

Appendix A - Council Carbon Footprint 2022/23

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Executive Summary

Peterborough has the potential to be a truly sustainable city. A city which has a thriving local economy, strong communities and a sustainable way of life. A city where our residents are healthy, happy and prosperous.

We are committed to environmental leadership, climate-conscious decision-making and continuous improvement, and we recognise that to fulfil Peterborough's potential as a sustainable city, we will need to do things differently. If everyone on Earth lived as the average Peterborian, British or European citizen does, we would need nearly three planets' worth of resources to sustain us¹. This means that on average, each of us is using too much of the world's resources to produce the food we eat, to treat the waste we produce, to generate the energy we use, to consume the goods and services we take for granted, and to travel both locally and beyond.

Peterborough City Council has committed to support Peterborough to become a net zero carbon city, reversing the trend of increasing consumption of natural resources and instead putting Peterborough on the road to becoming a truly sustainable city. The council has an important role in place-shaping and in developing a city-wide vision of net zero, but the council also wishes to demonstrate leadership in tackling climate change and has therefore committed to becoming a net zero carbon organisation by 2030.

In order to deliver upon its commitment to reach net zero as an organisation by 2030, the council annually measures its Carbon Footprint and produces an Action Plan to achieve further reductions in greenhouse gas emissions. This year, the council has presented its Carbon Footprint in this report and will utilise this to undertake a fuller exercise to determine the roadmap and associated actions the council will take to reach net zero by 2030. The roadmap is due to be published in Summer 2024.

During the process of calculating this Carbon Footprint, a decision was taken to review and clarify the council's organisational boundaries, which determine what is captured in the council's Carbon Footprint and how this data is classified. The Carbon Footprint reported consists of emissions which the council has operational control over, and therefore can use to generate viable actions to reduce emissions to net zero. A Carbon Footprint Plus has also been proposed which includes emissions such as those arising from purchased goods and services and council-owned buildings which we do not operate. This dataset is incomplete, and so has not been reported. The roadmap to net zero will consist of detailed plans to address emissions in the Carbon Footprint, as well as policies to address emissions in the Carbon Footprint Plus, whilst acknowledging that the full impact of this cannot be measured as full baseline data does not yet exist. As a result of the revisions made, the previously published carbon footprints since the 2018/19 baseline have been recalculated to enable comparison and monitoring of progress.

¹ WWF (2019) EU Overshoot Day. Living beyond nature's limits

In the financial year 2022/23, Peterborough City Council emitted 7,867 tonnes CO₂e, which represents a 28.57% reduction in greenhouse gas emissions relative to the recalculated 2018/19 baseline. 56% of council emissions arise from the energy use in buildings, with 27% from transport. After reductions due to the purchase of green electricity, the council's net emissions come to 7,389 tonnes CO₂e. The council also produced 1,209 MWh of renewable electricity from the solar panels on its buildings.

The council has previously committed to a number of actions to reduce its carbon emissions, and updates on these are provided in the report. Key successes have included securing funding to plant trees, expanding the carbon literacy training offer and the upcoming installation of LED lighting in council buildings.

Climate change

The climate science is undeniable. The impacts of climate breakdown are already causing serious damage around the world. Extreme weather events are likely to occur across Peterborough and beyond, with increasing frequency and severity. Rapid action to address this crisis is needed at international, national, and local levels.

Global climate change commitments

Since the industrial revolution it is estimated that humans have caused global temperatures to increase by 1.1 °C². The Paris Agreement, which has been signed by almost all countries across the world, commits each country to aim to keep global temperatures to a 2 °C rise, aiming for below 1.5 °C. The Intergovernmental Panel on Climate Change (IPCC) Special Report on Global Warming of 1.5 °C describes the enormous harm that a 2 °C average rise in global temperatures is likely to cause compared with a 1.5 °C rise. The United Nations Framework Convention on Climate Change's Conference of Parties (COP) is held annually to ensure that action continues towards the Paris Agreement goals. COP28 was held in Dubai in December 2023, where parties expressed "serious concern that 2023 is set to be the warmest year on record and that impacts from climate change are rapidly accelerating, and emphasis[ed] the need for urgent action and support to keep the 1.5 °C goal within reach and to address the climate crisis in this critical decade"³.

