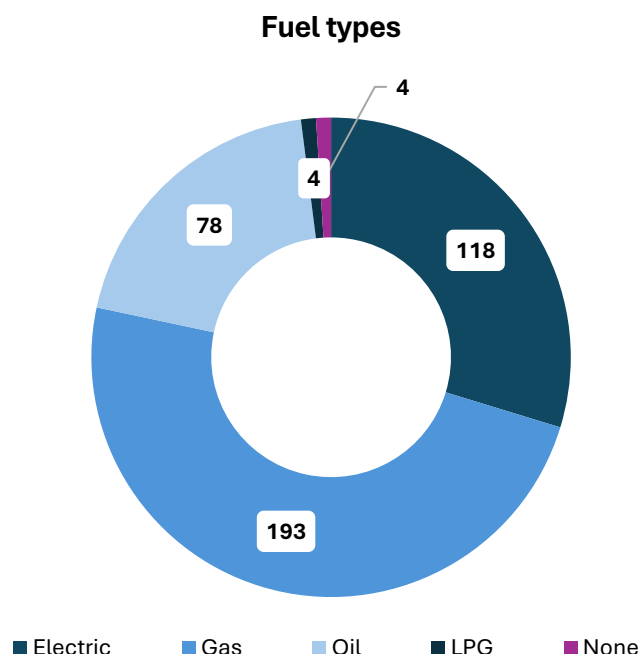
**Size**



Some of our churches are heritage listed buildings and therefore are subject to restrictions on how repairs and heating upgrades can be completed. This may prevent a small number of church buildings from achieving full NZC status but it doesn't mean that NZC can't be achieved for others. With careful planning and good understanding of available technologies, historical and architectural qualities can be preserved whilst heating systems are modernised and energy efficiencies are improved.

### Are churches carbon neutral ready?

A combined analysis of individual EFT returns over the last two years revealed a return rate of 72% (397) across our 550 churches. Of these 118 claimed to be using electricity as their primary fuel source, signalling at least 21% of all our churches are carbon neutral ready. The doughnut pie chart below shows the different fuel types noted across the 397 individual EFT returns.



These statistics alongside the fact that 30% of all churches are either Eco Church registered or awarded at least bronze set out a promising start to the implementation of this plan for churches.

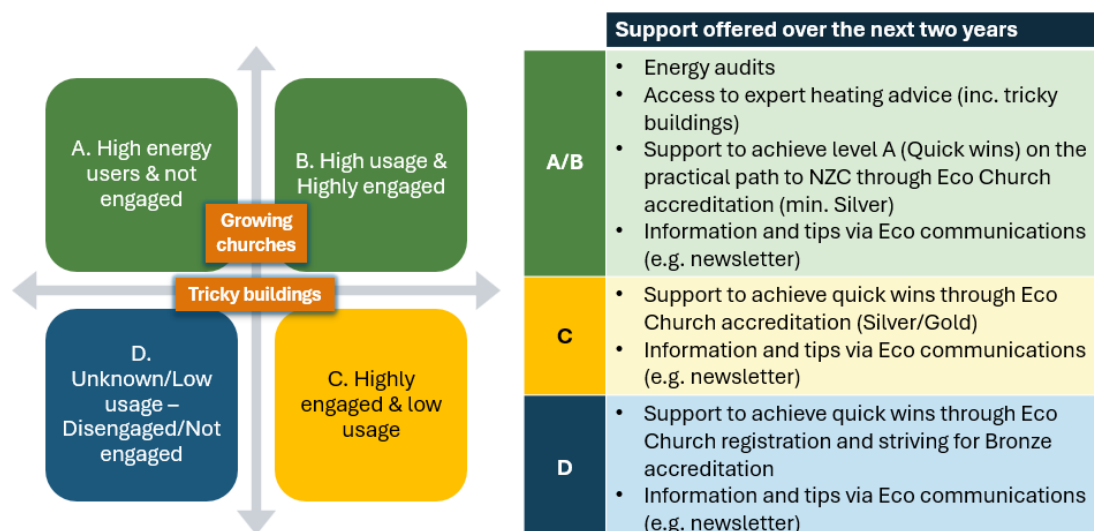
### Targeted approach

To ensure every church gets the right support, it is necessary that churches are grouped by shared characteristics to form cohorts so that the action plan is manageable. The NZC team are then able to tailor approaches to the specific needs of a cohort and plan accordingly ([see the timeline for a visual summary](#)). For example:

- High energy users need to be prioritised to drive down emissions. Pushing for quick wins through Eco Church, offering energy audits and expert advice to improve energy use and heating systems will show early and measurable impact.
- Growing churches are also within scope for early focused support, we must futureproof these buildings for mission.
- Implementation research suggests that when it comes driving change across an organisation, it is essential that implementation teams launch with those who are motivated as they help innovations grow and build buy in with others. Whether a higher energy use building or not, consideration must be given to support them to move along the practical path to net zero carbon through engaging with Eco Church and a dynamic stakeholder engagement plan (e.g. newsletters and events).
- Those who are not engaged, must also be encouraged to participate with becoming net carbon zero too. Though the strategy for them will vary from that for high growth or highly engaged churches. We expect these churches to be onboarded in earnest later in the timeline.

- Finally, churches who have known challenges to implementing decarbonising building renovations will also be included in the change but supported to make changes that are feasible for them e.g. quick wins.

## Cohort Matrix



## Eco Church

Eco Church provides a framework to support churches and their leadership to take practical action on caring for God's earth. Through an Eco survey that covers 5 domains, churches are guided through three levels of award (bronze, silver and gold). Engaging with Eco Church encourages churches to understand their energy usage and provides an excellent opportunity to promote participation with the EFT returns. The NZC steering group have agreed to map the practical path to net zero to the phases and domains of the Eco Church to help churches not only achieve award status but also net zero quick wins at the same time.

We have made great headway in achieving the 4.2.9 milestone of the routemap with roughly one in three (162/550) of our churches registered with Eco Church. There are 96 Churches registered with A Rocha that have not yet achieved an award (18%). Churches with awards total 65 (12%); 46 bronze churches (8%), 19 silver (4%), and 1 gold church.

We are not far off achieving 40% of all churches registered and with increased capacity to accelerate the rollout of Eco Church through the shared Net Zero Project manager post, there is confidence that this can be achieved by the December 2026 deadline.

## Eco Church Gold award – Case Study

St Michael's Church, Rushall was awarded Gold Eco Church in January 2020. A driver in its success was the implementation of an eco-champion. They lead the initiative, formed an eco-group or committee to draw up an action plan and implemented and monitored the actions.

