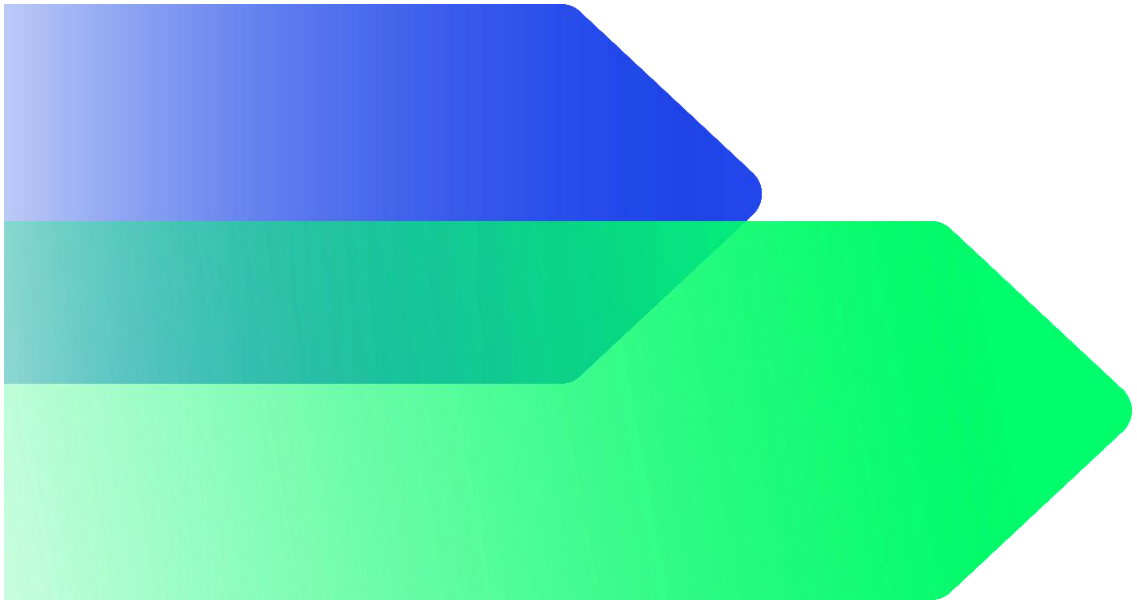
2030 NET ZERO STRATEGY: PROGRESS REVIEW
BRIDGEND COUNTY BOROUGH COUNCIL

June 2025



THE CARBON TRUST

Our mission is to accelerate the move to a decarbonised future.

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We are one global network of 400 experts with offices in the UK, the Netherlands, South Africa, Singapore and Mexico. To date, we have helped set 200+ science-based targets and guided 3,000+ organisations in 70 countries on their route to Net Zero.

AUTHORS:

Maddie Liver, Analyst

maddie.liver@carbontrust.com

Jordan De Angelis, Senior Associate

jordan.deangelis@carbontrust.com

Reviewers:

Sam Wright-Green, Senior Manager

sam.wright-green@carbontrust.com

Poppy Potter, Associate Director

poppy.potter@carbontrust.com

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EXECUTIVE SUMMARY

Bridgend County Borough Council (BCBC) has set out a vision for achieving Net Zero carbon emissions from its operations by 2030. This Strategy Review reflects on the progress made so far and updates the pathway toward achieving this goal.

Since declaring a climate emergency in 2020 and adopting a Net Zero Strategy in 2021, BCBC has taken steps to reduce emissions across its operations. While some progress has been made, this review highlights the need to strengthen internal governance, streamline delivery mechanisms and embed decarbonisation within wider council decision-making processes and practices.

A review of the original action plan was undertaken to understand progress to date and identify areas where further action is needed. Following this, the action plan was refined to focus on high-impact, feasible actions. Each initiative was assessed against criteria such as relevance, deliverability, and emissions reduction potential. Low-priority or outdated actions were removed or redefined. The resulting streamlined action list supports a more strategic, coordinated, and manageable approach to delivery.

A key focus of this review has been governance and delivery. In consultation with relevant officers across BCBC, via workshop sessions and one-to-one interviews, the Strategy's governance structure has been updated to support delivery and implementation. A new hybrid model has been developed, building on the existing Carbon Lead roles and incorporating a Communities of Practice approach. These cross-departmental groups will lead on priority themes: estates, fleet and procurement. The aim is to promote collaboration, build internal capacity and fix decarbonisation into day-to-day operations while ensuring continuity with established roles and responsibilities.

Carbon emissions modelling has been updated to assess the impact of proposed measures. Under a Business as Usual (BAU) scenario, residual emissions in 2030 are projected at 54,656 tCO_2e. With full implementation of the recommended initiatives, this gap to Net Zero reduces to 36,996 tCO_2e. The total investment required to deliver these initiatives is estimated at £109.65 million. While substantial, this figure reflects necessary asset renewal and is expected to be spread over several years. The estimate is indicative and excludes whole-life costs and like-for-like replacement comparisons. A significant portion of the estimated cost (~80%) relates to assets such as heating systems and vehicles that would require replacement regardless. Moreover, low-carbon technologies such as solar photovoltaic (PV), LED lighting, and insulation are more likely to attract external funding through grants or loans.

Finally, recognising that some emissions will remain unavoidable by 2030, the Strategy outlines options for offsetting, distinguishing between local (insetting) and global mechanisms. While offsetting should be a last resort, a clear framework will be needed to ensure that any future approach aligns with BCBC's values and delivers meaningful environmental and community benefits.

This review provides BCBC with a refreshed strategic direction and practical tools to accelerate its decarbonisation journey, with clearer prioritisation, strengthened delivery structures, and a better understanding of future investment needs.

1. INTRODUCTION AND CONTEXT

This report assesses progress against Bridgend County Borough Council's ('BCBC' / 'the Council') 2030 Net Zero Strategy and provides insights to inform the next implementation phase. The Carbon Trust has produced this report following in-depth engagement with key Council stakeholders and an objective review of documentation and data related to progress against the Strategy. A full list of the reviewed documents and stakeholders engaged is provided in Appendix A. BCBC should use the contents of this report and accompanying outputs to revise its Net Zero Strategy as appropriate.

The first chapter of this report outlines the current policy landscape, including key Welsh Government policies and legislation relevant to BCBC's Net Zero Strategy. It sets the context for the review by summarising progress against BCBC's own corporate policies and decarbonisation initiatives and presents BCBC's latest carbon footprint against the 2019/20 baseline footprint.

The second chapter evaluates BCBC's progress in implementing its 2030 Net Zero Strategy, assessing actions taken across the six main activity streams: Carbon Management, Buildings, Transport, Land Use, Waste and Procurement. The review assesses project progress since 2021 and outlines developments, plans, successes and challenges.

Every action received a qualitative score (1–5), assessing the progress made to date against the original Net Zero Strategy (e.g. 'minimal' to 'sector-leading'). The scoring methodology is detailed in Appendix B.

The third chapter evaluates the governance of BCBC's Net Zero Strategy, informed by interviews with the six Carbon Leads and feedback from a presentation to the Decarbonisation Programme Board. This section reviews the structures, processes, and leadership mechanisms in place to drive progress and identifies areas for improvement in Strategy coordination and accountability.

The fourth chapter outlines the emission and cost modelling for the recommended actions. The chapter provides an update to BCBC's emission model and projections, assesses the 'gap to target' for 2030 goals, estimates project costs and appraises potential offsetting options.

1.1 DRIVERS FOR DECARBONISATION

WALES AND WELSH GOVERNMENT LEGISLATION

Wales has been at the forefront of environmental, social and governance improvements, accounting for climate change impacts on future generations and enshrining in law mitigation and adaptation measures to reduce the worst consequences of global heating.

The Well-Being of Future Generations (Wales) Act, 2015, requires public bodies to work together to improve the "social, economic, environmental and cultural wellbeing of Wales." The world-leading Act sets out seven well-being goals addressing challenges, including climate change, to ensure that future generations have a good quality of life.

The Environment (Wales) Act, 2016, promotes the sustainable management of natural resources in Wales, balancing the competing priorities of building the necessary infrastructure and protecting vital ecosystems. The Act requires Welsh Ministers to set decarbonisation targets and carbon budgets – an essential first step in reducing greenhouse gas (GHG) emissions. The revision to the Act (Amendment of 2050 Emissions Target) Regulations 2021 sets the target for Wales to achieve Net Zero by 2050.

In 2019, Welsh Ministers and the Senedd **declared a climate emergency**, reaffirming Wales' commitment and determination to tackle the climate crisis. Subsequently, the Welsh Government published its **Climate Adaptation Strategy for Wales** – a plan that sets out what the Welsh Government is doing and will do to respond to the changing climate.

To achieve Net Zero by 2050, a series of 5-year carbon budgets between 2016 and 2050 have been agreed by the Welsh Government in **Net Zero Wales: Carbon Budget 2**, published in 2021. This outlines 123 policies and proposals to meet the second of these carbon budgets (2021-2025), by reducing emissions by 37% against the baseline.

Net Zero Wales also has the collective ambition for the public sector to achieve Net Zero by 2030. In line with this commitment, the **Welsh Government Net Zero Strategic Plan (2022)** sets the approach for their own operational and supply chain emissions. Current modelling shows a gap between ambition and delivery.

Welsh Ministers have the ambition for public bodies and community enterprises in Wales to develop over 100MW of new renewable capacity by 2026. They also aim for 1.5GW of electricity generated in Wales to be locally owned by 2035.

The **Social Partnership and Public Procurement (Wales) Act, 2023,** places a statutory duty on certain public bodies to consider socially responsible procurement. Public sector buyers will be legally required to award contracts based on the Most Advantageous Tender (MAT), rather than the Most Economically Advantageous Tender (MEAT). The Act enables consideration of broader community benefits, such as reducing carbon emissions.

REVIEWING THE 2030 NET ZERO TARGET FOR THE WELSH PUBLIC SECTOR

The feasibility of the 2030 Net Zero ambition for the Welsh public sector is increasingly under discussion. While the Welsh Government has not formally revised the target, there is recognition that significant challenges exist, particularly for local authorities facing financial, operational, and policy constraints. A review of the approach to the 2030 target is expected next year, which may lead to further strategic adjustments.

The Welsh Government Energy Service (WGES) worked alongside the Welsh Government in 2022 to develop its plan for achieving Net Zero as an organisation, set out in the Welsh Government's Net Zero Strategic Plan. As part of this process, the Welsh Government aligned itself with the Science-Based Targets initiative (SBTi) standard, adopting a minimum 90% reduction target by 2030 (on total emissions) relative to its 2019/20 baseline. Although SBTi was originally designed for private sector organisations, it was chosen not only due to the absence of a dedicated public sector Net Zero standard, but also because it ensures alignment with climate science, providing a robust, evidence-based approach to emissions reduction. Under this framework, the Welsh Government will prioritise reducing emissions as much as possible before considering offsetting any remaining residual emissions.

However, there is currently no firm decision on whether this approach will be extended across the wider public sector, creating some uncertainty for local authorities regarding alignment. Additionally, new Net Zero standards and reporting frameworks are emerging, suggesting that further policy developments could influence how the 2030 target is implemented.

Given these uncertainties, local authorities are advised to maintain their current course, continue implementing feasible decarbonisation measures, track progress with the Welsh Public Sector Net Zero Reporting scheme and closely monitor evolving policy developments to ensure alignment with future strategic adjustments.

1.2 BRIDGEND COUNTY BOROUGH COUNCIL PROGRESS

BRIDGEND CORPORATE POLICIES

Bridgend County Borough Council (BCBC) declared a climate emergency in June 2020 and set up a Climate Emergency Response programme. This commits to achieving Net Zero carbon emissions by 2030 across its operations, aligning with Welsh public sector ambitions. This goal is driven by the Well-being of Future Generations Act, the Environment Act, and the Climate Change Regulations (Carbon Budgets). BCBC follows the Welsh Public Sector Net Zero Reporting Process for its annual carbon footprint. Recognising its leadership role, BCBC aims to enable broader Net Zero goals for local businesses and communities. Decarbonisation is a priority in BCBC's Corporate Plan. Climate change decision-making is integrated through Bridgend's Public Services Board Wellbeing Plan.

In 2021, BCBC developed its Net Zero Carbon Strategy, in collaboration with the Carbon Trust, which was formally adopted by the Cabinet in January 2023. The Strategy outlines six priority action plans covering carbon management, buildings, transport, procurement, land use and waste, alongside governance arrangements to support delivery.

Recognising the need for continuous improvement, BCBC committed to reviewing the Strategy in 2024 and 2027 to account for policy changes, technological advancements and market developments. This report forms part of the 2024 review, assessing progress against the Strategy's objectives, updating emissions modelling, and refining action plans to ensure they remain aligned with Welsh and UK policy.

BRIDGEND RECENT PROGRESS

Since declaring a climate emergency in 2020 and publishing its 2030 Net Zero Carbon Strategy in 2021, BCBC has taken steps to reduce carbon emissions across its operations and support the county's transition to Net Zero. Over the past three years, the Council has implemented decarbonisation projects across key areas, such as buildings, transport, and land use.

Progress has been materially hampered due to the Council's financial challenges. Budgetary pressures meant the programme was not granted the requested revenue to implement the actions after the Strategy was adopted. Local authorities across Wales and the UK are faced with these challenges.

A summary of recent and active schemes progressing decarbonisation across the themes of buildings, transport, land use, and procurement is shown in Table 1 below.

A detailed assessment of all action areas outlined in the Strategy is presented in Chapter 2, evaluating progress, identifying gaps and determining where further acceleration or adjustments are needed.

While these achievements mark progress, the carbon footprint data in the next section (1.3 Carbon Footprint and Baseline) demonstrates that much more remains to be done. The scale and pace of the required transformation demand sustained effort, increased investment and continuous adaptation.