Climate impacts

Global temperatures have increased faster over the past 50 years than at any other time within the past 2000 years, and the impacts of these changes are being seen across the world. In the 2010s, Arctic sea ice was at its lowest level since at least 1850, and global sea levels have risen faster since 1900 than in any other century over the last 3000 years. Each of these scientific observations has high certainty.⁴

The impact of climate change is also being seen locally today. The highest temperature ever recorded in the UK occurred in 2022; temperatures of 39.9°C were recorded at Wittering (the Met Office station closest to Peterborough). Intense periods of rainfall have occurred across Peterborough, frequently flooding sites such as Ferry Meadows, and in December 2020 and July 2021, several properties were flooded internally, impacting people's lives and livelihoods. In the summer of 2022, 8 areas across the UK were declared to be in drought. The latest UK climate projections suggest that the UK climate will continue to warm over the rest of this century and on

² UNFCCC (2023) Outcome of the first global stocktake. Draft decision , p. 3

³ UNFCCC (2023) Outcome of the first global stocktake. Draft decision, p. 2

⁴ Intergovernmental Panel on Climate Change (IPCC) (2021) Climate Change 2021, The Physical Science Basis, Working Group I contribution to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change

average will result in hotter and drier summers, warmer and wetter winter and more extreme weather events expected.

The Cambridgeshire and Peterborough Independent Commission on Climate was established by the Cambridgeshire and Peterborough Combined Authority in 2020. The Commission identified a number of severe climate risks to people, infrastructure and the natural and built environment across the local area. Across the county, nearly one in 10 homes are predicted to face river flooding, with even higher risk in East Peterborough. Paved areas face an increased risk of surface water flooding when met with intense rainfall over short periods of time, while storm surges may cause the Nene to tidal flood. Temperatures above 36°C are likely to occur every 20 years by 2050; overheating may lead to health risks. Drier summers will stretch water resources and impact farming, industry and the natural environment. Warmer and drier summers will also lead to rapid degradation of peatlands, with peatland degradation in turn increasing carbon emissions and making land less suitable for farming.⁵ These predictions demonstrate the need to act urgently to minimise the impact of climate change.

Greenhouse gases

Human activity has accelerated the release of greenhouse gases, which has caused heat to become trapped, resulting in global temperature rises. Solar energy travels from the sun to Earth; some of this energy is reflected back into space, whilst some becomes trapped by greenhouse gases. The greenhouse effect is essential in warming earth to a temperature which can sustain life, but since the industrial revolution, humans have been responsible for releasing unsustainable amounts of greenhouse gases. This has caused more and more heat energy to become trapped and has led to rising global temperatures.

There are four main gases which have contributed to this global temperature rise: carbon dioxide (responsible for 81% of global warming), methane (11%), nitrous oxide (4%) and fluorinated gases (3%). To ensure that global temperatures do not exceed a 2 °C increase, it is essential that these greenhouse gas emissions are limited and that a state of net zero, in which an equal amount of greenhouse gases are captured as those which are emitted, is reached as soon as possible.

Peterborough City Council Commitment

In 2019 Peterborough City Council declared a climate emergency, committing to becoming a net zero carbon organisation by 2030 and to supporting Peterborough to become a net zero carbon city.

In making this declaration the council committed to a wide range of comprehensive actions, including, in summary:

⁵ Cambridgeshire & Peterborough Independent Commission on Climate (2021) Fairness, nature and communities: addressing climate change in Cambridgeshire and Peterborough

- Ensure political and chief officer leadership to embed this priority into work, ensuring all decisions are in line with net zero carbon by 2030.
- Undertake public engagement by establishing a Climate Change Partnership group, proactively involving young people and convening a people's assembly.
- Review budget proposals and determine the environmental impact.
- Use planning powers to deliver net zero carbon new developments and communities.
- Increase tree planting.
- Achieve 100% green energy across the council's full range of functions by 2030 and explore renewable generation and storage.
- Replace all council vehicles with electric or hybrid vehicles including the mayor's car, provide electric vehicle infrastructure and encourage alternatives to private car use across the city.
- Increase the efficiency of buildings and help to address fuel poverty.
- Coordinate events to raise awareness, share best practice and provide information on council activities.
- Call on the UK Government to provide the powers, resources and help with funding to make this possible and ask local MPs to do likewise.

In 2021, Peterborough City Council signed up to the Peterborough Climate Commitment. The council joined organisations across the city who have committed to improve their environmental impact. These organisations, including businesses, schools and charities, agreed to measure, monitor and act to reduce carbon emissions, improve the natural environment and reduce consumption of resources. Peterborough-based organisations are invited to sign up to the Peterborough Climate Commitment and join ongoing efforts towards carbon reduction.

In line with the council's climate commitments, this report provides an update on the council's progress towards its net zero target and will help inform the strategic direction of the council's roadmap to net zero, which is currently under development.