In conferring the gold award, the judges summarised their findings in a report. The key findings were:

- Enthusiasm across the eco group
- Track records in eco awareness – evident through embedded creation care thread in all areas of church life



Additional findings included:

- Consistently celebrating creation all year round
- Specific team who incorporates creation themes into the church services and sermons
- weekly intercessions for the environment
- The Eco team also delivered the sustainable flowers initiative, where they did not use oasis but locally sourced flowers for use around the church.
- There was recognition of the environmental importance of the churchyard as one part of a wider green corridor and the nearby nature reserve for wildlife.

The positive links with the local council in maintaining the church yard was commended, as were the community links with the local allotments, beekeepers and local farmers to raise awareness of the importance of pollinators as well as how farmland can be precious wildlife habitats too. The awareness of church maintenance, sustainability and energy saving measures was also noted as the team demonstrated an acute awareness of becoming NZC through their keenness to share the importance of individual actions and how tools like the Diocese EFT, WWF carbon footprint and the Eco Church Survey are helpful ways to assess the impact of lifestyle changes on our planet.

Concern for creation went beyond Rushall, Walsall. The team were also prayerfully and financially supporting vulnerable households, women and small holding farmers affected by climate change in Malawi.

*"All of the above and more demonstrate how embedded the ethos of Eco Church is in St Michael's church community and how the principles of Eco Church are integral and woven into the fellowship."*

*A Rocha assessor*

*"Reaching the Gold Eco Church standard is an incredible achievement and is testament to the hard work of the team at Rushall Parish Church. The Eco Church awards are a great way for Churches to show that they care for the world that God has made, and shine as beacons of hope in their communities. Rushall Parish Church are the first in our Diocese to reach the Gold standard."*

*Revd Rich Clarkson, the Diocesan Environmental Officer*

The Eco team at St Michael's have upcoming plans to plant 1000 more spring bulbs with members of the community to demonstrate that the church yard is not only a habitat for wildlife and biodiversity but also a community resource to connect people.

### **Parish Buying Energy Audit and Action plans**

From the 2023 EFT returns, the top 20% of churches with the highest carbon footprints have been identified. Eighteen of these churches have been selected to take part in a fully funded national project where energy audits and action plans will be completed and developed for the highest energy consumers. Churches involved also access £3,000 after the completion of the audit to implement some of the recommendations. Given the targeted nature of this project and the universal accessibility of Eco Church, it is hoped that once required changes are implemented across both projects, the reduction of carbon emissions from churches will be measurable. To complement the national funding, energy audits will be made more available through a diocesan grant system for churches that have high usage and/or high growth, ensuring more churches are clear on the best steps to take to decarbonise their buildings.

## Participation with the Energy Footprint Tool

One of the is a priority area for improvement in this plan is participating with the EFT tool. For 2023, 52% of churches submitted their Energy Footprint Tool (EFT) return by July 31. From these returns, we know that our footprint for those churches was 2,141.7 Net CO<sub>2</sub> but what about the other 48%? Without a baseline understanding of our carbon footprint, how do we assess the impact of the investment and building works? One of the targets within this plan is to improve participation with the annual EFT return to a minimum of 90% of churches. We aim to achieve this through an accelerated rollout of Eco Church across parishes and universal and targeted communications.

## Challenges

The current annual participation rate with the EFT returns presents a risk to gaining a true baseline understanding of the carbon emissions from our churches and so, limits the extent to which we can assess the decarbonising impact of the actions detailed in this plan. EFT participation reflects some structural challenges around submissions such as timing, processes and ease of access, local resources, and lack of understanding that it is an annual tool not a one-off exercise. It may also indicate the need to increase understanding of why engaging with the annual EFT is crucial to achieving our shared goal of net zero carbon by 2030 and grow buy-in into the NZC agenda.

Another challenge for churches is the lack of access to expert heating and lighting advice. The DAC have a small team of volunteers who currently offer this support but the capacity to respond to the need across our church is not enough. This is resulting in the DAC, churches and PCCs engaging in crisis led decision making when boilers breakdown or when an emergency occurs, missing out on opportunities to go green (e.g. fossil fuel heat source replacements rather than green alternatives). For churches to go beyond quick wins and engage with the types of green building upgrades that require a faculty, access to expert advice must be increased to ensure that green alternatives can be considered fully before an emergency response is required.

Though pots of funding are being accessed wherever possible, energy audits and some installations, such as upgrading heat systems, repairs to the building or installing insulation can incur significant costs. These costs may exceed what is available to some parishes and be considered prohibitive. In some cases, the work required on the church building has not yet been identified or costed, thus making it difficult to project the full scale of investment and plan diocesan finances and fundraising until 2030 and beyond.

## SWOT analysis

Strengths	Weaknesses
National funding increasing project management and church support capacity	Incoherent communications across the eco agenda
Existing take up of Eco Church (one in three churches are registered) – great starting place to grow this	Lack of heating and lighting advisors resulting in fossil fuel heating sources replacements
	No knowledge of decarbonising work that has already taken place in church – prevents team from baselining and targeting effectively as well as developing sound financial projections
Opportunities	Threats

Eco Church as the friendly vehicle for NZC information sharing and aligning to the practical path to NZC

New Communications lead to support building a coherent approach to environmental and NZC messaging

Access to funding from land management strategy to fund new eco projects

Defining cohorts of churches to support prioritisation

Extending access to energy audits and expert advice through grant system

Stakeholder understanding of NZC and how to engage with the agenda

National – Cost of electricity making non fossil fuel heating system renewals very expensive to maintain long term

National – Lack of infrastructure (rural settings)

Scale – task can be perceived as overwhelming/impossible without sufficient resource (implementation capacity and finance)