Table 1 - BCBC decarbonisation actions since 2021

Transport	Buildings	Land Use	Procurement
• LED street lighting • Porthcawl - new bus terminus • Electric vehicle (EV) charging infrastructure installed across the BCBC estate • Ultra-low emission vehicle (ULEV) infrastructure • Active travel provision	• Re:fit Cymru –retrofit programme • Bridgend District Heat Network • Bryncethin Depot – solar PV, LED & battery storage • Roof mount solar PV – multi-site • 21st Century Schools Programme • Site audits and control optimisation of all school and office sites • Low Carbon Heat Grant - round 2 (Installing air source heat pumps at two sites)	• Coastal protection scheme • Extending Local Nature Reserves areas • Feasibility – land-based renewables • Tree planting – i-Tree eco study • New Local Development Plan	• Regional procurement networks • Socially Responsible Procurement Strategy

1.3 CARBON FOOTPRINT AND BASELINE

BASELINE

The baseline year for BCBC's Net Zero Strategy is 2019/20, aligning with the Welsh Government's initial commitment to a Net Zero public sector and the first year of Net Zero Reporting.

As part of the development of the 2021 Net Zero Strategy, BCBC's 2019/20 total carbon footprint was estimated at approximately 90,241 tCO_2e, broken down as follows. For a detailed breakdown of the emission categories included in the footprint, see Appendix C.

- Scope 1: 6,106 tCO_2e
- Scope 2 : 4,983 tCO_2e
- Scope 3 : 79,152 tCO_2e[1]

However, subsequent calculations under the Welsh Public Sector Net Zero Reporting methodology produced a different footprint figure for 2019/20, with total emissions estimated at 67,011 tCO_2e, broken down as follows:

- Scope 1: 6,146 tCO_2e
- Scope 2: 5,405 tCO_2e
- Scope 3: 55,459 tCO_2e

Figure 1 – 2021 Strategy 2019/20 BCBC carbon footprint by scope (tCO_2e)

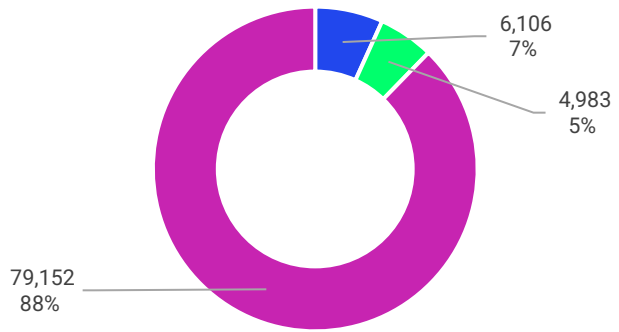
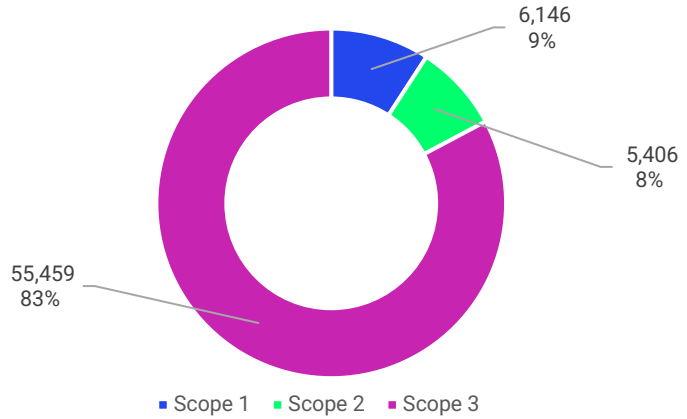


Figure 2 – Net Zero Reporting 2019/20 BCBC carbon footprint by scope (tCO_2e)



[1] Scope 1 emissions are direct emissions that are owned or controlled by the organisation, such as gas consumption for heating buildings or fuel consumption for the Council's fleet. Scope 2 emissions are indirect emissions from purchased electricity, heat or steam. Scope 3 emissions are all other indirect emissions, such as those from supply chains, business travel and employee commuting.

The difference in Scope 1 and Scope 2 emissions is minimal. The bigger discrepancy is in purchased goods and services in Scope 3. This difference is primarily due to differences in emission factor values in the calculations:

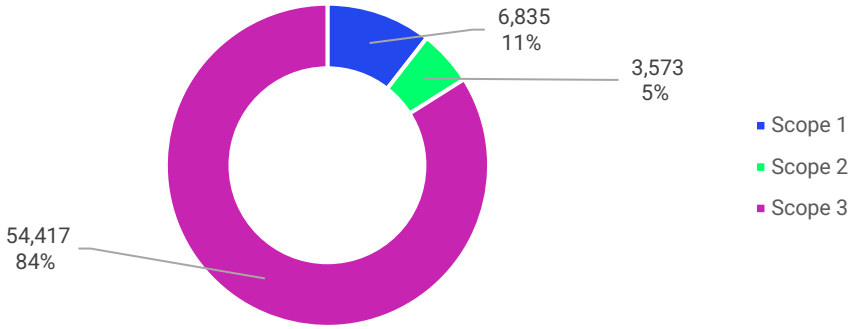
- The footprint calculated during **Strategy** development applied **Environmentally Extended Input-Output (EEIO)** factors
- The footprint calculated under the **Net Zero Reporting** used DEFRA published **Standard Industrial Classification (SIC)** emission factors.

As the Net Zero Reporting methodology is now the standard methodology for the Welsh public sector, BCBC's baseline has been updated to align with this approach (e.g. from now on, the emission figure used for 2019/20 will be 67,010 tCO_2e). This ensures consistency and provides access to multiple years of data using a standardised methodology.

2023/24 CARBON FOOTPRINT

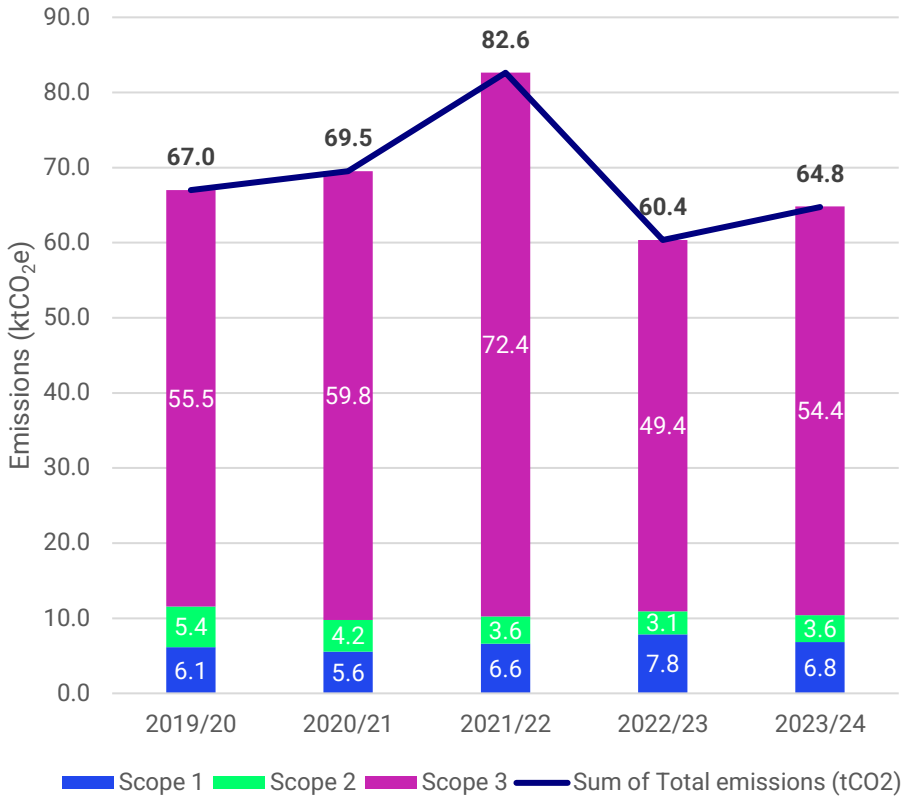
The total estimated carbon footprint for 2023/24 was 64,825 tCO_2e. Figure 3 illustrates the 2023/24 carbon footprint broken down by scope.

Figure 3 - Net Zero Reporting 2023/24 BCBC carbon footprint by scope (tCO2e)



Over the past five years, BCBC's emissions have fluctuated (see Figure 4), peaking in 2021/22, followed by a significant decline in 2022/23 and a subsequent increase in 2023/24. Overall, total emissions have decreased by 3.4% since 2019/20. Scope 3 emissions are the primary driver of change, while Scope 1 and Scope 2 emissions show more limited variations.

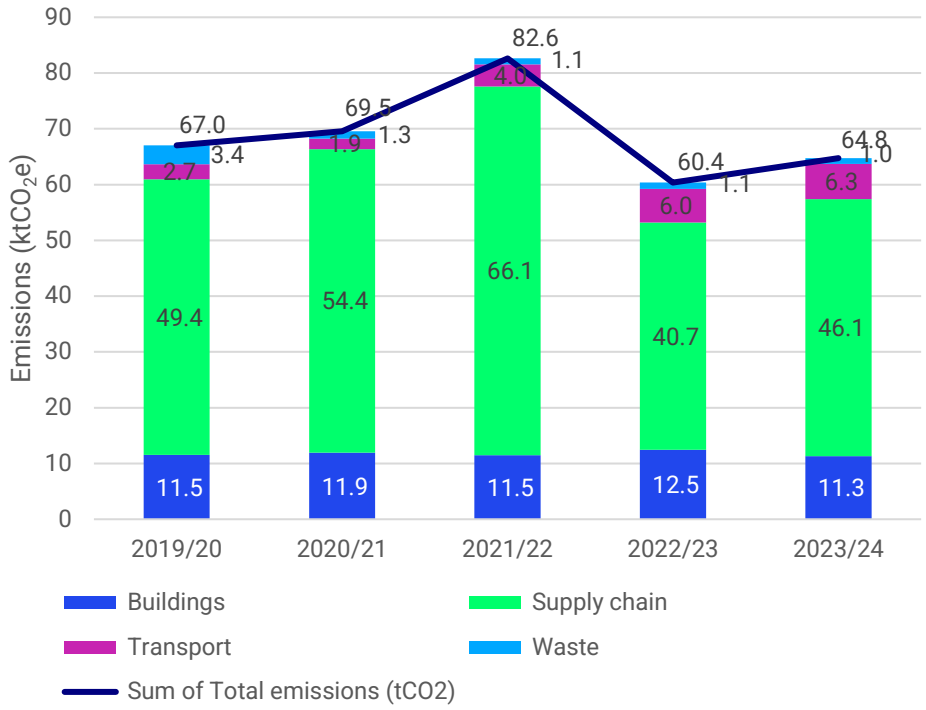
Figure 4 - Net Zero Reporting BCBC carbon footprint time series by scope (tCO_2e)



As shown in Figure 4, Scope 1 emissions have increased by 11.2% since 2019/20, rising from 6,146 tCO_2e to 6,835 tCO_2e, indicating a moderate increase in fuel consumption. Scope 2 emissions have decreased by 33.9%, from 5,405 tCO_2e to 3,573 tCO_2e, likely due to a combination of energy efficiency improvements, increased on-site renewable energy generation, and a reduction in the carbon intensity of grid electricity. Scope 3 emissions have marginally reduced by 1.9%, from 55,459 tCO_2e to 54,417 tCO_2e.

Figure 5 below presents the emissions breakdown by category rather than by scope, highlighting key sources such as buildings, the supply chain, transport, and waste.

Figure 5 – Net Zero Reporting BCBC carbon footprint time series by emissions category



Supply chain is the largest emission category. In 2023/24, supply chain emissions were 71% of the total footprint at 46,106 tCO_2e, a 7% decrease from 49,427 tCO_2e in 2020/21. Supply chain emissions were also the main factor behind the peak in 2021/22, reaching 66,135 tCO_2e, highlighting the significant impact of procurement activities, calculated using spend-based proxies, on overall emissions trends. This underlines the continued need for decarbonisation efforts in supplier engagement.

Building emissions have remained relatively stable at around 17% of the total footprint, with 11,284 tCO_2e recorded in 2023/24. However, this masks a significant reduction in fossil fuel consumption over the past year. In 2024, fossil fuel use fell by 21%, from 38.6 million kWh to 30.5 million kWh, while electricity consumption increased by 11%, from 12.1 million kWh to 13.5 million kWh.

Transport emissions have increased, rising from 4% of the total (2,677 tCO_2e) in 2020/21 to 10% (6,344 tCO_2e) in 2023/24. This increase is primarily due to the inclusion of commuting and homeworking emissions from 2023 onwards, as well as greater vehicle use following the easing of COVID-19 restrictions. Waste emissions remain low and stable, contributing just 2% of total emissions, at 1,024 tCO_2e in 2023/24.

The overall emissions trend indicates some progress, but supply chain emissions continue to be the most significant challenge in reaching BCBC's 2030 Net Zero target. While further action in procurement policies, fleet decarbonisation, and building efficiency measures will be essential to drive future reductions, some progress will also depend on external factors beyond BCBC's direct control, such as the decarbonisation of the national electricity grid and private sector decarbonisation.

2. 2030 NET ZERO STRATEGY PROGRESS REVIEW

This chapter evaluates BCBC's progress in implementing its 2030 Net Zero Strategy, assessing actions taken across the six main activity streams. Each activity stream is currently led by a designated Carbon Lead, who is responsible for driving implementation and monitoring progress. The review assesses project progress since 2021 and outlines developments, plans, successes and challenges.

Each sub-section of this chapter focuses on one of the activity streams and presents a table outlining the actions originally identified in the Strategy. The Carbon Trust has included additional columns to provide a commentary on progress, a progress score ranking from 1 (minimal progress) to 5 (sector-leading progress) (see Appendix B for more detail on the scoring system), and a recommendation on the status of each action. Actions are categorised as: Remove, Retain, Revise or New (introduce new initiative). See Appendix E for a list of updated initiatives.

2.1 CARBON MANAGEMENT INITIATIVES

Table 2 outlines the initiatives identified in the 2030 Net Zero Carbon Strategy, adopted in December 2022, that the Council is undertaking to implement carbon management across the organisation.