Peterborough City Council's Carbon Footprint

Methodology

Calculating the council's emissions is an essential step in determining the effectiveness of the council's actions and prioritising plans for future decarbonisation. A few key features of Peterborough City Council's approach to carbon footprinting are highlighted below.

1. Emissions are reported in CO₂e

There are four main gases which contribute to global temperature rise: carbon dioxide, methane, nitrous oxide and fluorinated gases. Each greenhouse gas has a different capacity for trapping heat. The amount of each gas produced is multiplied by its Global Warming Potential to calculate a carbon dioxide equivalent (CO₂e) value which allows for easy comparison between greenhouse gas-emitting activities. All data within this document is reported using CO₂e values calculated using UK government conversion factors⁶.

2. Greenhouse gas emissions are reported in three scopes

Scope 1 emissions are those which are released on site. These include emissions from the fuel used in gas boilers and combustion engine vehicles.

Scope 2 emissions are those which are released by purchased energy where the emissions are released offsite. These include emissions from electricity from the national grid.

Scope 3 emissions are those which are released by indirect activities. These can include emissions produced by the goods and services we purchase, by staff travel, by the processing of waste, by the energy used in council-owned buildings we do not operate, by the energy lost through the transmission and distribution of the energy supply system or by a number of other activities.

3. Scope 3 emissions are incomplete

Scope 3 emissions pose a data collection challenge as they are not controlled by the organisation. It is especially difficult to measure the emissions from the goods and services that the organisation purchases, due to the large number of suppliers and the immaturity in emissions reporting seen across many organisations nationally. For goods and services that are purchased from a non-exclusive supplier, there is an added difficulty in assigning emissions to each customer and for materials purchased from sub-contractors there are additional layers of emission reporting required. In addition, the energy use from the buildings which the council owns, but does not operate, is not

⁶ HM Government (2022) Greenhouse gas reporting: conversion factors 2022

fully reported. Due to these challenges, it is understood that not all of the council's scope 3 emissions can be measured currently.

Calculating scope 3 emissions remains a challenge for all organisations, including local authorities. Work is being undertaken in some councils to estimate these emissions, with early outputs indicating that scope 3 activities account for the vast majority of council emissions. Local authorities differ significantly in the activities they have responsibility for and the activities they deliver in house or outsource, but as few local authorities have undertaken this work, a comparator organisation has not yet been identified. However, it is likely that Peterborough City Council's emissions from purchases would also account for a significant proportion of total emissions.

4. Organisational boundaries for the purposes of the Carbon Footprint have been clarified in this update

This version of the council's Carbon Footprint clarifies Peterborough City Council's organisational boundary, which determines which functions and activities are accounted for in its Carbon Footprint. While a complex organisational structure makes defining these boundaries difficult, the council's approach is based on operational control, wherein entities fully operated under control of the council contribute to direct emissions and entities over which the council does not have operational control contribute to indirect emissions.

This approach has led the council to now differentiate between two variations of its carbon footprint: the emissions it has control over (PCC's Carbon Footprint) and the emissions over which it has influence but not control (PCC's Carbon Footprint Plus).

The re-evaluation of the council's organisational boundaries has also had an impact on what has been included and under what scope it is reported. As a result, the carbon footprints from all years since the 2018/19 baseline have been recalculated, to ensure monitoring of emissions is consistent and can be compared with previous years. Any data discrepancies found in prior footprints have also been adjusted.

The incomplete scope 3 emissions from purchased goods and materials and from buildings we own but do not operate count towards the Carbon Footprint Plus. Work will continue to enable increased accurate measurement of these emissions, so PCC Carbon Footprint Plus emissions are likely to rise in future years as data collection improves. The incomplete scope 3 emissions will not contribute to the organisational Carbon Footprint. This will allow accurate monitoring of decarbonisation.

The Carbon Footprint Plus has not been quantified in this report, as the data is incomplete. The council's roadmap to net zero will detail a plan to reduce the Carbon Footprint emissions to net zero by 2030. It will also include activities to reduce the Carbon Footprint Plus, but will set less tangible targets, due to unavailability of the full picture.

The most significant difference between the adjusted Carbon Footprints and those presented in previous years is the exclusion of the emissions from the council’s highways contractor. This exclusion was due to providing consistency across the approach as data for other suppliers is unavailable. Available data from contractors will continue to be collected through the Carbon Footprint Plus.