## Actions for churches and church halls

Action	Responsible	Routemap Milestone
<b>To be delivered by the end of 2024</b>		
Identify cohorts of churches and develop relevant pathways to support	NZC Project manager, Church Buildings support officer	4.2.9
Commence the development of net zero carbon action plans for the top 20% of energy-consuming churches as part of the national Parish Buying Energy Audit and Action Plans project	Mondes	4.2.4
Develop comms strategy that includes messaging around switching heat sources, green tariffs and behaviour change	Comms lead, NZC steering group	4.1.3
Map Eco Church domains and award criteria to practical path to net zero for church	NZC Eco Church lead	
Scope options to replace fossil fuels, all churches that remain with gas heating, support them to switch to a 'green' gas tariff at the point of contract renewal	DAC	4.2.10 4.2.11
Scope priority projects to drive progress against the plan – diocesan energy audit and expert advice grants	NZC Project manager, DAC and Finance director	
<b>To be delivered by the end of 2025</b>		
Begin implementation of energy audit recommendations with the top 20% with the highest carbon footprints	NZC Project manager	4.2.14
Develop eco survey to help steering group understand knowledge and attitudes toward the NZC agenda as well understanding existing decarbonising works within churches	NZC steering group	
Work with NZC project team to identify funding and fundraising opportunities	NZC Project manager, NZC steering group	5.2.10
Ensure 90% compliance with the EFT Returns process and prioritise high energy users for support to develop NZC action plans that include heat decarbonisation - <i>Baseline carbon emissions from churches</i>	NZC Project manager, Church Buildings support officer	4.2.4
Implement comms strategy with relevant and tailored messages for churches, vicarages and schools.	Comms Lead	4.1.3
Increase access to expert heating and lighting advice through a grant system	DAC	4.2.12
Support churches with existing oil boilers to find non-oil alternatives and ensure no new oil boilers installed in churches after this date.	DAC	4.2.12
<b>To be delivered by the end of 2026</b>		
Of those Churches registered for Eco Church, support to achieve Silver award	NZC Project manager (Eco Church lead), Church Buildings support officer	4.2.9
Support all churches with high energy usage (top 20%), growth and/or interest to complete an energy audit.	Church Buildings support officer	4.2.4
<b>To be delivered by the end of 2027</b>		
Complete all recommended works detailed in church building and hall net zero action plans	NZC Project manager, Church Buildings support officer	4.2.4

### Indicative costs

There are 550 churches in the diocese of varying building types, eras and states of repair. At this stage, without a full baseline assessment of all properties it is not possible to confidently propose a

figure for the cost of decarbonising all church buildings. The roll out of energy audits to a proportion of high energy usage churches will help the steering group to understand the types of building upgrades required and form the basis of a deep dive exercise to understand indicative costs.

## Milestone timeline

	Year							
Cohort	2024	2025	2026	2027	2028	2029	2030	2031+
<b>A. High Usage (Top 20% EFT)</b> Identified as high usage through EFT	Complete an energy audit							
	Access expert heat advice							
	Gain Bronze award for <u>EcoChurch</u>		Gain Silver/Gold award for <u>EcoChurch</u>		Achieve level C NZC changes			
<b>B. High Usage/Engaged/Growing</b> Identified as high usage through EFT and as growing through mission team	Complete an energy audit							
	Access expert heat advice							
	Gain Bronze award for <u>EcoChurch</u>		Gain Silver/Gold award for <u>EcoChurch</u>		Achieve level C NZC changes			
<b>C. Low Usage/Engaged</b> Identified as low usage through EFT but engaged, may or may be growing	Targeted <u>EcoChurch</u> comms		Gain Silver/Gold award for <u>EcoChurch</u>					
	Achieve level A NZC changes							
<b>Tricky Buildings</b> Known challenges to implementing decarbonising building improvements	Complete an energy audit							
	Access expert heat advice							
<b>D. Unknown</b> No engagement with EFT, no indication of warmth to strategy	Targeted <u>EcoChurch</u> comms		Gain Bronze award for <u>EcoChurch</u>		Gain Silver award for <u>EcoChurch</u>			
			Achieve level A NZC changes		Achieve level B NZC changes		Achieve level C NZC changes	
<b>Cross cutting actions:</b> <ul style="list-style-type: none"><li>- Communications strategy</li><li>- Annual energy survey to understand knowledge and baseline</li><li>- Access to expert heating and lighting advice</li><li>- Grow participation with EFT</li><li>- Increase <u>EcoChurch</u> registration and awards</li></ul>	Draft Eco comms strategy		Implement Eco comms strategy – Quarterly newsletter					
	Draft annual Eco survey		Implement annual Eco survey					
	Set up heat and lighting advice grants							
	Implement EFT support		Grow EFT participation					
	Map <u>EcoChurch</u> and practical path		All churches to be registered and awarded at least bronze/silver					

## 9. Cathedral

### Overview

Lichfield Cathedral is an important place of worship and a popular tourist attraction within the diocese. It is celebrated for its architectural beauty and historical significance dating back as far as the 7<sup>th</sup> century. The Church of England is decarbonising its cathedrals as part of its wider commitment to respond to the growing climate emergency and become net carbon zero by 2030. We have already begun the work to reduce energy use and carbon emissions, but some work remains.

### Eco Church

In 2022 the Cathedral achieved its Silver Eco Church award and is working as a Partner in Action with A Rocha UK to improve biodiversity. An ambitious programme of environmental actions is underway, and the Cathedral is working towards its Gold Eco Church award. The Eco Church awards assess environmental actions and, culture and lifestyle shift within church organisations with the aim of fostering long-lasting change for the good.

Almost 100 actions have been identified by Lichfield Cathedral ranging from wildflower areas to improved building insulation. Some actions will take several years to implement whilst others can be undertaken straightaway, such as the immediate divestment from fossil fuels, whereby Chapter have committed to hold no direct investment in fossil fuels, and the reallocation of investments to sustainable energy funds.

### Developing a net zero strategy

The Clerk of Works and Estate Manager are working with the Midlands Net Zero Hub to create a net zero strategy. The Executive Management Team agreed to partner with the Knowledge Transfer Partnerships (KTP) and Staffordshire University, and this will help secure a high-level graduate who can progress the actions identified within the net zero strategy. 80% of their salary would be covered by the KTP, and the Cathedral was successful in receiving grant support for the remaining 20% via the Church Commissioners. There are opportunities to link the role with the Diocese, as well as other stakeholders on the Cathedral estate (School/Theological Trust). The application is delayed until 2024 as the Cathedral will need to be a registered charity to apply.

### Green energy tariffs

The Chapter are committed to moving the Cathedral away from Russian and non-renewable gas tariffs to green energy tariffs. Unfortunately, due to costs, a green tariff has not yet been achieved, though a cost reduction has been secured through securing a new provider.

### Education

Over 2023, Creation-tide was launched with a Creation Sunday and a focus on the Climate Crisis and ended with Harvest and a talk by the environmentalist, Chris Baines. The talk attracted 100 participants, most of whom from new networks – the Follow-On activities include a workshop on iNaturalist and a Vigil for the Earth.

### Challenges

Securing a green tariff remains a challenge due to costs. This is not easily solved as the pricing of such tariffs is a national issue.