Table 2 - Carbon management initiatives progress review

Ref.	Description	Progress Score	Status	Carbon Trust Comments
CM1	The Council will appoint a technical expert in 2022 to undertake a more specific 'bottom-up' reduction pathway, providing more detailed carbon and financial modelling results for the agreed Action Plans in the 2030 Strategy.	2	Remove	Funding for this was part of an unsuccessful bid. This Strategy review provides updated pathway modelling for carbon and finances. This initiative can be removed from the revised Strategy.
CM2	Carbon impact and implications to be included in all Council business cases for investment, integrated with the Wellbeing of Future Generations assessment.	2	Revise	All Council reports include a 'Climate Change Implications' statement. However, these are not reviewed or tracked, and more comprehensive tools could be implemented (see Cornwall Council's doughnut economics). Furthermore, carbon costs should be integrated into decision-making processes.
CM3	The decarbonisation agenda will be proactively communicated to staff to support the uptake of low-carbon behaviours.	2	Revise	No engagement plan. We recommend that engagement initiatives strategically link to targets, e.g. upskilling building managers to improve building energy use, educating building managers about the waste hierarchy and educating Directorates and service areas about sustainable procurement practices.

CM4	Carbon Literacy training will have been completed by the end of the 2022/23 financial year and the training will be integrated into standard HR processes, such as e-learning modules.	3	Revise	Carbon literacy training has been undertaken by 12 elected members and 34 officers. Climate change e-learning is now mandatory for all staff.
CM5	All council job descriptions will be updated to include the general carbon responsibilities of employees and selected key council job descriptions will include defined carbon responsibilities as part of their role within the Council.	1	Revise	No progress. The process is more time-intensive than anticipated, with the need to consult Unions. We recommend prioritising selected key job descriptions, including defined carbon responsibilities, particularly for Carbon Lead/CoP members.
CM6	Through its participation in the Local Government Pension Scheme, BCBC acknowledges that climate change and carbon emission management is one of the risk factors of responsible investment and will support and actively monitor the delivery of the Fund's commitment to an orderly carbon transition and its active engagement with investee companies to reduce carbon exposure across the Pension Fund.	1	Remove	No progress. In alignment with the WGES Net Zero Reporting guidance, this action does not directly contribute to the Council's operational emissions calculation. Following client feedback and in order to streamline the list of actions, it has been removed. However, continued engagement with the Pension Fund remains good practice in the context of broader climate leadership and responsible investment.
CM7	Utilise the Welsh Government Public Sector Carbon Reporting Guide to report annually the Carbon Footprints of Council's operations, this will form the basis for tracking progress against the Net Zero 2030 target.	4	Retain	BCBC reports a complete emissions inventory to the Net Zero Reporting scheme. Using the results to improve widespread understanding of the Council's emissions and how they relate to different service areas is key to cross-council ownership of the agenda. Next steps should focus on providing building-level data and moving to Tier 2 supply chain reporting. These actions will sit in the Estates and Procurement activity streams.

2.2 BUILDINGS INITIATIVES

Table 3 outlines the initiatives identified to reduce the emissions associated with the operation of buildings*.

Table 3 - Buildings initiatives progress review

Ref.	Description	Progress Score	Status	Carbon Trust Comments
B1	The Council will progress a transformational energy and water efficiency retrofit programme across its estate – every building will have undergone a multi-technology energy efficiency upgrade by 2030.	3	Retain	Ongoing. Completed work with Re:Fit and currently have two buildings with Low Carbon Heat funding. While a centrally held asset register is being created, there is currently no consolidated monitoring of progress. Finishing the register should be a priority. Also, this initiative would benefit from being broken down into interim/shorter-term targets.

B2	The Council will undertake and commission surveys to collate a full asset and conditions list of energy consuming equipment across its built estate by end of 2023.	2	Review	Ongoing. As above (B1) on register and interim targets. Noted that AECOM is pulling together a report for all Schools in Wales. This will be even more important with updates to the Net Zero Reporting guidance, asking public sector bodies to provide floor area data alongside energy use. Revise the completion year for this initiative.
B3	The Council will complete expert low carbon heat studies for all large strategic sites to set the plan to transition away from fossil fuel heat sources.	2	Retain	Ongoing. As above (B1) on register and interim targets. Council needs to consider creating a list of shovel-ready projects to access grant funding when it become available.
B4	Decommissioning of traditional boilers will be preferred over replacement, with low carbon heat solutions appraised and prioritised within the business case process.	2	Retain	Ongoing. As above (B1) on register and interim targets.
B5	Legacy lighting will only be replaced with modern LED alternatives; all lighting will be LED by 2030.	3	Retain	Ongoing replacement programme delivered through Re:Fit and funded from the Decarbonisation capital budget, with over 17 sites covered to date. As above (B1) on register and interim targets.
B6	All buildings will be assessed to have standardised, effective building management systems (BMS) including a dedicated central resource to optimise energy use across the built estate on a consistent basis.	3	Retain	Roughly 60 out of 120 buildings have BMS. Low cost of installing BMS makes it a high-priority action. As above (B1) on register and interim targets.
B7	The Council will complete surveys to understand the overall viable potential for onsite renewable energy generation across the estate. By 2026 half of this potential should be installed, with the remainder by 2030.	3	Revise	Nine sites have been identified for solar PV installation with funding allocated from the Decarbonisation capital budget. As above (B1) on register and interim targets. Target date needs revision.
B8	The Council will work closely with schools to develop a plan to better deliver carbon reduction in these buildings.	3	Retain	AECOM report currently underway.

*Actions related to new buildings are all considered to be ongoing and should be retained in the new Strategy.

2.3 TRANSPORT INITIATIVES

Table 4 outlines the initiatives identified to reduce the emissions associated with transport, including from fleet, business travel and commuting.

Table 4 - Transport initiatives progress review

Ref.	Description	Progress Score	Status	Carbon Trust Comments
T1	The Council will complete a business travel review to appraise the use of staff vehicles, pool cars and public transport across all departments; Council business travel policies will be updated accordingly.	1	Retain	No progress. Management is shared across departments. Retain but move to the proposed Behaviour Change Community of Practice (CoP) (see Section 3: Governance and Delivery Assessment).
T2	The Council's staff business travel policy will prioritise the use of virtual meetings, active travel and public transport.	1	Retain	As above (T1).
T3	The Council will undertake a detailed review of staff commuting patterns to better understand the impact on its overall carbon footprint; guidance and incentive schemes will be considered to support staff.	1	Retain	As above (T1). Prioritise undertaking a staff commuting survey to calculate emissions. Retain but move to the proposed Behaviour Change Community of Practice (CoP). The Carbon Trust can provide support for the staff commuting survey.
T4	The Council will support the Welsh Government's 30% work from home target by continuing to facilitate home working, developing digital infrastructure, and rationalising office space.	2	Review	Progress not tracked, though it is considered that a large proportion of officers do work from home, facilitated by IT equipment and infrastructure, revised desk allocations and disposal of office buildings. Management is shared across departments. Retain but move to the proposed Behaviour Change CoP. Noted that some services require more in-person work (social care, education, highways maintenance) – there can't be a 30% target for every service area.
T5	The Council will oversee the development of a best practice approach for ULEV technology across the Council's own fleet, staff vehicles and public EV charging.	2	Revise	Some progress. We recommend that the Council seek support from WGES on ULEV and EV transition planning and implementation. Remove mention of public EV charging as not relevant to the Strategy.
T6	To encourage the transition to an EV fleet the Council will prioritise the development of an EV charging infrastructure network plan for the existing estate.	2	Retain	Management is split across multiple departments. Progress has been made in the Highways team with over 60 charge points installed and more in progress (though coming up against barriers).
T7	EVs will be prioritised as replacements for Council owned cars and small vans in the short term, with all conforming to ULEV standards by 2025.	1	Revise	No progress. Revise target date.
T8	All new medium/large freight vehicles procured across the Council after April 2026 will be to the future modern standard of ULEVs.	1	Revise	Some testing of large freight EVs as they come onto the market, but it is very dependent on load and cost. The target date needs to be updated.
T9	The Council will actively engage with innovation projects to help shape the future landscape of the ULEV market, specifically hydrogen-powered vehicles.	2	Remove	Some activities are ongoing. No available data. Remove as not directly relevant to this strategy and to support streamlining of the action list.

T10	The Council will undertake a review of fuel used in small plant and equipment to understand their carbon footprint and what assets can be replaced with electric versions.	2	Retain	Electric equipment is being used, but a review has not been completed. Lack of a register for management of progress. Retain and make it a priority to register and track equipment.
T11	The Council will pro-actively engage with other public bodies within the County to ensure strategic travel plans do not counteract each other.	1	Remove	No longer sits with Highways and is more related to area-wide emissions than organisational emissions.

2.4 LAND USE INITIATIVES

Table 5 outlines the initiatives identified to promote sustainable land use on its land: to generate renewable energy, carbon sequestration and create spaces to encourage biodiversity. All retained and revised actions should be moved to the proposed Estates activity stream.

Table 5 - Land use initiatives progress review

Ref.	Description	Progress Score	Status	Carbon Trust Comments
L1	The Council will support the delivery of Local Development Plan (LDP) identified renewables and offsetting opportunities on its own land and neighbouring land, and also influence and support broader county-wide schemes through the council's role in planning.	3	Remove	Carbon Trust completed a Low Carbon and Renewable Energy Assessment (REA) for Bridgend in 2019, which formed part of the Evidence Base for their Replacement LDP (RLDP). The RLDP was adopted in 2024 and included many of the policy recommendations provided in the REA. As the scope of the RLDP is county-wide rather than purely BCBC organisational emissions, we recommend removing this initiative.
L2	The Council will improve its understanding of all owned land assets to correctly appreciate the levels of carbon sequestration by March 2023 and develop plans to maximise carbon benefits in these areas.	3	Revise	WGES completed a land asset review in 2021, which reviewed the potential for renewable energy developments on a number of parcels of BCBC-owned land. The review identified three priority group sites (A, B, and C) and removed seven sites from the assessment altogether due to their lack of suitability for development. We recommend that the next steps for the priority A, B, and C sites be revisited. If the decision is made not to progress with any of these sites for renewable energy deployment, they should be considered, alongside the sites removed from the assessment and any other additional parcels of land owned by BCBC, for carbon sequestration potential. The Carbon Trust can provide support with this.
L3	The Council will ensure all owned woodland and greenfield areas are maintained in a way to promote enhanced biodiversity and avoid any unnecessary loss of carbon sequestration.	2	Retain	Noted that the Council manages five local nature reserves with efforts to promote biodiversity at these sites. The initiative would be improved with monitoring and interim targets.

L4	The Council will identify its own and neighbouring land for large-scale renewable developments, primarily solar and wind projects. Private wire connections to owned sites will be prioritised over exporting directly to the grid.	3	Remove	In 2021, WGES completed a review of ground-mounted solar sites, of which the highest priority one at the Bryncethin Claypits site will be leased to CCR for 5MW PV to power the Hybont project via private wire. No other sites are close enough to BCBC assets to private wire, and there is no benefit to emissions reporting to develop grid-connected projects. Noted that most large-scale land ownership is reserved to fund capital programmes like school development. Remove as there are no more eligible sites.
L5	Where large-scale renewable developments are not possible, the Council will prioritise these areas for afforestation/reforestation and biodiversity programmes on its own land.	2	Retain	The Council has undertaken several tree planting projects (e.g. Ogmore Valley community woodland, Sker Farm and Aber Fields). However, it is not clear how land use designations are prioritised.
L6	The Council will undertake an assessment to understand the extent of peatland across its estate; a continual maintenance and regeneration programme will be put in place for any identified areas.	1	Retain	No formal assessment was undertaken, but it was noted that officers believe there is no peatland on the estate. We recommend undertaking a formal assessment as part of L2.
L7	The Council will identify the additional maintenance resource needed to help kick start a more extensive green infrastructure programme across the county.	1	Remove	Noted that this is less relevant to making the Council's operational Net Zero.
L8	Work with partners to map and review Council-owned land to identify categories that align with the Net Zero Reporting commitment	-	New	Potential to use the WLGA/DataMapWales Land and Carbon Sequestration Mapping tool.

2.5 PROCUREMENT INITIATIVES

Table 6 outlines the initiatives identified to reduce the emissions associated with procurement. It was noted in the Carbon Lead interview that there has been no progress on any of the procurement actions to date due to a lack of resource.

Table 6 - Procurement initiatives progress review

Ref.	Description	Progress Score	Status	Carbon Trust Comments
P1	The Council will develop a Sustainable Procurement Code of Practice to include a framework for assessing the sustainability credentials of suppliers at varying contract values and types; this will consider the evolving Welsh Procurement Policy Notes (WPPN).	2	Retain	There is a requirement to include a social value question in all tenders (at least 10% weighting), and commissioning officers must consult with the Decarbonisation and Climate Change teams to inform this.