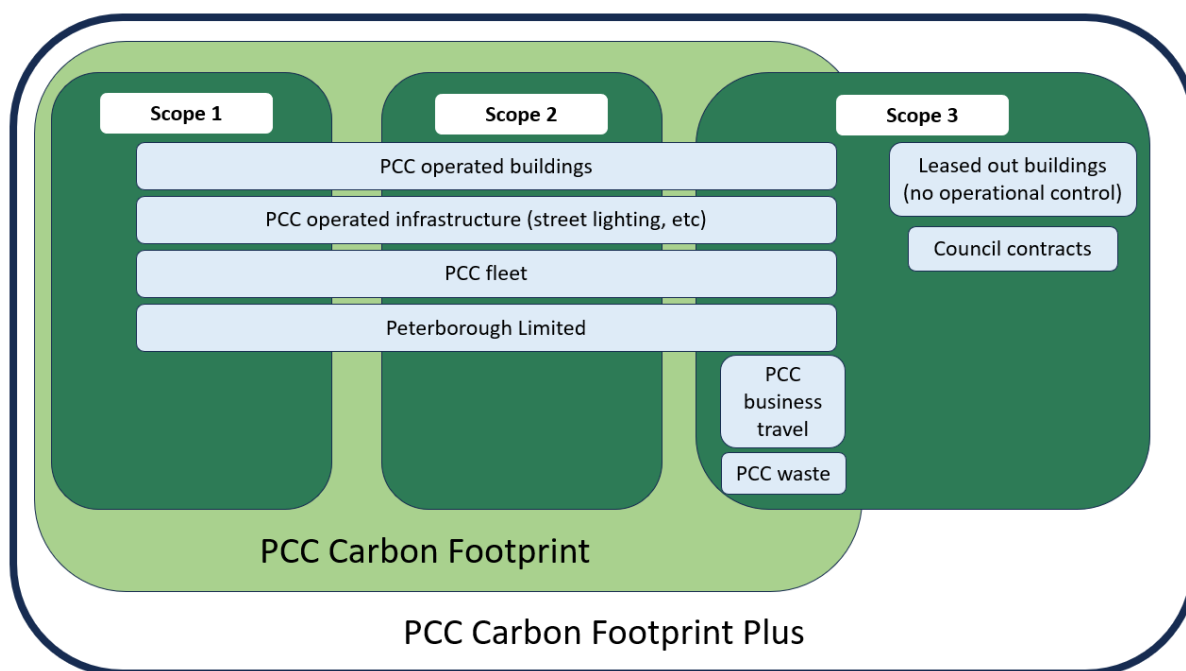


Figure 1: PCC Organisational Boundaries

Further details on these boundaries can be found in Appendix A.

5. Gross emissions and net emissions are reported

In April 2020, the council started to purchase electricity using a green electricity tariff offered by Total Power and Gas. In June 2022, the council’s electricity reverted to the standard electricity tariff.

Regardless of the tariff used, electricity used on council premises is drawn from the national grid, which is produced by a variety of renewable and non-renewable sources. Each year a national electricity grid carbon factor is calculated which reflects the carbon intensity of the electricity used that year. As the contribution of renewable sources has already been factored into calculations, best practice dictates that to avoid double counting any zero carbon electricity, the national electricity

carbon factor should be used to determine the organisation's Carbon Footprint. This approach is termed location-based emissions reporting.

The green tariff electricity purchased by the council from Total Power and Gas is certified by Ofgem under the Renewable Energy Guarantee of Origin scheme. The electricity purchased under this tariff can be matched to zero carbon renewable sources and this reduction in emissions can be reflected in what is known as market-based reporting under which the gross emissions (calculated using the location-based system for electricity reporting) can be offset by reductions owing to purchase of a green electricity tariff. For full transparency of data, both location-based and market-based emissions are reported.

A fuller explanation of the methodology used to calculate the council's Carbon Footprint can be found in appendix A.

6. Estimates and proxies have been used where existing data is limited

There have been a number of data collection challenges in calculating the Carbon Footprint. Where data is unavailable, proxy data has been used, with records kept of the substitution process.

Electricity and gas data held by the council contains a number of irregularities and inconsistencies. Officers have reviewed the data in detail to develop proxies for missing or outlying data and to determine the source of usage where it is unclear, records of this process have been retained. Additional work is required to ensure that these inconsistencies are resolved in future data entry and acquisition processes.

An estimate for waste data has been used based on more recent data. This adjustment is not expected to impact the results of the Carbon Footprint as waste emissions represent less than 1% of the council's overall emissions. Efforts to streamline waste data collection are ongoing.

Due to a change in business travel booking systems, data on passenger travel (including rail) and hotel stays was not collated after December 2022, and so proxy data of calendar year 2022 was used in calculations. Disruption to this data is expected for the next reporting period (2023/24) as well, after which data should again be available.