## Actions for Lichfield Cathedral

Action	Responsible	Routemap Milestone
<b>To be delivered by the end of 2024</b>		
Develop a net zero carbon action plan in collaboration with KTP and Staffordshire university.	Clerk of Works and Estate Manager	4.2.4
Complete the sustainability review	Chapter	4.2.6
<b>To be delivered by the end of 2025</b>		
Scope options to replace fossil fuels and switch to a 'green' gas tariff at the point of contract renewal	Chapter	4.2.10 4.2.11
<b>To be delivered by the end of 2030</b>		
Fully implement the net zero action plan	Clerk of Works and Estate Manager	4.2.14

### Indicative costs

The expected cost of decarbonising the Lichfield cathedral will be known upon completion of the costed net zero action plan.



## 10. Clergy Housing

### Overview

There are 300 clergy houses and vicarages within the Diocese of Lichfield. Based on the energy use information submitted through the Energy Footprint Toolkit, the total estimated net carbon emissions figure for all our clergy housing is 3,110 CO<sub>2</sub>e tonnes. Understanding energy use through the EFT is helpful but it is limited. A much more comprehensive understanding of a properties energy use and efficiency comes from the Energy Performance Certificate (EPC). An EPC provides information on a property's energy efficiency and provides a rating, estimates on heating and lighting costs as well as its likely level of CO<sub>2</sub> emissions. As part of the Demonstrator grant, the diocese has received £22k to commence the work to complete EPCs for all its properties. This will support the diocese to gather data and information on the required improvements across the housing stock. This lays a well-informed foundation of understanding so that the 'fabric first' approach can be implemented to achieve net zero carbon for all clergy housing. By improving the energy efficiency of a property through roof and where possible, cavity wall insulation, heat loss is reduced and the energy usage reduction benefits of installing electric boilers and PV solar panels can then be fully realised. This approach also ensures that heating system renewals to electric sources are, in the main, delivered in a later phase of clergy housing improvement timeline, allowing time for more external grants to be made available and for the cost of electricity to come down significantly in price.

### Quinquennial inspections

Every vicarage (and church) is subject to a quinquennial inspection that assesses the condition of the walls, roof, electrical systems, plumbing and boilers and recommends repairs for maintenance and prioritisation of the work required. They are a legal requirement that ensures diocesan buildings are safe for staff, worshippers and the public. These inspections also help the diocese to plan finances by incorporating costs for necessary works into the relevant budget periods.

Quinquennials provide an opportunity to consider a buildings EPC rating in the assessment process and in any recommended building works. As per our fabric first approach, we aim to ensure heat loss reduction in a building before any subsequent changes such as, the consideration of heat pumps and solar panels.

As a diocese, we have work to do to baseline all properties to understand how many require insulation works. Quinquennial inspections as well a mission to complete EPCs for all properties will be used to inform the property team of what our stock needs and support the work of seeking quotations for the work. Part of the expected investment is already accounted for through the costings of roof insulations recommended in the existing completed quinquennial reports as they are the most cost-effective way to reduce heat loss but the finance required for the cavity wall insulations has not yet been confirmed.

### Demonstrator Grant

The diocese is accessing funding to demonstrate good NZC practice across its clergy housing. Two houses have been carefully selected to represent the varied and typical stock across the diocese, a 1990s estate and a 1930s house. Fabric first approaches are being explored as well as the following works:

- Installation of Solar PV combined with batteries
- Installation of an EV charger: will draw power at a much lower rate per kWh over-night and store in the batteries for general use.
- The Fischer Aquaefficient – an electric instant hot water heater that doesn't use fossil fuels when powered by renewable electricity – energy usage will be offset by what is generated via the solar PV and EV charger.

All the listed works are not costed prohibitively and the learning from this project will significantly benefit the wider diocese and future planning. It presents a fully costed case study from installation through to the ongoing monitoring of impact on energy usage.

## Challenges

One of the biggest misconceptions about decarbonising our properties is that it will save the occupiers money on their energy bills, but this is likely not the case. Many of the suggested steps to achieving net carbon such as switching to green energy tariffs and moving to fully electric heat sources, will increase everyday energy costs because nationally electric tariffs cost much more than gas tariffs. Further to this, the national infrastructure for fully electric homes is not yet sufficient so costs to switch to electric boilers can increase significantly, if further work is required to upgrade the electricity supply to the property. This is pertinent for much older, rural properties.

Though the return in the EFT for 2023 was 100% for clergy houses and vicarages, we do not yet have EPCs for all properties. EPCs provide a far more comprehensive picture of a building's emissions and recommendations for improvements. Also, though the demonstrator grant provides an excellent opportunity to witness good practice, these types of changes may not be replicable across all housing stock.

## SWOT analysis

Strengths	Weaknesses
<p>National funding increasing project management and church support capacity</p> <p>Learning from the two homes developed with the demonstrator grant – Understand up front and ongoing costs.</p>	<p>A current lack of data (i.e. EPC's and costs of works) to establish a baseline and information from which to develop a coherent carbon reduction strategy.</p> <p>Older (Pre-War) clergy houses can prove excessively expensive to retrofit for carbon reduction.</p> <p>Other, competing demands for funding, i.e. maintenance and improvements.</p>
Opportunities	Threats
<p>Demonstrator grant to ensure all properties have EPCs and developing good practice examples of net zero (or as close as one can get) homes.</p> <p>New Communications lead to support building a coherent approach to environmental and NZC messaging</p>	<p>The cost per kWh of electricity remains higher than fossil fuels making a non-fossil fuel-based heating (full electric or ashp) more costly to run.</p> <p>Reduction in overall budgets limits the scope for carbon reduction measures.</p>