P2	The Council will aim to engage with and utilise the local and low carbon supply chains whilst maintaining high standards for goods and services. This will be a corporate initiative and not just the responsibility of the procurement team.	1	Retain	No progress.
P3	The Council will build upon WPPN 06/21 and require carbon management plans/decarbonisation improvement to be demonstrated in the highest carbon impact and strategic contracts by 2025, this will include contracts as they come to be procured associated with 'Transit & Ground Passenger Transport Services' and 'Nursing & Residential Care Services'.	3	Revise	A carbon reduction plan is required at a contract value of £1m. Continue to review the requirements of carbon reduction plans from suppliers and note forthcoming learnings from the WGES Net Zero Reporting supplier data collection template pilot.
P4	The Council will apply the principles of 'WPPN 12/21 Decarbonisation through Procurement', to an increasing proportion of contracts such that by 2030, all contracts above an agreed value are subject to carbon assessment and reporting.	2	Retain	As above.
P5	The Council will work to ensure decarbonisation selection criteria and the requirement for supplier carbon reduction plans (CRP) is integrated into contract procedure rules for contracts valued at £5 million or more (as per WPPN 06/21) for contracts procured from 2025. This will be a corporate initiative and will involve the development of a work plan which will be presented to Cabinet and Council to amend the Contract Procedure Rules.	4	Remove	Remove as complete. For contracts of £50k and above, BCBC requires policies to show the bidder's approach to waste reduction and greenhouse gas emissions management. The social value question will seek to establish how environmental impacts will be minimised throughout the contract delivery.
P6	The Council, through its Economic Development function, will engage with its supply chain to communicate its ambition for Net Zero and the request for suppliers to come on the journey; the Council will share its developing procurement practice, resources for suppliers, and any opportunities for supply chain decarbonisation funding.	1	Retain	No progress.
P7	The Council will provide a training programme for internal service commissioners by developing best practice and engaging experts; the Council procurement and service commissioners will work in collaboration to champion decarbonisation in the supply chain. This will be resourced through the Climate Change Response Programme.	3	Revise	The Corporate Procurement Manager has delivered training on this. Training opportunities should be reviewed. Revise reference to the Climate Change Response Programme.
P8	Contract management will be used to oversee decarbonisation progress and carbon accounting in both short- and long-term contracts, this will be overseen by the BCBC 2030 Programme Board and reported to Corporate Management Board (CMB) as required.	1	Retain	No progress.
P9	A task and finish group will be established to identify funding option to secure a dedicated resource will be put in place to support development of the Sustainable Procurement Code of Practice, Socially Responsible Procurement Strategy, and ongoing management of decarbonisation through procurement.	1	Remove	Responsibility for the allocation of this funding sits within Senior Leadership, not just the Procurement Lead.
P10	The Council recognises the need for a regional and national approach and will identify other organisations and forums, e.g. National Themes, Outcomes and Measures	1	Retain	We recommend attending the WLGA Procurement Task and Finish Group.

	(TOMS) Wales, Welsh Local Government Association (WLGA), for collaboration across Wales to help develop its understanding and take note from best practice approaches.			
P11	Prioritise enabling a move from Tier 1 to Tier 2 supply chain emissions reporting. Engage with work being done by the Welsh Government Energy Service to develop a supplier contract emissions reporting tool.	-	New	This action depends on senior leadership providing procurement with additional resource, as we recommend in Section 2: Governance and Delivery Assessment.

2.6 WASTE INITIATIVES

Table 7 outlines the initiatives identified to reduce the emissions associated with the waste that the Council produces and collects. Though the Council has made significant progress on municipal waste, this review concerns how organisational waste actions have progressed. In discussion with Council officers, it has been agreed that national legislation will be the main driver of change on this issue.

Table 7 - Waste initiatives progress review

Ref.	Description	Progress Score	Status	Carbon Trust Comments
W1	The council will build on its performance in regard to reducing waste sent to landfills and recycling in line with the Welsh Government Towards Zero Waste Strategy.	2	Retain	Retain but move to the proposed Behaviour Change Community of Practice (CoP).
W2	All waste streams will be reviewed on an annual basis to ensure the most sustainable method of disposal is being undertaken, the waste hierarchy will be used as a template for action.	2	Retain	Noted that this is already a legislative requirement. Retain but move to the proposed Behaviour Change Community of Practice (CoP).
W3	Undertake a more joined up approach across the council on waste data collection to ensure all waste streams are being identified.	2	Retain	Retain but move to the proposed Behaviour Change Community of Practice (CoP).
W4	The council will work with the schools to implement further food waste initiatives to reduce the amount of waste sent to landfills.	4	Remove	Superseded by the Workplace Recycling regulations.
W5	The council will develop a plan to agree on future step changes to continue working to achieve the outcomes set out by Welsh Governments: Towards zero waste: our waste Strategy.	3	Remove	Currently mid-commission. Noted that the Welsh Government have not set specific waste targets beyond 2024 for councils to work to, complicating future mapping. Not relevant to Council Waste.
W6	The council will review best practice advice and develop a plan to support highways and capital projects on hard to decarbonise waste streams such as cement, concrete and Asphalt.	1	Remove	No progress. This has been removed to streamline the initiatives but it should be picked up at a later date.

W7	The council will increase the availability of battery-powered equipment and tools in its supply chain to reduce disposal and replacement cycles.	2	Remove	Ongoing. Noted that there is no overall monitoring of equipment (as with T10). Removed for the same reason as given above.
W8	The council will prioritise the purchase of reused and remanufactured products that have recycled content, this will be embedded into best practices for service commissioners.	1	Retain	No progress. Retain but move to the proposed Behaviour Change Community of Practice (CoP).
W9	The council will continue to engage with key stakeholders and work with our communities to encourage the reduction of waste, reuse and recycling.	1	Remove	Engagement is ongoing. Noted that this is more relevant to the Borough's Net Zero target and is less relevant to making the Council's operations Net Zero. Retain but move to the proposed Behaviour Change CoP.

3. GOVERNANCE AND DELIVERY ASSESSMENT

3.1 CURRENT GOVERNANCE STRUCTURE

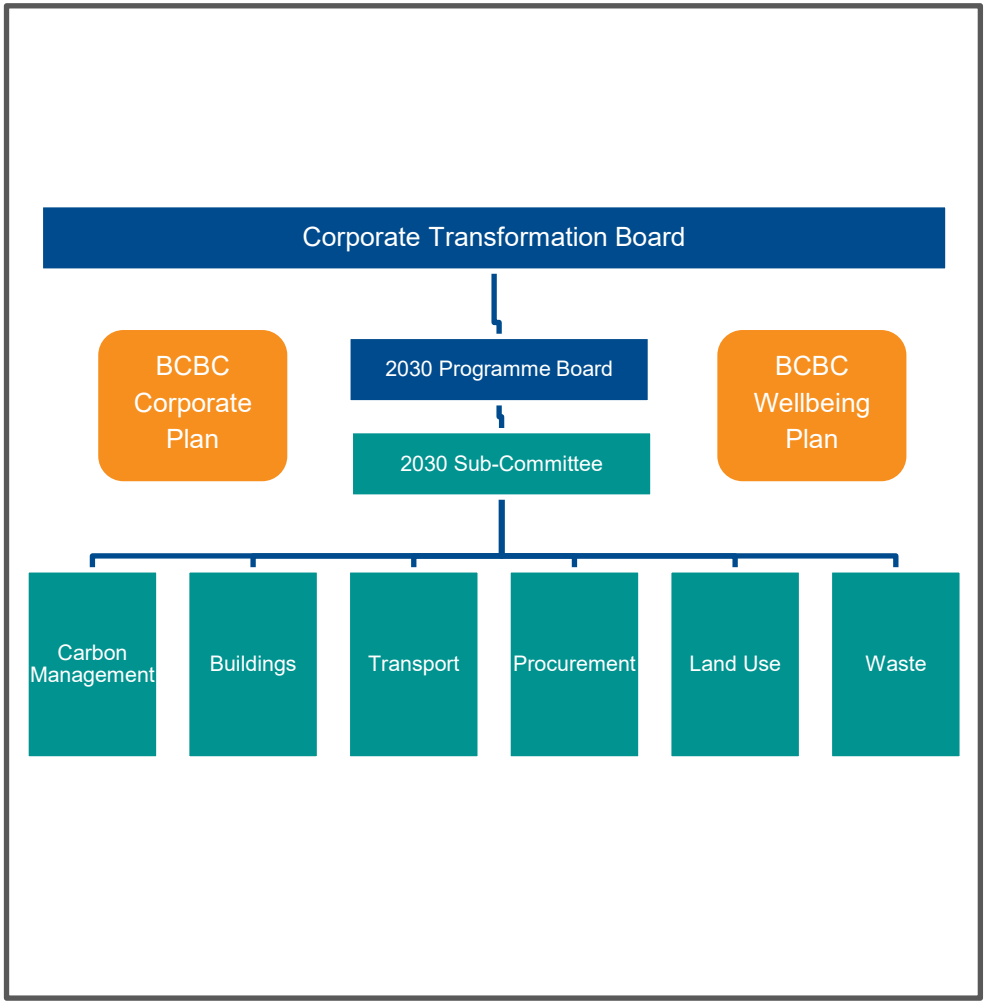
The 2030 Net Zero Carbon Strategy maintained the Decarbonisation 2030 Programme Board to oversee and track progress, chaired by the Cabinet Member for Communities and led by the Corporate Director of Communities. The Decarbonisation Programme Manager organises Strategy delivery.

To embed delivery across the Council, the Strategy set out a structure whereby each of the six activity streams – carbon management, buildings, transport, land use, waste and procurement – would be assigned a 'Carbon Lead'. Each stream has an associated action plan that is the Carbon Lead's responsibility.

The Strategy also envisioned a 2030 Steering Group, chaired by the Decarbonisation Programme Manager, where Carbon Leads could meet regularly and collaborate across the decarbonisation programme.

The current Carbon Lead appointments are:

- Carbon Management – Group Manager, Economy, Natural Resources and Sustainability
- Buildings – Group Manager, Corporate Landlord
- Transport – Group Manager, Highways & Green Spaces
- Waste – Head of Operations, Community Services
- Procurement – Corporate Procurement Manager
- Land Use – Climate Change Response Manager



3.2 CARBON LEAD ENGAGEMENT CONCLUSIONS

The Strategy's governance arrangements, established to oversee and deliver Bridgend's Net Zero ambition, have been identified as a key area for review. The Carbon Trust undertook half-hour interviews with all six Carbon Leads to evaluate the governance arrangements and/or adjust objectives for the Carbon Leads and implementation-focussed staff. The interviews generated the following conclusions:

1. SENIOR CARBON LEADS HAVE COMPETING PRIORITIES

All the Carbon Leads acknowledged that they have too many competing priorities to drive delivery. This was stressed particularly for the Waste, Carbon Management and Transport Carbon Leads. For Procurement, though the Lead is the most appropriate officer for the position, they lack the necessary staff resource to drive delivery.

2. SOME STREAMS CUT ACROSS MULTIPLE SERVICE AREAS

Two of the Carbon Lead activity streams – Transport and Carbon Management – cut across multiple service areas. For example, Transport cuts across Human Resources (e.g. initiatives T1, T2, T3, T4) and Social Care/ Education (T5, T6, T7). Having one Carbon Lead across service areas is proving ineffective. Conversely, in streams with management across one service area, such as Buildings, the individual Carbon Lead role works well.

3. LEGISLATIVE REQUIREMENTS ARE THE MAIN DELIVERY DRIVER FOR SOME STREAMS

In the Waste and Land Use activity streams, it was noted that the primary delivery driver is not the Strategy but other legislative requirements. Waste actions are driven primarily by the Workplace Recycling regulations, adopted in April 2024 and Bridgend's Local Development Plan 2018-2033, adopted in March 2024, is the main driver of land use activity.

4. THE PROGRAMME BOARD AGENDA HAS BECOME DISCONNECTED FROM THE STRATEGY

Some interviewees discussed the role of the Programme Board. One noted that as the Carbon Lead structure has failed to deliver, the Board agenda has been less connected to the Strategy actions. Another echoed this point and noted that there is a lack of clarity on how the work of the Carbon Leads feeds into the bigger picture and connects to the Strategy. Progress linked to the Strategy is no longer routinely reviewed and benchmarked.

5. DIFFICULTY EMBEDDING THE STRATEGY WITHIN THE COUNCIL

The Carbon Management action plan contains several actions relating to staff communication and engagement, job descriptions and training for council officers and/or councillors, in order to embed the Strategy within the Council. Collaboration with Human Resources has been difficult and there have been unforeseen complexities, for example, the need to consult with the Unions to include carbon reduction in staff job descriptions.

Furthermore, opportunities to promote ownership of the decarbonisation agenda amongst the wider elected membership could be more fully explored.

3.3 MOBILISATION AND MANAGEMENT RECOMMENDATIONS

Following the conclusion of the Carbon Lead interviews, review of the previous Strategy and discussions with the Decarbonisation Programme Manager, we recommend that, instead of having six individuals responsible for each activity stream, for some areas responsibility is spread across a 'Community of Practice' (CoP), a group with representatives across different, relevant service areas. Table 8 below summarises the key principles for each approach.

We recommend that the Waste activity stream does not have a dedicated Lead or Community of Practice because Council waste management will be driven by national legislation. Some Council waste actions, particularly concerning behaviour change and procurement, have been redistributed to those relevant CoPs.

Table 8 – Principles for Mobilising and Managing Activity Streams: Carbon Leads vs Communities of Practice

Carbon Lead Principles	Community of Practice Principles
• Relevant for activity streams that sit within a single service area, e.g. Estates. • The Lead integrates the delivery of the activity stream into pre-existing service area groups/meetings. • Targets and actions must be integrated into the Directorate business plans as part of a BAU workstream. • The Lead project manages the delivery of the targets for the activity stream and reports to the Decarbonisation Programme Manager and the Decarbonisation Programme Board.	• Relevant for activity streams that cut across multiple service areas, e.g. Behaviour change, Procurement and Fleet. • Constitutes a formal group with Terms of Reference, a Chair and a rolling agenda. CoPs should meet every six weeks, the week before the Programme Board. • Members must have the capacity to deliver actions. • The Chair project manages the delivery of the targets for the activity stream and reports to the Decarbonisation Board.

The following sections provide an overview of each activity stream, outlining its scope, membership, and key objectives.

BEHAVIOUR CHANGE COMMUNITY OF PRACTICE

Recommendation: replace the Carbon Management Carbon Lead and Waste Carbon Lead with a Behaviour Change Community of Practice.

This recommendation reflects feedback that officer engagement needs to be prioritised to meet key targets in the Strategy.

Aim: to reduce Council emissions by influencing behaviour change amongst officers.

Objective: to coordinate the delivery and monitoring of actions in the Behaviour Change action plan, with particular focus on:

- Improving the integration of sustainability considerations into Council decision-making.
- Advancing officer engagement and training on climate change in a way that is aligned with the Strategy targets.
- Tracking and improving behaviours that affect sustainability across the council in areas such as commuting, homeworking, Council office waste and procurement.