Council Carbon Footprint 2022/23

The council's Carbon Footprint has been calculated for the year 1st April 2022 to 31st March 2023. The total emissions over this period equals 7,867 tonnes CO₂e.

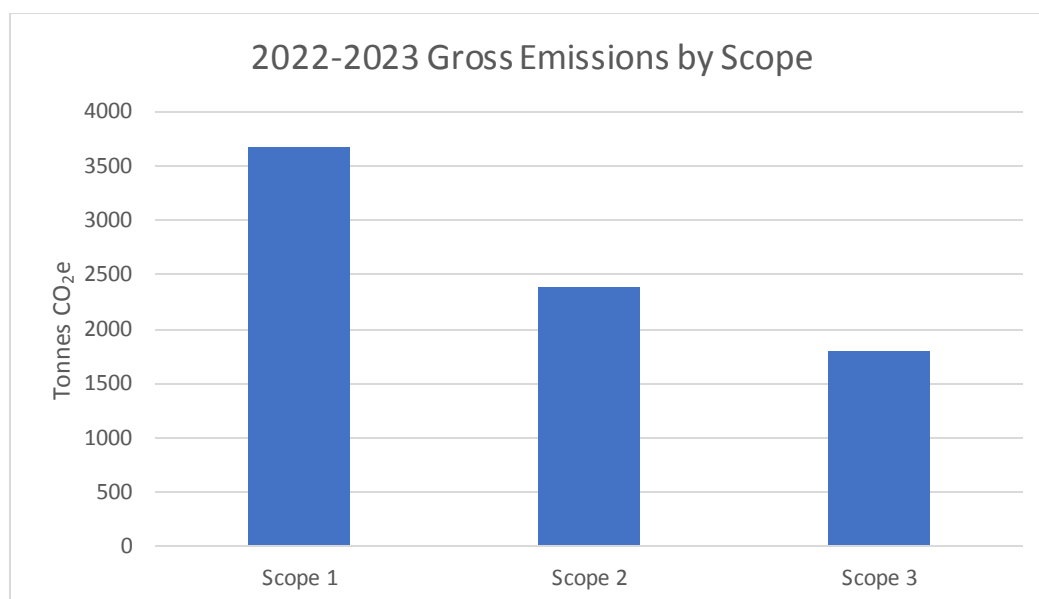


Figure 2: Council Carbon Footprint 2022/23 (gross emissions)

Peterborough City Council has reported its carbon emissions in this manner since 2018/19. Data is shown below for comparison. The data from prior years as listed in this report has been recalculated to ensure consistency of organisational boundaries.

	2018/19	2019/20	2020/21	2021/22	2022/23
Scope 1	3,902	3,803	4,139	3,802	3,675
Scope 2	4,838	3,430	2,526	2,755	2,395
Scope 3	2,275	1,986	1,545	1,977	1,797
Total	11,015	9,219	8,210	8,534	7,867

Table 1: Council Carbon Footprint comparison of years 2018/19, 2019/20, 2020/21, 2021/22 and 2022/23 (tonnes CO₂e)

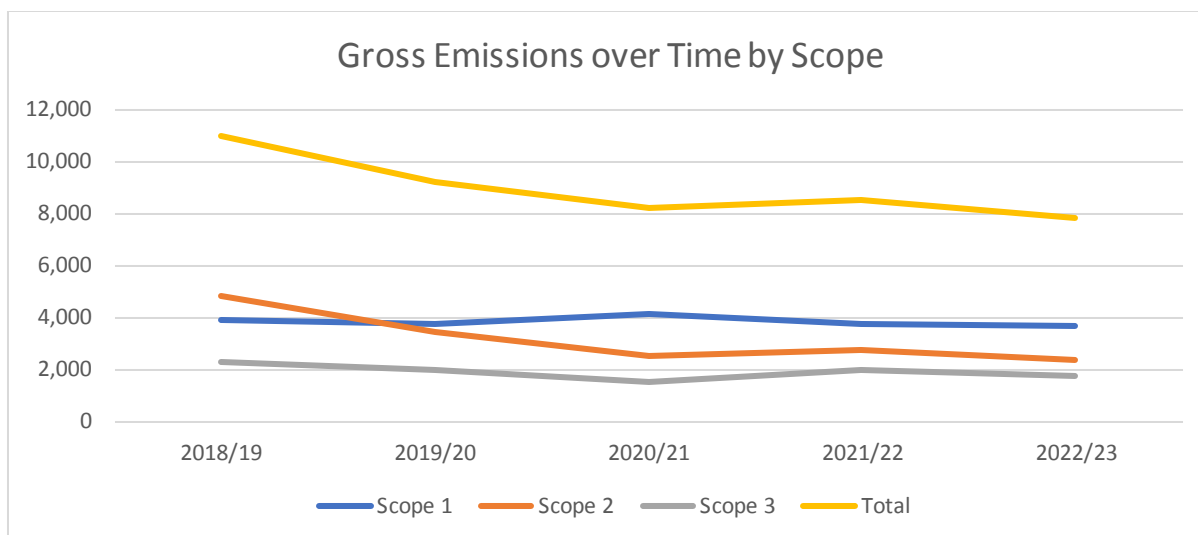


Figure 3: Council Carbon Footprint comparison of years 2018/19, 2019/20, 2020/21, 2021/22 and 2022/23 (tonnes CO₂e)