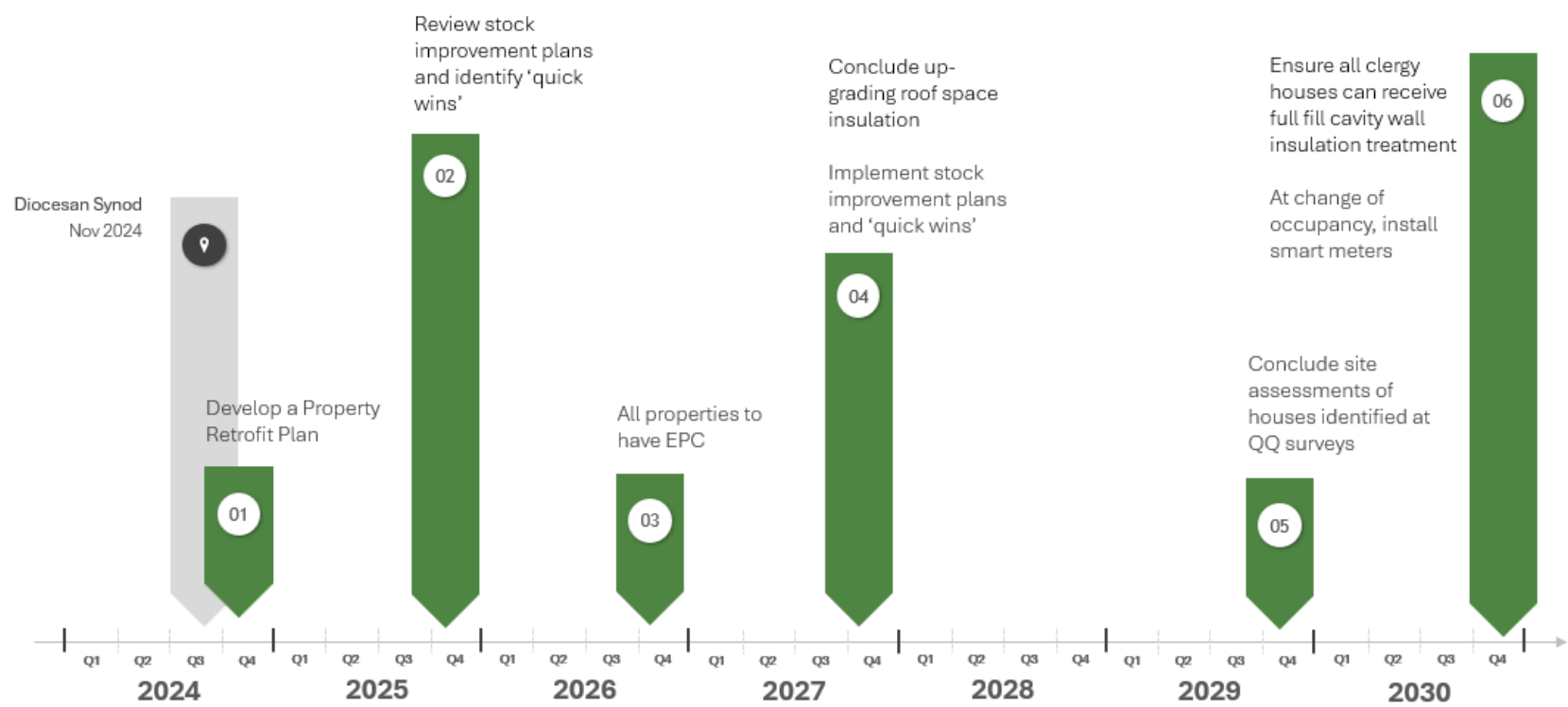
## Actions

Action	Responsible	Routemap Milestone
<b>To be delivered by the end of 2024</b>		
Ensure retrofitting and maintenance plans are in place, including a Heating Resilience Plan	Diocesan Surveyor	4.4.2
Apply for grant to commission EPCs for a varied sample of properties	Diocesan Surveyor	4.4.3
Develop a Property Retrofit Plan by end of 2024 that focuses on 'fabric first' and data harvesting.	Diocesan Surveyor	4.4.2
<b>To be delivered by the end of 2025</b>		
Work with Comms lead to develop 'switching campaign' to encourage occupiers to switch to 'green' electricity and, having reviewed options to replace fossil fuels	Comms lead. NZC Project manager	4.4.4
Develop local press release on the demonstrator property to raise awareness of the types of works that are being implemented to make clergy housing carbon net zero	Comms lead. NZC Project manager	4.4.4
Review stock improvement plans and identify 'quick wins' that can be implemented by 2027	Diocesan Surveyor	4.4.1 4.4.5
<b>To be delivered by 2026</b>		
Ensure all properties have an EPC	Diocesan Surveyor	4.4.2
<b>To be delivered by 2027</b>		
Conclude up-grading roof space insulation as part of QQ works	Diocesan Surveyor	
Implement stock improvement plans and 'quick wins'		
<b>To be delivered by 2029</b>		
Conclude site assessments of houses identified at QQ surveys - - provide costs for full fill cavity wall insulation for those houses the company identifies as being suitable.	Commissioned by diocesan surveyor	
Develop list of houses that are suitable for cavity wall insulation, require warm flat roofs, Internal wall insulation (IWI), external wall insulation (EWI), floor insulation and new heating systems	Diocesan Surveyor	
<b>To be delivered by the end of 2030</b>		
At change of occupancy, install smart meters to assist with monitoring and management of energy consumption.	Diocesan Surveyor	4.4.8
Ensure all clergy houses can receive full fill cavity wall insulation treatment	Diocesan Surveyor	

## Indicative costs

Without EPCs for every house and vicarage, it is not yet possible to give an indicative figure for the costs of decarbonising improvement works. Using the projected costs of the demonstrator project, to install a new heat source, PV solar panels and a charging point across all our properties, it would cost over £3.4m. But some properties may also benefit from other fabric first measures such as draft proof windows and insulation so costs could be even higher. Some of this funding can be identified through existing diocesan budgets through quinquennial inspections but much more will need to be found through National Church and Government grants.

# Milestone Timeline



# 11. Schools

## Overview

There are 206 schools within the Diocese of Lichfield.

- 20 voluntary aided
- 75 voluntary controlled
- 110 academies
- One Cathedral school

Schools licensed to third parties such as the local authority, a governing body or a multi academy trust manage all aspects of the school from teaching and learning to the upkeep of the estate. The Diocesan Board of Education work with schools and relevant networks to build awareness of the Net Zero Carbon strategy and encourage decarbonisation. They share best practice with schools to help them decide where to invest money to reduce carbon emissions and improve sustainability and resilience.

## Heat decarbonisation plans

The DBE have been successful in the application for Low Carbon Skills Funding for eight of our C. E. schools. We have been granted £166,100 for work detailed below. This is in conjunction with the Church of England appointed Regional Consultants - CofE Schools Decarbonisation Framework. This allows for the provision of heat decarbonisation plans to schools and an opportunity to complete feasibility studies and progress towards an application under the [Public Sector Decarbonisation Scheme](#); which, if successful, would enable the implementation of changes that will substantially reduce the successful school's carbon usage. The National Framework Work Programme is also being accessed to provide heat decarbonisation plans to selected schools.

## Understanding carbon emissions in schools

Unlike in churches, in schools, there isn't an energy footprint toolkit returns process or a quinquennial system that will give the diocese oversight of the total carbon emissions from its schools. Instead, there is a [checklist guide](#) that progresses schools towards Net Zero Carbon through the completion of several quick win and short/medium actions.

One of the actions is to, *'Update your Display Energy Certificate each year and use this to inform the Energy Footprint Tool. Report scores at governors meetings and compare consumption to previous.'* To estimate a net carbon emissions figure for DoL schools and prioritise high energy usage school buildings, the energy toolkit must be promoted to schools so this information can be added. Some foundational work to make this possible will be required in some schools as they require the fitting of smart meters to track energy use. Not certain that schools will see this as a priority.