FLEET COMMUNITY OF PRACTICE

Recommendation: replace the Transport Carbon Lead with a Fleet Community of Practice.

This recommendation reflects feedback that management of the Council's fleet is fractured across multiple service areas, making it difficult for one officer to coordinate the level of collaborative action required.

Aim: to reduce emissions from the Council's fleet.

Objective: to coordinate emissions reduction actions across service areas, prioritising Highways, Waste, Education and Social Care, focussing on:

- Developing a best practice approach for ultra-low emission vehicle (ULEV) technology across the Council's fleet, staff vehicles and public electric vehicle (EV) charging.
- Developing an EV charging infrastructure plan for the estate.
- Prioritise EVs as replacements for Council-owned fleet vehicles.

PROCUREMENT COMMUNITY OF PRACTICE

Recommendation: replace the Procurement Carbon Lead with a Procurement Community of Practice.

This recommendation reflects feedback from the Programme Board presentation that it would help the procurement team to be able to feed into Directorate procurement exercises at an earlier stage.

Recommendation: commit extra resource to the procurement team. With supply chain emissions accounting for 71% of the Council's footprint, this is a priority topic for Council decarbonisation.

Aim: to reduce emissions from the Council's supply chain.

Objectives: to coordinate a more sustainable approach to Directorate procurement exercises and improve the Council's supply chain emissions reporting.

ESTATE CARBON LEAD

Recommendation: replace the Buildings Carbon Lead and Land Use Carbon Lead with a single Estates Carbon Lead. We also recommend integrating the actions into the wider Corporate Landlord Directorate business plan. The Lead will project manage delivery using pre-existing meetings within the Corporate Landlord service area.

This recommendation reflects feedback that the work required for Buildings and Land Use sits centrally within the Corporate Landlord service

area. Combining the previous activity streams into one reflects this and minimises the need for additional time and resource.

Aim: to reduce emissions from the Council's estate.

Objective: to coordinate emission reduction actions within the Corporate Landlord service area, with a particular focus on:

- Managing the ongoing energy and water efficiency retrofit programme across the estate, collating a full asset and condition list of energy-consuming equipment.
- Delivering renewable energy and offsetting opportunities on Council-owned and neighbouring land.

PROGRAMME BOARD AND MANAGEMENT

Recommendation: streamline the Programme Board membership to the Cabinet Member for Climate Change and Environment (Chair), CoP chairs, Leads, Decarbonisation Programme Team, representatives from Finance, Legal, and HR.

Recommendation: revise the Programme Board Terms of Reference to focus only on the Strategy delivery and not the wider Climate Change Response activities, in order to streamline the Programme Board's remit. Responsibility for wider activities should be absorbed elsewhere.

Recommendation: the Council uses its established project management approach. Appendix D provides additional example tools and templates that can be used to track key actions, monitor progress, and support effective coordination across teams.

Aim: streamline board membership and remit to enable officers to prioritise delivery against agreed actions.

4. EMISSIONS PROJECTIONS MODELLING, COST ANALYSIS, AND OFFSETTING APPRAISAL

This chapter presents the updated emissions projections and cost modelling for the recommended decarbonisation actions. It assesses Bridgend Council's progress toward its 2030 Net Zero target, quantifies the emissions reduction potential of proposed initiatives, and estimates associated costs. The analysis also considers the remaining 'gap to target' and introduces offsetting requirements to close this gap.

4.1 EMISSIONS PROJECTIONS MODELLING

In collaboration with the Carbon Trust, the Council has established a baseline for its total carbon emissions in 2019/20, estimated at 67,011 tCO_2e. This figure is based on actual data where available; however, some elements, such as carbon sequestration from natural assets on Council-owned land, could not be quantified at this stage.

It is recognised that fully eliminating carbon emissions from Council operations is unlikely to be feasible – a challenge common to all Local Authorities in Wales. The Council must therefore prioritise emissions reduction as far as possible before relying on offsetting measures to achieve Net Zero.

The emissions remaining after all feasible reductions are referred to as the "Gap to Target." This represents the volume of residual emissions that would need to be offset in order to achieve Net Zero by 2030. Based on the emissions modelling carried out for BCBC, the gap is projected to be 54,656 tCO_2e under a Business as Usual (BAU) scenario. Under the Initiatives scenario – where the Council implements the proposed emissions reduction measures the gap is reduced to 36,996 tCO_2e. This is illustrated in Figure 6, which shows the total emissions projections for the Council from 2019/20 to 2029/30.

The Business as Usual (BAU) scenario models the Council's projected emissions in 2030, assuming no significant changes in operational activity compared to the baseline year.

It incorporates anticipated external decarbonisation trends, such as reductions in emissions from the national electricity grid and supply chains, but assumes that the Council's internal activity levels (e.g. energy use, travel, and procurement) remain consistent with current patterns.

- The Initiatives scenario builds on the BAU projection by modelling the combined impact of external decarbonisation and the implementation of the actions outlined earlier in this report. These actions include measures to reduce energy demand, switch to lower-carbon fuels, and improve efficiency across buildings, fleet, and procurement activities.

The calculation spreadsheets have been handed over to the project team to support further review and consultation.

Figures 7, 8, and 9 break down the total emissions projections shown in Figure 6, outlining decarbonisation pathways for supply chain, buildings, fleet, business travel, commuting and homeworking emissions, respectively. These provide a more detailed view of the modelling undertaken as part of this Strategy. The Council recognises that additional, more granular 'bottom-up' modelling will be required as it continues its journey toward Net Zero by 2030.

Figure 6 – BCBC total emissions projections from the baseline year (2019/20) to 2030 under Business as Usual and Initiatives scenarios

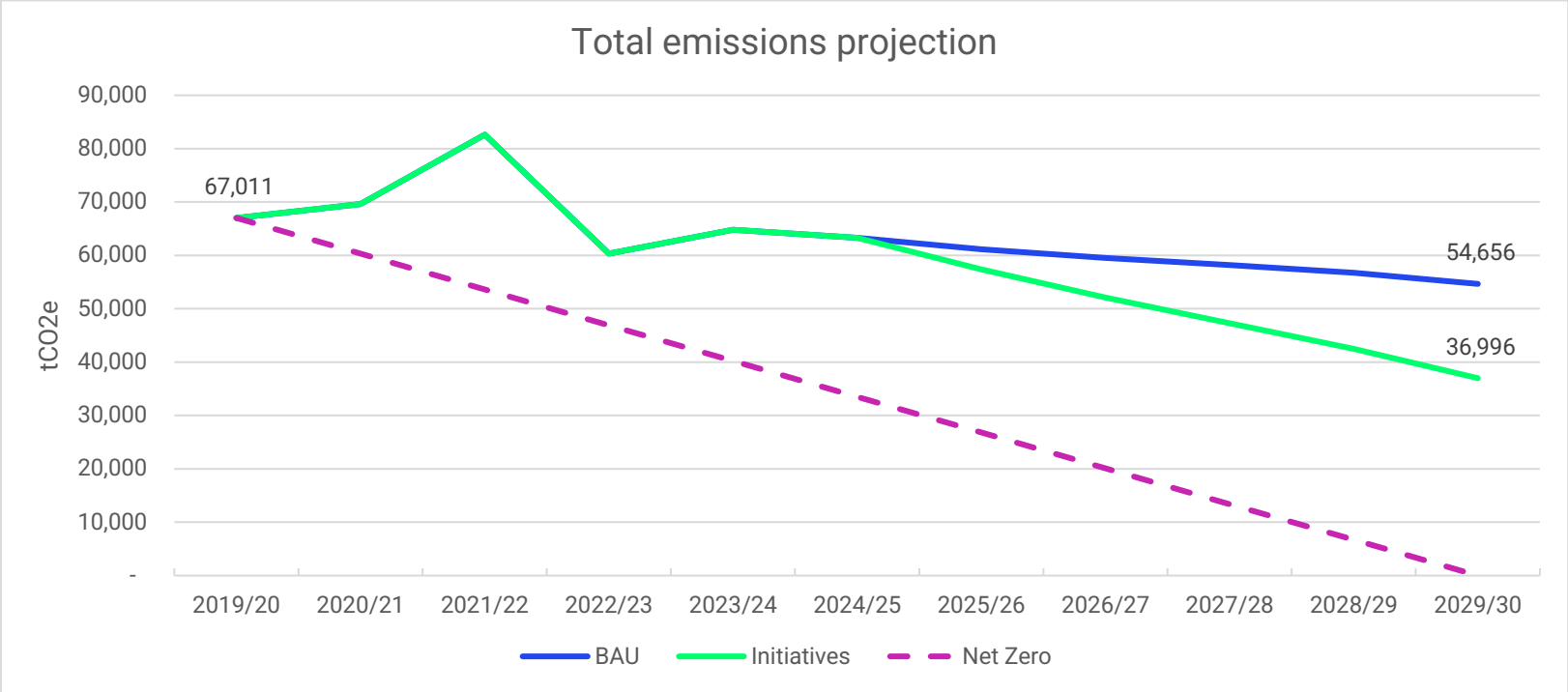


Figure 7 – BCBC buildings emissions projections from the baseline year (2019/20) to 2030 under Business as Usual and Initiatives scenarios

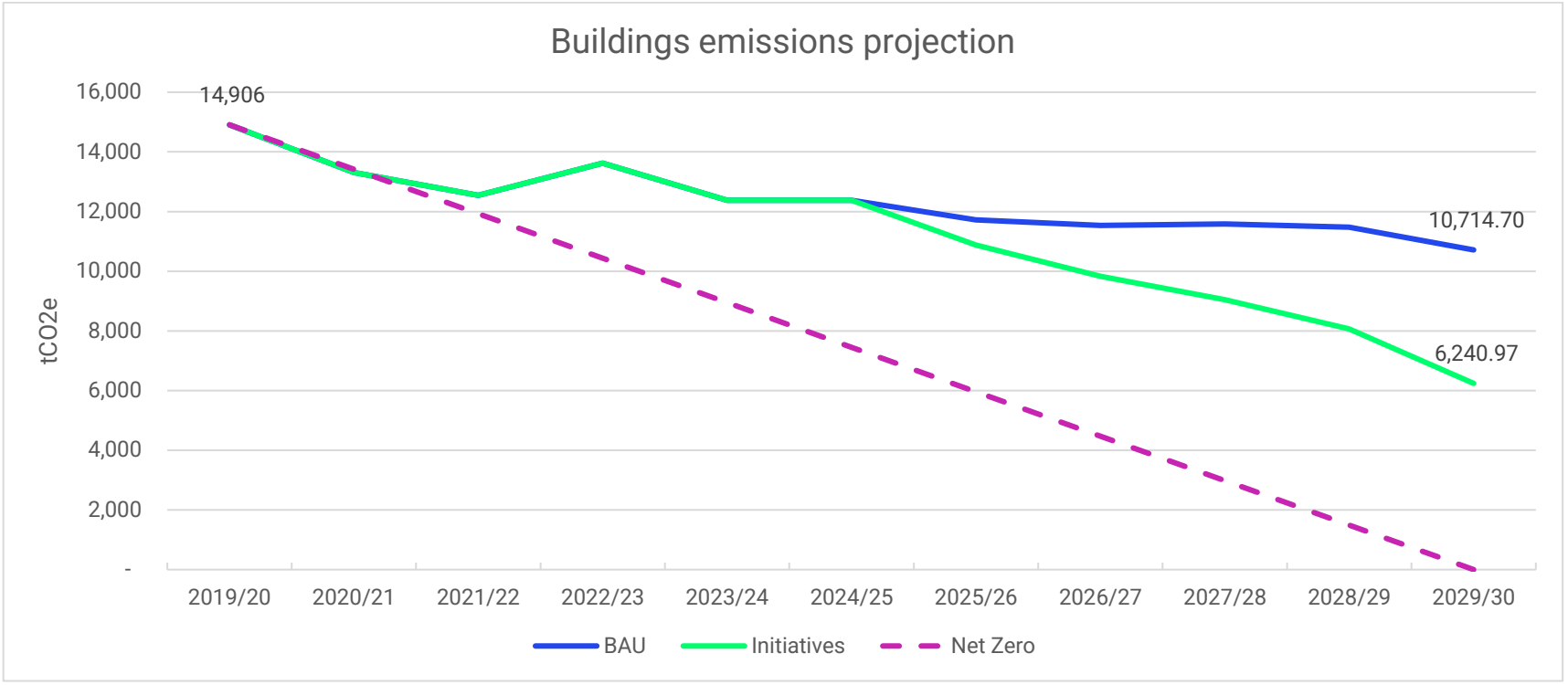


Figure 8 – BCBC Procurement emissions projections from the baseline year (2019/20) to 2030 under Business as Usual and Initiatives scenarios