The data show a steady decrease in the council’s operational emissions. There was a substantial drop in emissions from 2019/20 to 2020/21, covering the period of the greatest impact of the Covid-19 pandemic and lockdown periods, and a corresponding increase in emissions in the 2021/22 year accompanying a re-opening of facilities and return to offices and usual operations. Emissions have once again decreased in the 2022/23 footprint, with highest reductions in scope 2 emissions from electricity. This can be attributed to both reduction in energy use and to decarbonisation of the national grid.

Separating the council’s Carbon Footprint into categories and sources allows a more comprehensive analysis of the data.

	Emissions (tonnes CO ₂ e)	Percentage of total emissions
PCC	3795.99	48.25%
Infrastructure	1358.17	17.26%
Transport	305.24	3.88%
Waste	3.16	0.04%
Buildings	2129.42	27.07%
Peterborough Limited	4071.02	51.75%
Transport	1843.57	23.43%
Buildings	2227.45	28.31%
Grand Total	7867.01	100.00%

Table 2: Breakdown of council emissions 2022/23

Just over half of the PCC Carbon Footprint comes from Peterborough Limited, which is wholly owned by the council. Peterborough Limited operations include energy intensive leisure facilities and a large waste collection, street cleaning and parks maintenance fleet, which account for its large share of PCC emissions.

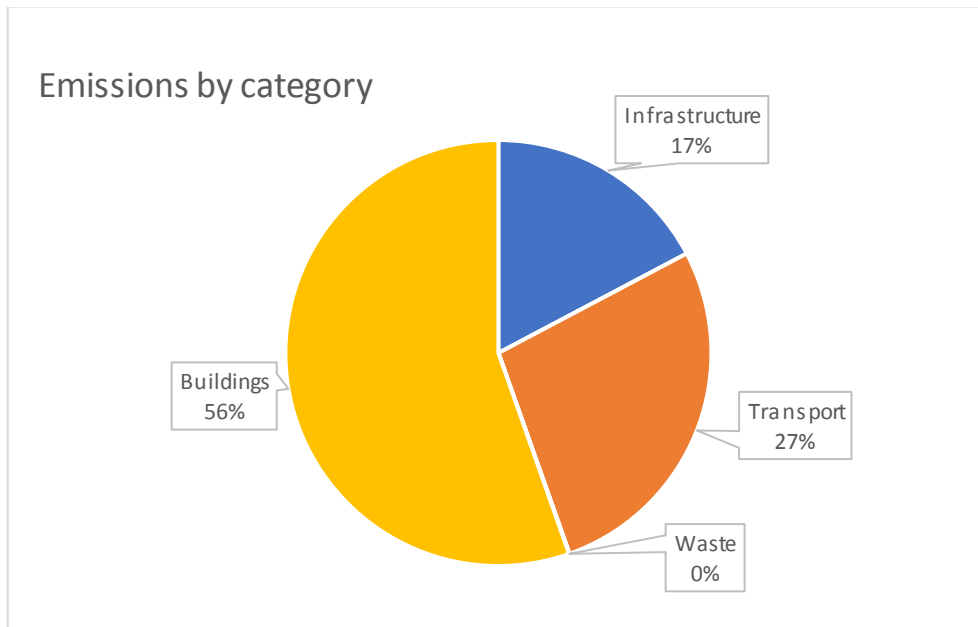


Figure 4: Breakdown of council emissions 2022/23 by category

The operation of buildings is the council’s largest source of emissions with 56% of the total; transport is the second largest source of emissions, with 27% of the total. To better understand the usage associated with this category, a chart of CO₂e emissions by building usage is provided below.