## Funding

Funding streams that are currently being accessed include £166,000 of Low Carbon Skills Funding for 8 Schools to engage specialist and expert advice and skills needed to create robust heat decarbonisation plans to prepare for heat decarbonisation and energy efficiency works. There are also plans to apply for Public Sector Decarbonisation Funding in the next round. School Condition Allocation funding will also be applied for as we aim to secure at least 60% of the projected spending on Green improvements in funding.

## Challenges

Due to the varied governance in our schools, the policy landscape and degree of influence is very different to that of churches. The input that diocesan school leads have, to promote the Energy Footprint Toolkit and ensure the decarbonisation of schools is limited. Therefore, the environmental

and financial benefits of participating in NZC initiatives such as heat decarbonisation plans and the EFT return must be made clear, if hearts and minds are to be won.

Reinforced Autoclaved Aerated Concrete (RAAC) also presents a challenge. RAAC is a form of lightweight concrete used in the construction of many buildings between the 1950s and 1990s and presents a risk to the structural integrity of buildings where it is found and potential legal and liability issues as buildings no longer meet current building codes and safety standards. It is present in many schools across England and inevitably in some schools within our diocese. There is currently a national programme to remove RAAC from school buildings and its rollout is in direct conflict with the implementation timeline of the diocesan NCZ action plan.

Finally, funding and capacity also presents a challenge to the target of decarbonising our schools by 2030. Despite accessing funding for heat decarbonisation plans and some building work, the estimated costs of decarbonising all schools within the diocese is approximately £300m, this far exceeds the current funding available. On capacity, even with the addition of a new project manager to assist in the action plan development and accelerated roll out of Eco Church, alongside the limited DBE capacity, the team will be considerably stretched to offer support to all schools within the scope of this plan.

## SWOT analysis

Strengths	Weaknesses
<p>DfE expecting schools to become more sustainable, this strengthens the position of the DBE to ask for heat decarbonisation plans</p> <p>Potential to make a large impact on reducing carbon usage.</p>	<p>Limited influence</p> <p>Decision maker resistance</p>
Opportunities	Threats
<p>New funding likely to support improvement work (e.g. Gov increasing fund to improve buildings over the next 4 years) Public Sector Decarbonisation Scheme Funding and Low Carbon Skills Funding</p>	<p>Reinforced Autoclaved Aerated Concrete (RAAC)</p> <p>Funding cuts</p>

## Actions

Action	Responsible	Routemap Milestone
<b>To be delivered by the end of 2024</b>		
Develop comms campaign for school leaders and governors (email or within existing publications) that promotes the benefits of engaging with the EFT, presents a sound financial case and the practical routes to NZC	Communications lead, DBE	4.2.4
Identify schools who require smart meter installation through a survey	School Estates Officer	4.2.7
Engage regularly with Regional Environmental Groups (REGs) to promote and progress the decarbonisation work in schools	School Estates Officer	4.2.4
Develop specific comms to inform schools that they can use their DEC to complete the EFT returns	NZC Project manager, School Estates Officer	4.2.4
<b>To be delivered by the end of 2025</b>		
<b>QUICK WIN</b> Support all schools to work with their procurement provider to switch to green energy tariffs at point of contract renewal	DBE	4.2.7
Support at least 40% of schools to submit energy readings into the EFT	School Estates Officer	4.2.4
<b>To be delivered by the end of 2027</b>		
Support each school to produce a Capital Asset and Climate Action Plan (referred to in other parts of this document as a Net Zero Carbon Action Plan) containing a Heat Decarbonisation Plan (HDP).	NZC Project manager, Church Buildings support officers	4.2.4
Ensure all schools have a smart meter installed	School Estates Officer	4.2.7

## Indicative costs

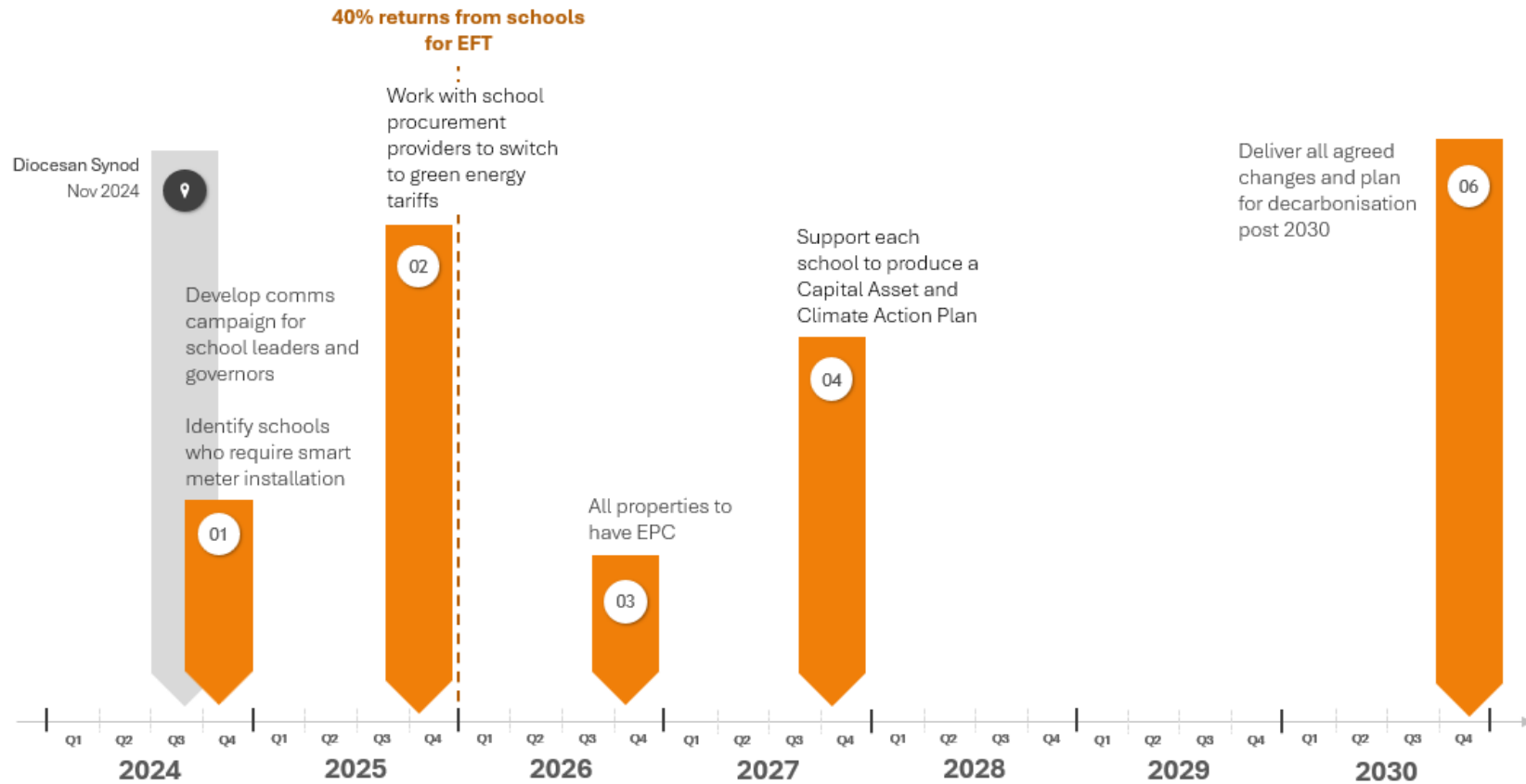
Estimated costs of decarbonising all schools within the diocese is approximately £300m.