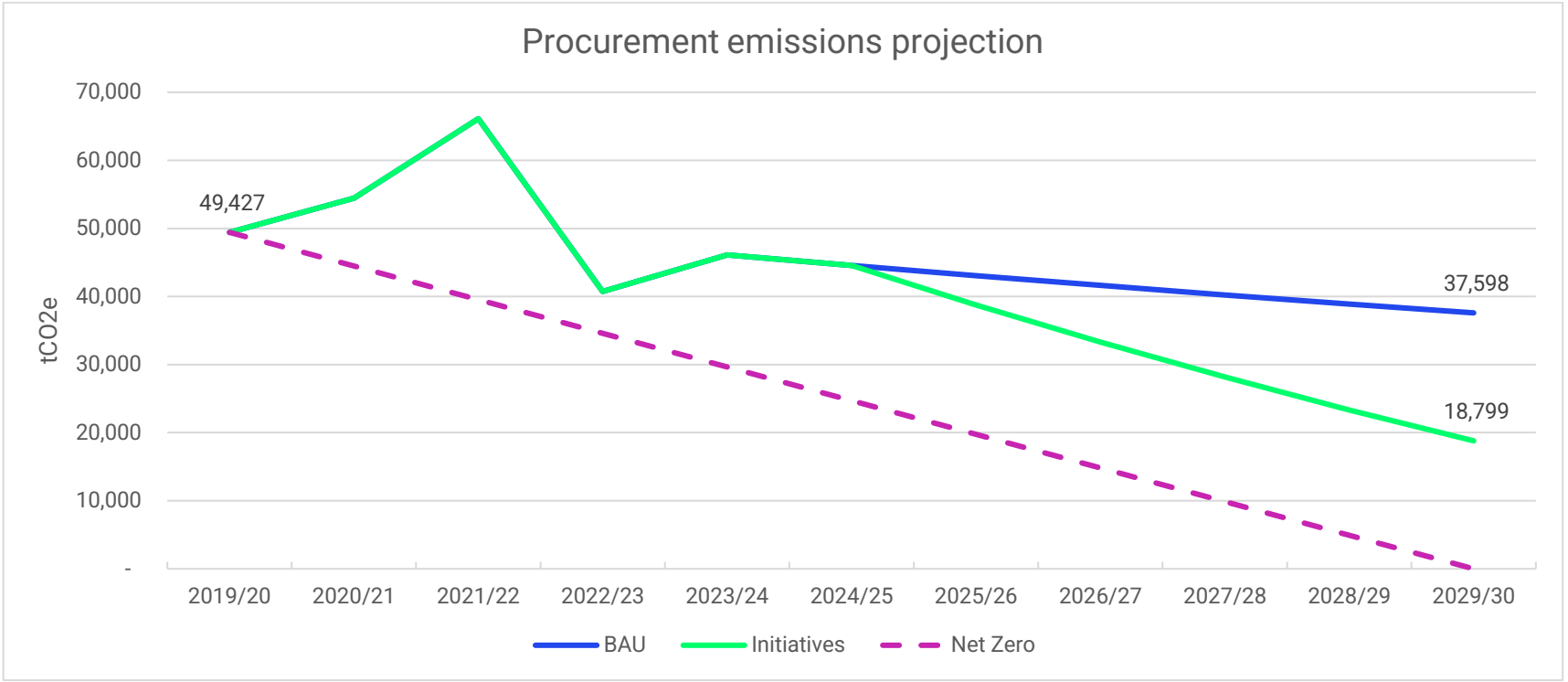
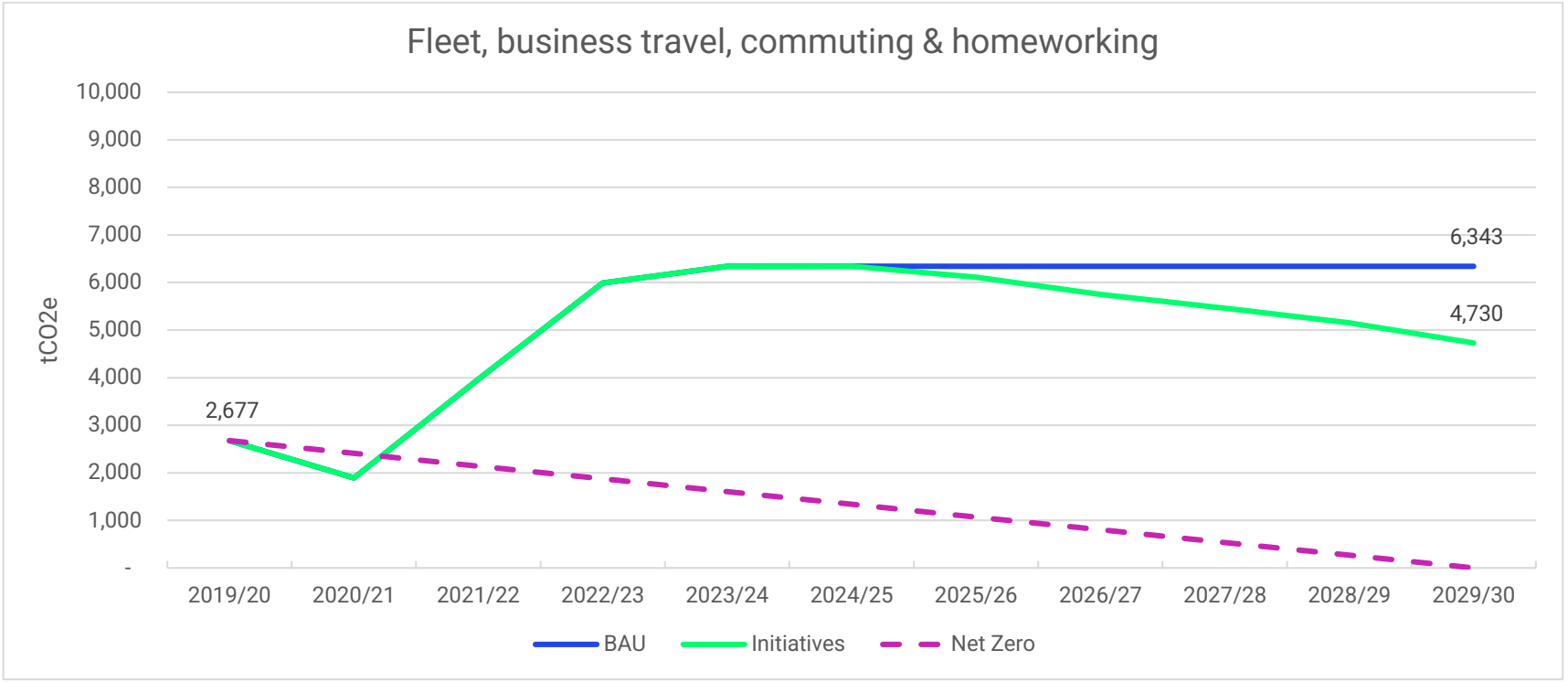


Figure 9 – BCBC -Fleet, Business Travel, Commuting & Homeworking emissions projections from the baseline year (2019/20) to 2030 under Business as Usual and Initiatives scenarios



4.2 COST ANALYSIS

As part of this analysis, the Carbon Trust carried out a cost modelling exercise to estimate the investment required to implement the proposed decarbonisation measures. The total cost of delivering all initiatives has been estimated at approximately £109,650,000.

This estimate is based on the Carbon Trust and Welsh Government Energy Service's (WGES) best understanding of current market conditions and available technologies. However, as the projections span several years, actual costs may fluctuate significantly depending on future policy developments, inflation, supply chain dynamics, and wider market uncertainties.

Cost estimates have been developed and refined in consultation with the project team. It is important to note that this is not a differential cost analysis – it does not compare the cost of implementing low-carbon technologies against like-for-like replacements. A significant portion of the estimated cost (~80%) relates to assets such as heating systems and vehicles that would require replacement regardless. Total like-for-like replacement costs for these items amount to an estimate of £39-48 million, roughly 35-44% of the total £109.65 million. The figures presented here therefore reflect the estimated investment required to implement the low-carbon measures, rather than the net additional cost compared to business-as-usual replacements.

cost modelling exercise to estimate the investment required to implement the proposed decarbonisation measures. The total cost of delivering all initiatives has been estimated at approximately £109,650,000.

While the total estimated cost of £109.65 million may appear significant, it should be considered in the context of long-term asset renewal, opportunities for external funding, and the Council's strategic commitment to achieving Net Zero. These investments are expected to be phased over time and aligned with existing capital and operational programmes.

Additionally, this is not a whole-life cost analysis. For example, replacing diesel vehicles with electric alternatives may result in different long-term operational costs, which are not reflected in this estimate.

The £109.65 million figure also does not represent capital costs alone. Some elements could be funded through external grants or integrated within ongoing Council budgets.

Please see Appendix F for a detailed breakdown of cost assumptions and methodology.

4.3 OFFSETTING APPRAISAL

Currently, there is no defined approach to the creation or purchase of verified carbon credits by Welsh public sector bodies in the Welsh Public Sector Net Zero Reporting guidance. This is to encourage the prioritisation of mitigation efforts and minimise the need for offsets. Welsh public sector bodies can currently submit emissions data from land use and agriculture, which are reported separately to the total footprint as 'Out of Scope' emissions. This is in keeping with guidance under the GHG Protocol.

The question of how Welsh public sector bodies approach offsetting will be addressed in the pending review of the 2030 Net Zero ambition, noted in Section 1.1: Introduction.

The below appraisal intends to provide an overview of the voluntary carbon market and provide BCBC with estimated costs for offsetting in relation to their modelled gap to target.

OFFSETTING TECHNOLOGIES

Carbon offsetting is a broad term that refers to reducing GHG emissions or increasing carbon storage to compensate for emissions that occur elsewhere. This involves buying/supporting emission reduction or removal enhancement projects outside an organisation's GHG inventory boundary. There are four overall categorisations of offsetting outlined in Table 9.

Several technologies can claim carbon offsets, though technological readiness levels (TRL) and costs vary substantially. Established technologies, such as energy efficiency, renewable energy and nature-based solutions, have dominated the voluntary offset market due to their commercial readiness and affordability.

However, concerns over the additionality of renewable energy projects and competing land uses for nature-based solutions are valid and require careful management. Newer removal technologies are emerging with high scale-up and offsetting potential. However, they are currently scarce, expensive and resource-intensive.

Furthermore, offsets must increasingly prioritise durable technologies. Biological storage methods, such as afforestation or habitat restoration, have a higher risk of storage reversal, as land use demands fluctuate with economic and political pressures. Geological storage methods, such as enhanced weathering, offer a low risk of storage reversal on millennial timescales.

Table 9 – Categories of carbon offsetting technologies

Nature-Based	**Avoided nature loss:** Limits the loss of nature, such as forests and peatlands, which currently sequester large amounts of carbon.	**Nature-based sequestration:** Uses nature to sequester more carbon in the biosphere, including reforestation/afforestation and restoring soil, seagrass and peatlands.
Technology-based	**'Additional' emissions avoidance/reduction:** Reduces emissions from current sources that don't have the financial incentive or regulatory requirements to decarbonise (e.g. renewable energy and energy efficiency).	**Technology-based removal:** Removes CO_2 from the atmosphere using technological methods and stores it in the geosphere or through other secure methods such as concrete (e.g. Construction using renewable timber)
	Avoidance/reduction	Removal/sequestration

Table 10 presents indicative cost ranges and technological maturity levels (TRLs) for several carbon offsetting solutions, drawing on data from global voluntary carbon markets. The cost of a carbon offset credit is influenced by several factors, including the quality and verification of the project, location and market dynamics. These values are not applicable as domestic implementation prices; instead, they represent the costs available on the global carbon markets.

Offset costs are typically calculated by dividing the total lifetime cost of a project by the total amount of CO_2 it is expected to avoid or remove. The cost element includes capital and operational costs, potential co-benefits or revenue streams (e.g. timber sales, energy savings), and sometimes financing assumptions.

Importantly, the lowest cost offset options, such as renewable energy and efficiency projects, are mature technologies with well-established benefits and limited barriers to implementation. Their low cost reflects both economies of scale and the fact that they are often already viable without carbon finance. However, this also raises concerns about additionality: these projects might have proceeded regardless of carbon market incentives. In contrast, engineered removals like DACCS or BECCS are at earlier stages of deployment, with higher costs reflecting the complexity and energy intensity of the technologies involved.

It is worth noting that while the cost of fully decarbonising an organisation's operations can be substantial, offsetting the same volume of emissions through the voluntary carbon market may initially appear significantly more affordable - particularly when using lower-cost options such as renewable energy or energy efficiency projects, which can offer credits at just a few pounds per tonne.

However, this apparent cost advantage should not be interpreted as a reason to *replace* internal decarbonisation with offsetting, for reasons already discussed around international costs and additionality concerns. Furthermore:

- Offsetting does not deliver the same long-term value or control as internal measures. Upgrades to energy systems, buildings, or operations can reduce long-term operating costs, improve resilience to energy price shocks, and enhance the organisation's reputation and regulatory alignment.
- Most importantly, a credible Net Zero strategy must prioritise cutting emissions at source wherever technically and financially feasible. Offsetting is a tool to address the "residual" emissions that cannot yet be eliminated, *not* a substitute for action.

While a sole offsetting approach might seem cheaper on a per-tonne basis, it fails to deliver the deeper benefits of direct decarbonisation and poses greater long-term risk, reputationally and operationally. It also underscores the importance of following the mitigation hierarchy: reduce emissions at source wherever feasible and use offsetting only for the hardest-to-abate residuals.

Table 10 – Carbon offsetting technologies appraisal

Technology	TRL	Storage longevity (years)	£/ tCO_2e	Gap to target (£)
Renewable energy	9	N/A	1 - 4	37k - 148k
Energy efficiency/ fuel switching	9	N/A	2 - 5	74k - 185k
Afforestation	8-9	10-100	2 - 25	74k - 850k
Enhanced weathering	1-5	10,000+	35 - 400	1.4M - 14M
Bioenergy with CCS (BECCS)	4-7	10,000+	75 - 250	2.8M - 8.5M
Wetland/peatland restoration	5-6	10-100	7 - 75	259k - 2.8M
Direct air CCS (DACCS)	5-7	10,000+	150 - 450	5.5M - 17M
Biochar	3-6	100-1,000	0 - 150	0 - 5.7M

TRL Source: Adaptation from The Royal Society and Royal Academy of Engineering, Royal Society greenhouse gas removal report, 2018
Costs Source: i) https://netzeroclimate.org/greenhouse-gas-removal/, ii) https://www.ecosystemmarketplace.com/carbon-markets/em-data-dashboard

OFFSETTING STANDARDS AND FRAMEWORKS

Organisations should align with credible Net Zero standards and frameworks where available and applicable. Both the SBTi Net Zero corporate standard and the Oxford Principles for Net Zero Aligned Carbon Offsetting outline comprehensive approaches to offsetting that are relevant to BCBC.

There are slight variations between these two standards. However, they are broadly aligned across three key areas, which set out how an organisation's offsetting Strategy should evolve to be considered Net Zero aligned.