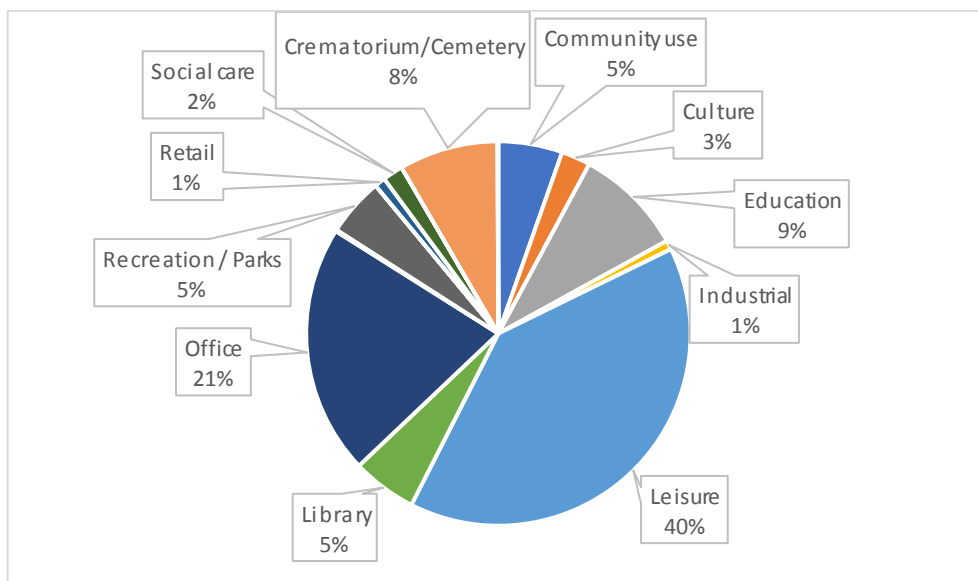


Figure 5: Breakdown of carbon emissions by building usage

Council buildings will be a major focus of the council’s roadmap to net zero in order to address this significant area of the council’s emissions. Heat decarbonisation plans and ongoing energy efficiency improvement work will support the development of this area of the roadmap.

Intensity ratio

Local government responsibilities are often flexible with activities differing over time. These changing activities may affect the amount of greenhouse gas emissions and therefore it can be useful to express carbon emissions as intensity ratios. Intensity ratios express the greenhouse gas impact per unit of spend or per member of staff.

Intensity ratios will be calculated once financial spend for the 2022/23 year have been published.

Green electricity tariff

The above data reports on gross greenhouse gas emissions. Purchasing green electricity, via a green electricity tariff, can be used to reduce net emissions.

In April 2020, the council started to purchase electricity using a green electricity tariff offered by Total Power and Gas for the majority of its electricity meters. The green electricity was certified by Ofgem under the Renewable Energy Guarantee of Origin scheme. The electricity purchased under this tariff can be matched to zero carbon renewable sources, and this reduction in emissions is reflected in market-based reporting. In June 2022, the council’s purchased electricity reverted to a standard electricity tariff. The following graph shows how the reduction in electricity emissions from the green tariff contributes to the overall Carbon Footprint. This reduction is reflected in reduced scope 2 and scope 3 emissions. Using market-based emissions reporting, the net Carbon Footprint of the council is reduced from 7,867 tonnes CO₂e to 7,389 tonnes CO₂e.

	Emissions (tonnes CO ₂ e)				
	2018/19	2019/20	2020/21	2021/22	2022/23
Scope 1	3,902	3,803	4,139	3,802	3,675
Scope 2	4,838	3,430	2,526	2,755	2,395

Scope 3	2,275	1,986	1,545	1,977	1,797
Total gross emissions	11,015	9,219	8,210	8,534	7,867
Green tariff	N/A	N/A	2,847	3,720	478
Total net emissions	11,015	9,219	5,363	4,813	7,389

Table 3: Gross vs net emissions

Renewable energy

1,209 MWh of renewable energy was generated in 2022/23 from Peterborough City Council owned solar panels. This generation avoided the production of 316.21 tonnes CO₂e.