Funding that already identified includes:

- SCA and DFC (Schools Condition Allocation and Devolved Formula Capital Funding)
- PSDS and LCSF (Public Sector Decarbonisation Scheme and Low Carbon Skills Funding) managed by Salix.
- Church of England National Decarbonisation Framework, helping lead our schools to Net Zero.

As the true cost of decarbonising our schools becomes known, the gap in funding will be made clear and fundraising plans can be developed in more detail.

## Milestone Timeline





## 12. Land management and carbon offsetting

### Overview

Carbon offsetting is the mechanism that allows organisations to compensate for their CO<sub>2</sub> emissions by investing in projects that reduce or remove CO<sub>2</sub> from the atmosphere. This can include projects such as: reforestation and afforestation (carbon sequestration), investing in renewable energy sources and methane capture from agricultural operations. Offsetting is contested as a solution for reducing carbon emissions and is never a replacement or compensation for not cutting emissions which can be reduced. In fact, a major net zero carbon standard is proposing that offsetting covers *no more than 10% of emissions*, meaning the majority of carbon emissions must be eliminated not offset. Given the amount of land that the DoL manages, though it is not the primary focus of this plan, it is worthy of some attention.

### Biodiversity

Biodiversity plays an important role in addressing climate change and bolstering the resilience of the ecosystem against extreme weather events, changing temperatures and patterns of rain. It also supports carbon storage and sequestration as diverse forests and wetlands store carbon in their biomass and soils.

At the diocese, we have been encouraging biodiversity within our parishes through educational talks and workshops delivered by the Net Zero Carbon team and the Green team through the *Consider the Lillies* series. Becoming more biodiverse is also key to Eco Church accreditation and we have plenty of examples of local churches planting bulbs, wilding and reducing the frequency of lawn mowing (e.g. St Michael's Church, Rushall). We intend to grow Eco Church in our diocese by accelerating the pace of registration and awarded churches over the next two years.

Lichfield Cathedral has also been enhancing its biodiversity as part of the Central Spire Project. This has included planting the south-side Spring Meadow, and the hedge along the East Wall in partnership with Staffs Wildlife Trust and the Cathedral School.

### Glebe land

The diocese owns over 2,000 acres of Glebe land. This land presents huge opportunities to progress the Net Carbon Zero agenda through providing more natural and biodiverse spaces, allowing for solar or wind generated energy and even building social housing. The strategy for modernising approaches for the use of Glebe land is still in its conception and early thoughts already present some conflicts, e.g. planting trees to offset carbon emissions versus allocating land to provide social housing. As part of this plan, the steering group will support the consideration of a diverse range of options for Glebe land to ensure that NZC can be achieved in the most impactful ways possible.

### Challenges

One of the biggest challenges currently is that we do not have a baseline figure for net CO<sub>2</sub> emissions across churches, work travel, schools and vicarages. Therefore, it is not yet possible to calculate how much carbon may need to be offset to set a feasible target. Another challenge for land management is the conflicting beliefs around how diocesan land should be used. Some consider responding to the national housing crisis to be at odds with providing green spaces that could offset emissions and drive the NZC agenda; finding an agreed middle ground on this will need to be managed carefully and sensitively with the communities who may be impacted.

## SWOT analysis

Strengths	Weaknesses
Strategic push to think creatively about land management and consider NZC targets	Lack of baseline for diocesan emissions – unable to calculate offsetting targets
Opportunities	Threats
Consideration of biodiversity within its glebe portfolio both in relation to when developing its own land and in offering it, at a market value, for offsetting to aid other third-party developments	Removal of Basic Payment Scheme giving a 7-year transition for farmers and landowners to increase efficiency or diversification  Diverse views on land usage