1. Cut emissions and use high-quality offsets

Emission reductions should be prioritised to minimise reliance on offsets. Where offsets are used, they must be high quality, representing real, additional, and verifiable climate benefits. To ensure this, organisations should source credits from projects that are independently certified under recognised offset standards, such as the Gold Standard, Verra's Verified Carbon Standard (VCS), or Climate Action Reserve. These certification schemes apply robust methodologies and verification processes to assess project performance, permanence, and additionality.

Certification provides assurance that offsets are not only environmentally credible but also tracked and accounted for transparently. It helps prevent issues such as double counting and over-crediting. In addition, initiatives

such as the Voluntary Carbon Markets Integrity Initiative (VCMI) and the Integrity Council for the Voluntary Carbon Market (ICVCM) are emerging to support the broader integrity of carbon markets, offering guidance on how offsets can be credibly used as part of corporate climate strategies.

Aligning an offsetting portfolio with these standards strengthens transparency and trust.

2. **Shift to carbon removal offsetting**

To ensure compatibility with the Paris Agreement, offset users should increase the portion of offsets that come from carbon removals. By 2050, 100% of offsets should be sourced from emission removals.

3. **Shift to long-lived storage**

Transition to methods of carbon removal that have a low risk of reversal over centuries to millennia, for example, storing CO2 in geological reservoirs or mineralising carbon into stable forms.

OFFSETTING APPROACHES

There are two main approaches for BCBC to offset their residual emissions: within or beyond their sphere of influence. In the context of this report, sphere of influence could refer to the geographic area of Bridgend.

Offsetting within an organisation's sphere of influence is sometimes referred to as insetting, which can be categorised in the same way as offsets (i.e., emission avoidance or emission removal). Insetting is still a relatively recent concept for which there is no universal definition or standard, and definitions are expected to continue evolving as an agreed methodology to account for emission reductions/removal enhancements is developed.

Offsetting beyond an organisation's sphere of influence can be viewed as analogous to buying offset credits on global carbon offset markets.

Table 11 outlines the key benefits and considerations of offsetting within versus beyond the organisation's sphere of influence.

While there are several considerations, we recommend that organisations prioritise offsetting within their sphere of influence before purchasing credits beyond their influence. This is particularly relevant for local authorities, such as BCBC, where co-benefits and influence can be maximised.

Locality, while providing benefits, invariably increases the resource requirements on the insetting entity and should not be undertaken unless projects can be appropriately implemented and monitored.

There are a number of standards and accounting rules in developments that will guide how companies should record insets (especially carbon removals), however, in the meantime organisations should act as transparently as possible to ensure reported insets are credible. Third-party validation of any scheme could also be considered to ensure robust procedures are being followed.

Table 11 – Comparison of local and global offsetting approaches

	Local – Offsetting within sphere of influence	Global – Offsetting beyond sphere of influence
Benefits	• Strengthens supply chain and community relations with benefits from the resulting projects (e.g., environmental restoration, increased climate resilience, improved air quality), benefitting the stakeholders and communities engaged with the entity. • Benefits can be more easily communicated to stakeholders. • Greater control, oversight and transparency over projects and the ability to self-verify the project's credentials.	• Minimal work on behalf of the organisation required for measuring and verifying carbon reductions. • High availability with more choices across locations and methods, lowering a) the risk of not achieving offset reductions, and b) costs by allowing developers to use cost-effective methods. • "Global issue requires global solutions" – 1tCO_2e carbon offset locally is analogous to 1tCO_2e internationally.
Considerations	• Requires additional resource input from the organisation (inc. upskilling) and active management to ensure carbon reductions and/or removals are achieved and meet robust standards. • Measuring and verifying offsets can be complex and reporting standards and guidance is currently under development. • Inherently restricted to the type, size, and number of projects that can be implemented, increasing the risk of not meeting an offset target.	• The market infrastructure required to ensure quality offsets is not yet fully developed, and there are doubts over the credibility of many credits on the market today. The offsetting organisation also has little-to-no oversight over the quality and delivery of offsets. • Exposed to market dynamics (e.g., increasing credit prices, credit supply). • More difficult to communicate benefits to stakeholders.

5 APPENDICES

APPENDIX A: LIST OF REVIEWED DOCUMENTS AND STAKEHOLDERS ENGAGED

Documents reviewed	Stakeholders engaged
• 2030 Net Zero Strategy Action Planning 2023-24 outcome (excel) • 2024-25 Action Plan (excel) • Final BCBC Carbon Reduction Audit Report Issued (PDF) • Final Energy Efficiency & Monitoring Audit Report Issued (PDF) • Final Management Action Plan – Energy Efficiency Monitoring Issued (PDF) • Commissioning Form v03 27th September (Word doc) • WGES Net Zero Reporting results, 2020-2024 (Power BI) • Socially Responsible Procurement Strategy	• Decarbonisation Programme Manager • Decarbonisation Programme Officer • Group Manager, Economy, Natural Resources & Sustainability (Carbon Management Carbon Lead) • Group Manager, Corporate Landlord (Buildings Carbon Lead) • Group Manager, Highways & Green Spaces (Transport Carbon Lead) • Corporate Procurement Manager (Procurement Carbon Lead) • Climate Change Response Manager (Land Use Carbon Lead) • Head of Operations, Community Services (Waste Carbon Lead) • Energy Manager • Decarbonisation Programme Board members • Overview and Scrutiny Committee members

APPENDIX B: ACTION SCORING METHODOLOGY

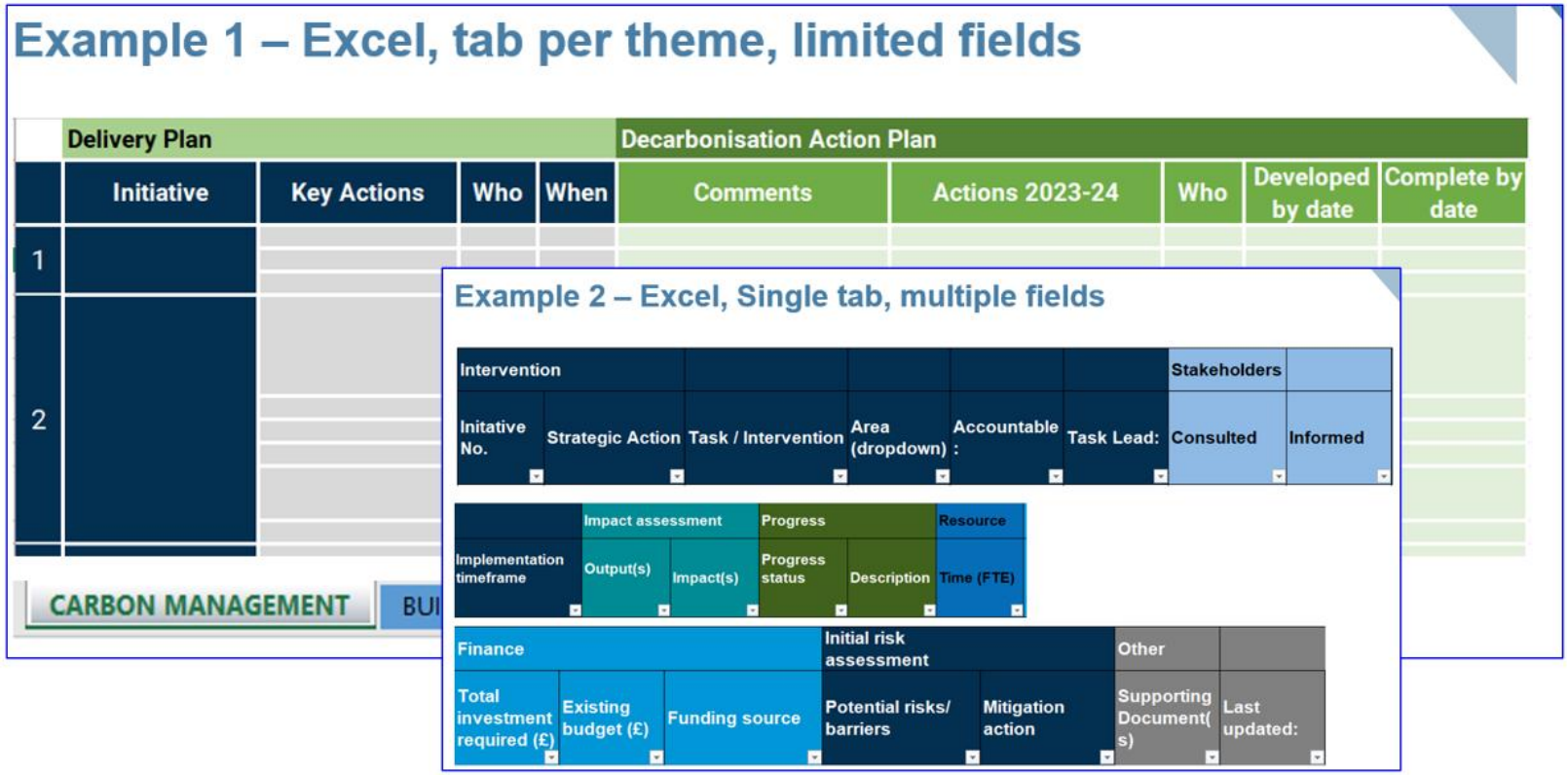
Minimal progress	Developing progress	Moderate progress	Advanced progress	Sector-leading progress
1	2	3	4	5
BCBC has made no or minimal progress since the previous Strategy.	BCBC has begun making basic progress since the previous Strategy.	BCBC has made moderate progress since the previous Strategy.	BCBC has made advanced progress since the previous Strategy.	BCBC has made exemplary progress since the previous Strategy.
Minimal or no policies and procedures are in place. The impact of existing policies and procedures is minimal or unknown. Minimal or no initiatives or projects.	Some policies and procedures are in place. Buy-in is restricted to those already interested and involved in the strategy. Monitoring the impact of policies and procedures is still in development. A couple of existing initiatives and projects have begun resulting in some improvements.	Comprehensive policies and strategies are in place, with buy-in from multiple departments across BCBC. Regular reviews and updates of policies to ensure they remain relevant and effective. A few ongoing initiatives and projects with measurable outcomes.	Well-integrated policies and strategies covering all operations, with high levels of engagement and commitment from most of BCBC. Policies and procedures are regularly evaluated and optimised for maximum effectiveness. Numerous successful projects with significant measurable impact.	Policies and procedures are exemplary, serving as best practices for others. Innovative and impactful projects with widespread recognition. Full engagement and leadership from all levels of BCBC.

APPENDIX C: BREAKDOWN OF EMISSION CATEGORIES

	Sum of Total emissions (tCO_2e)				
Year	**Buildings**	**Supply chain**	**Transport**	**Waste**	**Total**
2019/20	11,538	49,427	2,677	3,368	**67,011**
2020/21	11,940	54,432	1,898	1,266	**69,536**
2021/22	11,469	66,118	3,967	1,072	**82,625**
2022/23	12,475	40,748	5,987	1,150	**60,360**
2023/24	11,284	46,107	6,344	1,024	**64,758**
Total	**58,705**	**256,832**	**20,874**	**7,880**	**344,290**

APPENDIX D: EXAMPLE PROJECT MANAGEMENT TOOLS FOR ACTION DELIVERY

This appendix presents example tools for managing delivery of decarbonisation actions. The templates shown are not currently in use by the organisation but are illustrative examples of approaches that could be adapted or adopted to support delivery planning. Example 1 shows a simplified Excel tracker structured by thematic tabs with a limited number of fields, useful for basic action tracking and ownership. Example 2 presents a more detailed single-sheet tracker with multiple fields including finance, risk, stakeholders, and delivery status—better suited to more complex programmes. The screenshots are intended to highlight possible structures and field types. Example 3 (next page) demonstrates a project tracker that links individual actions to a decarbonisation pathway model. It includes forecast and actual savings over time and visualises progress against cumulative carbon reduction targets. This approach helps ensure that individual projects are aligned with strategic emissions goals and can support performance monitoring at a portfolio level.



Example 3 – Excel, project tracker linked to pathway model

Savings to date	Savings to yr end	Savings Forecast to yr end	Spend to date	Spend Forecast to yr end	Savings Missed to date
£4,075	£21,225	£23,975	£3,300	£42,300	£1,000

£ 000s			2022												2023											
Save	Spend	Project	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23
6.5	2.2	xxx		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
2.5	0.0	ddd			0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
3.2	1.1	vvvv					0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.5	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
12.0	25.0	ggg						–	–	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
5.0	10.0	Project 1									–	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
1.0	1.0	Project 2													0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
1.0	1.0	Project 3																		0.1	0.1	0.1	0.1	0.1	0.1	0.1
1.0	1.0	Project 4																				0.1	0.1	0.1	0.1	0.1
1.0	1.0	Project 5																						0.1	0.1	0.1
Monthly Savings Total			0	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Cumulative Savings			0	1	1	2	3	4	5	7	9	11	13	15	17	19	21	23	25	27	29	31	33	35	37	39
Cumulative Forecasted Savings			0	1	1	2	3	4	5	7	9	12	14	16	18	21	24	26	29	32	34	37	40	42	45	48

APPENDIX E: LIST OF UPDATED ACTIONS

BEHAVIOUR CHANGE COMMUNITY OF PRACTICE INITIATIVES

Ref.	Initiative
BC1	Implement a comprehensive sustainability decision-making approach (see, for example, Cornwall Council's doughnut economics) to be included in all council business cases for investment, integrated with the wellbeing of future generations assessment. Integrate carbon costs into the decision-making process.
BC2	Develop an internal engagement plan strategically linked to Strategy initiatives, e.g. upskilling building managers to improve building energy use, educating building managers about the waste hierarchy and educating Directorates and service areas about sustainable procurement practices.
BC3	Continue to expand carbon literacy training for elected members and officers, prioritising officers who will support the delivery of the Strategy.
BC4	Ensure all Leads and members of the Community of Practices have their job descriptions updated to include defined responsibilities relating to the Strategy.
BC5	Utilise the Welsh Government Public Sector Carbon Reporting Guide to report annually the carbon footprints of the Council's operations. This will form the basis for tracking progress against the Net Zero 2030 target.
BC6	The Council will complete a business travel review to appraise the use of staff vehicles, pool cars and public transport across all departments; Council business travel policies will be updated accordingly.
BC7	The Council's staff business travel policy will prioritise the use of virtual meetings, active travel and public transport.
BC8	The Council will undertake a detailed review of staff commuting patterns to better understand the impact on its overall carbon footprint; guidance and incentive schemes will be considered to support staff. Use a staff survey to review commuting patterns and track progress against the Welsh Government's 30% work from home target.