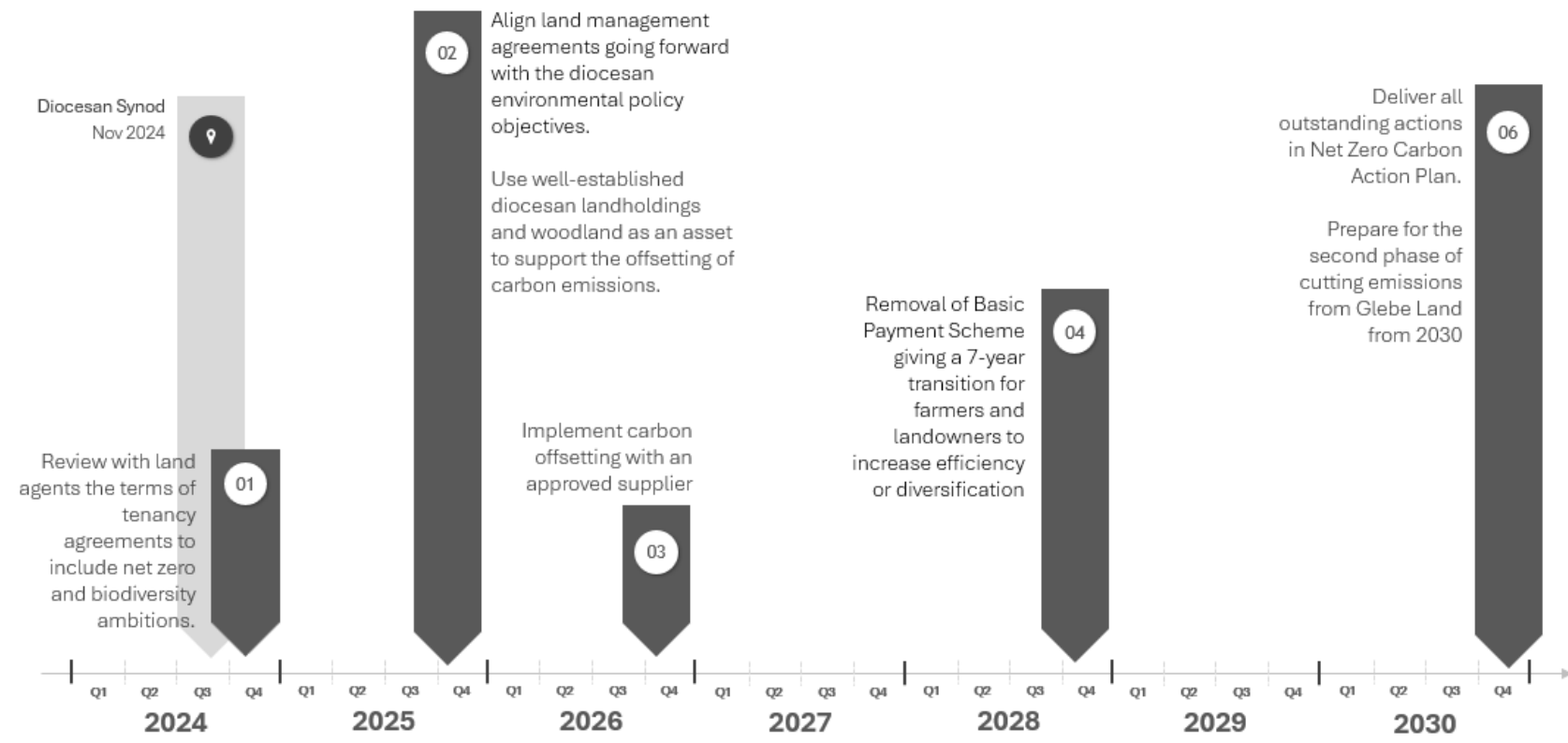
## Actions

Action	Responsible	Routemap Milestone
<b>To be delivered by the end of 2024</b>		
Review with land agents the terms of tenancy agreements to include net zero and biodiversity ambitions.	Diocesan Surveyor	6.2.2
<b>To be delivered by the end of 2025</b>		
Align land management agreements going forward with the diocesan environmental policy objectives.	DBF Chair (Glebe Land)	6.2.6
Scope costings for carbon offsetting and forecast costs over the course of the plan.	NZC Project manager	6.1.4
Use well-established diocesan landholdings and woodland as an asset to support the offsetting of carbon emissions.	DBF Chair (Glebe Land)	6.2.2
<b>To be delivered by the end of 2026</b>		
Upon improved compliance with the energy toolkit across diocesan buildings, calculate the amount of CO <sub>2</sub> that would need offsetting because it cannot be reduced	NZC Project manager	6.1.4
Implement carbon offsetting with an approved supplier to offset those emissions that have been impossible to eliminate	Glebe Land Committee	6.1.4
<b>To be delivered by 2028</b>		
Removal of Basic Payment Scheme giving a 7-year transition for farmers and landowners to increase efficiency or diversification	Glebe Land Committee	
<b>To be delivered by 2029</b>		
Prepare for the second phase of cutting emissions from Glebe Land from 2030	Glebe Land Committee	

### Indicative costs

A universally accepted net zero carbon standard is that proposals for offsetting should cover *no more than 10% of emissions*. Due to the lack of baseline figure for the diocesan carbon emissions, it is not possible to calculate 10% and then make costed plans. It is a priority across all the strands of this plan to build a better understanding of energy usage because this will support planning and accurate financial forecasts.

# Milestone Timeline



## 13. Finance and Fundraising

### Overview

Decarbonising our buildings by 2030 is a key priority for the Diocese. It reflects our duty as Christians to be good stewards of the natural world and our commitment to climate justice for those who are disproportionately impacted by the emerging climate emergency. We know that our ambition to become NZC by 2030 will require a huge amount of effort from our diocesan officers, church/parish leaders, visitors and worshipping communities but we strive to meet the challenge and secure whatever funding is required to help us achieve our goals.

The work we are undertaking to decarbonise our buildings is funded through a mix of Westminster, national government, PCC and diocesan funding streams. The table below gives an indication of a selection of funding streams that are currently being accessed.

Some examples of funding that has been accessed across the strands of the NZC plan

Building type	Funding accessed
Churches	<ul style="list-style-type: none"><li>– Parish Buying – Energy Audits</li><li>– <a href="#">Net Zero Quick win grants</a></li><li>– <a href="#">Benefact Trust – New Building Improvement Grants</a></li><li>– Landfill Trusts – localised funding</li><li>– <a href="#">Places of worship   The National Lottery Heritage Fund</a></li></ul> <p>More can be found <a href="#">here</a></p>
Clergy housing	<ul style="list-style-type: none"><li>– Demonstrator Grant – Decarbonising renovations and EPCs</li></ul>
Schools	<ul style="list-style-type: none"><li>– SCA and DFC (Schools Condition Allocation and Devolved Formula Capital Funding)</li><li>– PSDS and LCSF (Public Sector Decarbonisation Scheme and Low Carbon Skills Funding)</li></ul>

### Challenge

The funding accessed to date pump primes the decarbonisation works across our diocese to provide good and feasible examples of what NZC can look like in our various building types so that it can be replicated. This funding, however, does not reflect the type of funding envelope that will enable the decarbonisation of all our estate. Income generation and fundraising is essential to meet the sizable costs of achieving net carbon zero across our churches, schools, offices and clergy housing. The management of Glebe Land presents an opportunity to provide further pump prime funding to support the delivery of this action plan. The steering group will work together to assess priorities across the plan and identify projects that will support progress.

## Actions

Action	Responsible	Routemap Milestone
<b>To be delivered by the end of 2024</b>		
Agree priority projects and indicative funding to support the delivery of the Diocesan NZC action	NZC Steering group	
Secure funding to support identified projects	NZC Steering group, Director of Finance	
<b>To be delivered by the end of 2025</b>		
Commence implementation of priority projects	NZC Steering group	
Scope indicative decarbonisation costs for church buildings, clergy housing, schools (in scope) and offices.	NZC Steering group	
<b>To be delivered by the end of 2026</b>		
Assess impact of 2024 priority projects and identify further supporting projects for the next phase (2027 – 2030) by the end of 2026	NZC Project manager, NZC Steering group	
<b>To be delivered by the end of 2027</b>		
Commence priority projects for the next phase of the project	NZC Project manager, NZC Steering group	