FLEET COMMUNITY OF PRACTICE INITIATIVES

Ref.	Initiative
F1	The Council will oversee the development of a best practice approach for ULEV technology across the Council's own fleet and staff vehicles. The Council will seek support from WGES on ULEV and EV transition planning and implementation.
F2	Develop an EV charging infrastructure network plan for the existing estate, using lessons learnt on progress already made in the Highways team to inform progress in other service areas, with particular focus on social care and education.
F3	EVs will be prioritised as replacements for Council-owned cars and small vans in the short term, with all conforming to ULEV standards by 2028.
F4	All new medium/large freight vehicles procured across the Council after April 2027 will be to the future modern standard of ULEVs.
F5	Review and track fuel used in small plant and equipment to understand their carbon footprint and what assets can be replaced with electric versions.

PROCUREMENT COMMUNITY OF PRACTICE INITIATIVES

Ref.	Initiative
P1	The Council will develop a Sustainable Procurement Code of Practice to include a framework for assessing the sustainability credentials of suppliers at varying contract values and types; this will consider the evolving Welsh Procurement Policy Notes (WPPN).
P2	The Council will aim to engage with and utilise the local and low carbon supply chains whilst maintaining high standards for goods and services. This will be a corporate initiative and not just the responsibility of the procurement team.
P3	The Council will build upon WPPN 06/21 and require carbon management plans/decarbonisation improvement to be demonstrated in the highest carbon impact and strategic contracts by 2026, this will include contracts as they come to be procured associated with 'Transit & Ground Passenger Transport Services' and 'Nursing & Residential Care Services'.
P4	The Council will apply the principles of 'WPPN 12/21 Decarbonisation through Procurement', to an increasing proportion of contracts such that by 2030, all contracts above an agreed value are subject to carbon assessment and reporting.
P5	The Council, through its Economic Development function, will engage with its supply chain to communicate its ambition for Net Zero and the request for suppliers to come on the journey; the Council will share its developing procurement practice, resources for suppliers, and any opportunities for supply chain decarbonisation funding.
P6	The Council will provide a training programme for internal service commissioners by developing best practice and engaging experts; the Council procurement and service commissioners will work in collaboration to champion decarbonisation in the supply chain.

P7	Contract management will be used to oversee decarbonisation progress and carbon accounting in both short- and long-term contracts, this will be overseen by the BCBC Programme Board and reported to Corporate Management Board (CMB) as required.
P8	The Council recognises the need for a regional and national approach and will identify other organisations and forums for collaboration across Wales to help develop its understanding and take note from best practice approaches, particularly regarding how to introduce changes to procurement processes resulting from the Procurement Act 2023, such as the WLGA Procurement Task and Finish Group.
P9	Prioritise enabling a move from Tier 1 to Tier 2 supply chain emissions reporting. Engage with work being done by the Welsh Government Energy Service to develop a supplier contract emissions reporting tool.

ESTATES LEAD INITIATIVES

Ref.	Initiative
E1	The Council will prioritise the completion of a centralised asset register. For each site, the register will include details of the energy system, including a unique system ID, system type and age, historical energy consumption, and records of any decarbonisation works undertaken. For renewable energy assets (e.g. solar farms), the register should also capture generation capacity (kW) and availability (%).
E2	The Council will progress a transformational energy and water efficiency retrofit programme across its estate – every building will have undergone a multi-technology energy efficiency upgrade by 2030.
E3	The Council will undertake and commission surveys to collate a full asset and conditions list of major energy-consuming equipment (e.g. large plant) across its built estate by the end of 2026.
E4	The Council will complete expert low carbon heat studies for all large strategic sites to set the plan to transition away from fossil fuel heat sources.
E5	Decommissioning of traditional boilers will be preferred over replacement, with low carbon heat solutions appraised and prioritised within the business case process.
E6	Legacy lighting will only be replaced with modern LED alternatives; all lighting will be LED by 2030.
E7	All buildings will be assessed to have standardised, effective building management systems including a dedicated central resource to optimise energy use across the built estate on a consistent basis.
E8	The Council will complete surveys to understand the overall viable potential for onsite renewable energy generation across the estate. The council should aim to install as much of this potential by 2030.

E9	The Council will work closely with schools to develop a plan to better deliver carbon reduction in these buildings.
E10	The Council will improve its understanding of all owned land assets to correctly appreciate the levels of carbon sequestration by September 2026 and develop plans to maximise carbon benefits in these areas
E11	The Council will ensure all owned woodland and greenfield areas are maintained in a way to promote enhanced biodiversity and avoid any unnecessary loss of carbon sequestration.
E12	Where large-scale renewable developments are not possible, the Council will prioritise these areas for afforestation/reforestation and biodiversity programmes on its own land.
E13	The Council will undertake an assessment to understand the extent of peatland across its estate; a continual maintenance and regeneration programme will be put in place for any identified areas.
E14	Work with partners to map and review Council-owned land to identify categories that align with the Net Zero Reporting commitment

APPENDIX F: COST ESTIMATE ASSUMPTIONS

The table below presents the cost estimates for the initiatives where indicative capital costs have been calculated.

ID	Initiative	Estimated cost (£)	Calculation rationale and assumptions
B3	The Council will complete expert low carbon heat studies for all large strategic sites to set the plan to transition away from fossil fuel heat sources.	120,000	Estimate £10k a study. 12 sites above 500,000 kWh gas use.
B4	Decommissioning of traditional boilers will be preferred over replacement, with low carbon heat solutions appraised and prioritised within the business case process.	82,700,000	To estimate the scale and cost of a heat pump rollout across the Council's building portfolio, we applied benchmark fossil fuel consumption values based on building types, as defined in CIBSE TM46 (2021). This approach was used in place of actual gas consumption data, following detailed discussions with the Estates team, who requested a methodology that would reflect a more standardised and scalable estimate across the estate. Using this benchmark approach and the total floor area of Council buildings, we estimated annual fossil fuel consumption at 65,750,352 kWh. Based on this figure, the total heat pump capacity required to deliver an equivalent amount of heat is 22,145 kWp (estimating an average boiler efficiency of 80%), or approximately 97.5 Wp/m². Applying a unit cost of £3,735 per kW (data from the LCHG) —which includes equipment, design, enabling works, fabric improvements, installation, commissioning, and DNO costs—the estimated total investment required is approximately £82,700,000.
B5	Legacy lighting will only be replaced with modern LED alternatives; all lighting will be LED by 2030.	1,237,760	Subproject BS3 covers LED installation in six buildings. The installation of LEDs at these sites is currently at the proposal stage. The data for BS3 have been provided by the Energy Manager. From the building estate portfolio, we removed the excluded floor area associated with the BS3 and Refit projects, as we assumed that LED installation at these sites has already been completed. From the remaining floor area, we selected 50%, assuming that 50% has already been replaced. The resulting area is 90,840 m². Based on the BS3 proposal, we estimated that the cost for site surveys and LED installation is £13.60 per m². Therefore, the total estimated cost is 90,840 × £13.60, which is approximately £1,237,760.
B7	The Council will complete surveys to understand the overall viable potential for onsite renewable energy generation across the estate, by 2026 half of this potential should be installed, with the remainder by 2030.	4,900,000	Subproject BS4 covers installation of solar PV in 8 buildings. The installation of PV systems at these sites is currently at the proposal stage. The data for BS4 have been provided by the Energy Manager. From the building estate portfolio, we removed the floor area associated with BS4. From the remaining floor area, we selected 10%, assuming this represents the available roof space suitable for the installation of solar PV. The resulting area is 28,565 m². By selecting a panel model with a characteristic output of 190 W/m², the total installed capacity is estimated at 5,427 kWp. Based on BS4, the average cost of installation is £901.66 per kWp. Therefore, the total estimated cost is 901.66 × 5,427, which is approximately £4,893,626.
BS1	Subproject 1 - BMS Optimisation	3,580,000	We calculated the floor area of the estate where the installation of a BMS is reasonable (schools, offices, etc.). Of these, we considered that in half of them a BMS review has already been undertaken, based on feedback from the Energy Manager. The resulting area is 137,706 m². SPONS rates for office buildings under 5,000 m² with a full BMS installation are £22–26 per m². We considered the highest end of this range. Therefore, the total estimated cost is 137,706 × 26, which is approximately £3,580,361.

BS2	Subproject 2 - Loft insulation	1,105,300	From the EM, we received data on survey costs and roof loft insulation costs. The EM provided costs and savings from proposals for roof loft insulation across 16 buildings. The cost for survey and installation in these 16 buildings is £208,466 (based on costs for Bryn y Cae Care Home, which has already been surveyed and quoted). We then estimated the m² of the remaining estate and assumed that 50% of that area requires loft roof insulation. The resulting area is 128,924 m². Based on Bryn y Cae Care Home data, the cost for the survey is £0.956/m², and the cost for installation is £6/m². Therefore, the estimated cost for loft roof insulation across the remaining estate (excluding the 16 buildings) is £896,823. Adding the cost for the 16 buildings already in the proposal (£208,466), the total estimated cost is: £896,823 + £208,466 = approximately £1,105,300.£
BS3	Subproject 3 - LED lighting (Schools)	5,000,000	From the Energy Manager's (EM) proposal for the eight buildings (schools) already surveyed and quoted, we have the cost estimate for replacing LEDs in these schools. The average cost for LED installation at these sites is £11.10/m². The proposal stated that over the next six years (from April 2024), it is estimated that approximately six buildings could have their lighting replaced each year, resulting in a significant proportion of the total school portfolio being covered. Therefore, we calculated the total cost for this programme — including the eight schools already surveyed and an additional 30 schools over the next five years, 38 schools in total — to be approximately £4,923,624.
BS4	Subproject 4 - Roof solar (existing pipeline)	230,000	The cost was taken from the proposal for the installation of solar PV across eight sites. The project was intended to be funded through the decarbonisation programme budget; however, the available budget has been reduced from £450,000 to £150,000.
BS5	Subproject 5 - LCHG (not successful)	258,000	The cost was taken from the LCHG third round application, which was not funded.
T1	The Council will complete a business travel review to appraise the use of staff vehicles, pool cars and public transport across all departments; Council business travel policies will be updated accordingly.	50,000	The cost was estimated based on typical requirements for this type of work.
T2	The Councils staff business travel policy will prioritise the use of virtual meetings, active travel and public transport.		Integrated above
T3	The Council will undertake a detailed review of staff commuting patterns to better understand the impact on its overall carbon footprint; guidance and incentive schemes will be considered to support staff.	20,000	The cost was estimated based on typical requirements for this type of work
T6	To encourage the transition to an EV fleet the Council will prioritise the development of an EV charging infrastructure network plan for the existing estate.	50,000	The cost was estimated based on typical requirements for this type of work.

T7	EVs will be prioritised as replacements for Council owned cars and small vans in the short term, with all conforming to ULEV standards by 2030.	2,900,000	A total of 93 Council-owned vehicles—comprising 9 cars and 84 light commercial vehicles (LCVs)—have been identified as non-compliant with Ultra-Low Emission Vehicle (ULEV) standards. Replacement cost estimates are based on pricing provided through the Welsh Government Energy Service's EV/EVCI Grant programme, which reflects public procurement rates for bulk orders. These rates are typically lower than retail prices and are considered robust for strategic planning purposes. Following discussions with the project team, a conservative unit cost of £29,100 for cars and £31,300 for vans has been applied, resulting in a total estimated investment of approximately £2.9 million for full vehicle replacement.
T8	All new medium / large freight vehicles procured across the Council after April 2030 will be to the future modern standard of ULEVs.	6,960,000	109 vehicles — comprising 54 medium commercial vehicles (MCVs), 23 heavy goods vehicles (HGVs), and 32 minibuses — are not ultra-low emission vehicles (ULEVs). The average replacement costs are as follows: MCVs: £35,000 each Minibuses: £65,000 each HGVs: £130,000 each
L2	The Council will improve its understanding of all owned land assets to correctly appreciate the levels of carbon sequestration by March 2026 and develop plans to maximise carbon benefits in these areas.	50,000	The cost was estimated based on typical requirements for this type of work
L4	The Council will identify its own and neighbouring land for large-scale renewable developments, primarily solar and wind projects. Private wire connections to owned sites will be prioritised over exporting directly to the grid.	50,000	The cost was estimated based on typical requirements for this type of work
L6	The Council will undertake an assessment to understand the extent of peatland across its estate; a continual maintenance and regeneration programme will be put in place for any identified areas.	30,000	The cost was estimated based on typical requirements for this type of work.
• P2	The Council will aim to engage with and utilise the local and low carbon supply chains whilst maintaining high standards for goods and services.	40,000	The cost was estimated based on typical requirements for this type of work.

P4	The Council will apply the principles of 'WPPN 12/21 Decarbonisation through Procurement', to an increasing proportion of contracts such that by 2030, all contracts above a reasonable threshold are subject to carbon assessment and reporting.	100,000	Assume £20k cost per annum for management and verification.
P7	The Council will provide a training programme for internal service commissioners by developing best practice and engaging experts; the Council procurement and service commissioners will work in collaboration to champion decarbonisation in the supply chain.	50,000	£10k a year up to 2030 to engage experts and run training sessions.
P8	Dedicated resource will be put in place to support the development of the Sustainable Procurement Code of Practice, Socially Responsible Procurement Strategy and ongoing management of decarbonisation through procurement.	225,000	1 FTE @£45k over 5 years.
TOTAL		**109,656,060**	