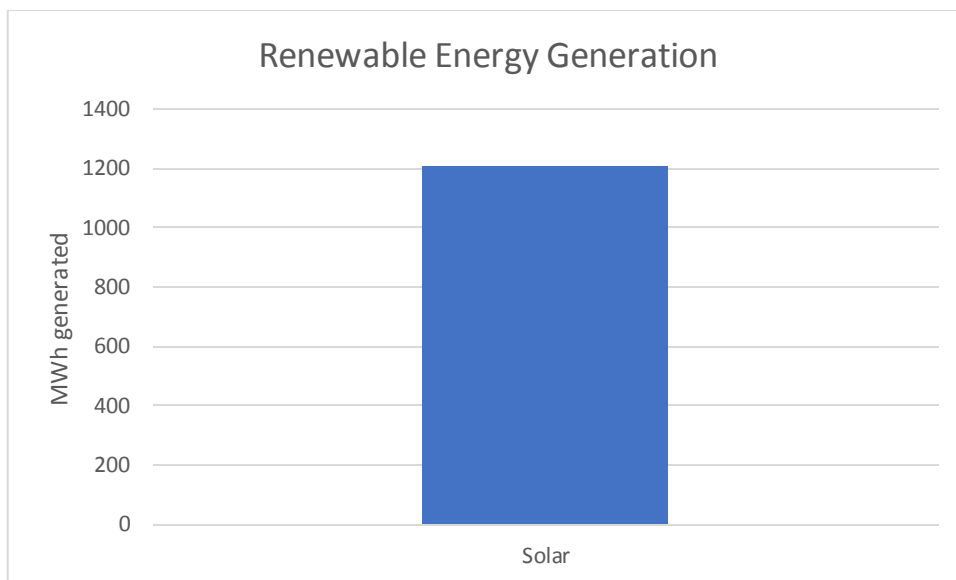


Figure 7: Renewable Energy Generation

Future decarbonisation of the national electricity grid

The national electricity grid is expected to show a decarbonising trend over time. From a 2022 baseline, the carbon emissions factor is expected to reduce by 68.64% by 2030 and by 98.41% by 2050⁷. This will mean that future electricity use will become less carbon intensive.

⁷ Department for Business, Energy and Industrial Strategy (2023) Green Book supplementary guidance: valuation of energy use and greenhouse gas emissions for appraisal –Data tables - Electricity emissions factors to 2100, kgCO₂e/kWh

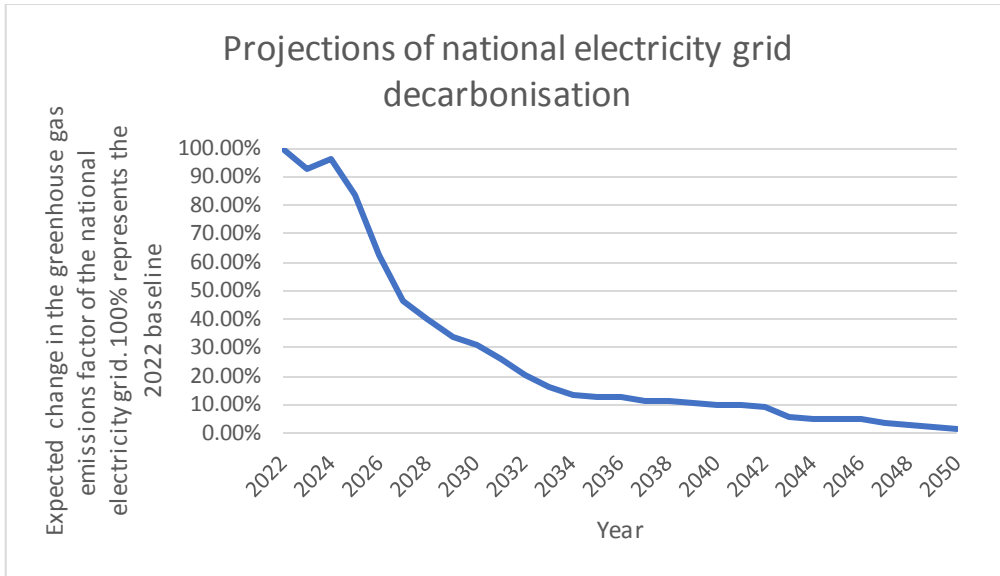


Figure 8: Governmental projections for the carbon emissions factor for the national grid

If the council's electricity use remained at 2022/23 levels, this would represent a 2,200 tonne decrease in the council's gross CO₂e emissions by 2030.

Decarbonisation projects

In order to become a net zero carbon organisation, the council has commenced a programme of decarbonisation projects. Each year the council makes a number of commitments to reduce organisational greenhouse gas emissions. These have been published in previous iterations of the Council Climate Change Action Plan. Progress on these commitments is discussed below; any tasks which are ongoing will be continued.

Progress on climate change action commitments

Commitments	Year	Area of emissions	Update
Develop a roadmap to detail the transition of the council's organisational emissions to net zero by 2030	2023	Overarching	The roadmap to net zero is in development and expected to be published in Summer 2024. It will use the calculated Carbon Footprint included in this report and other insight to outline the programme of work necessary for the council to achieve its net zero target by 2030.
Expand carbon literacy training offer to staff and councillors	2023	Overarching	A Climate Change Public Education Officer joined the Climate Change Team in October 2023 to deliver carbon literacy training. Ongoing internal training is in progress with a series of dates scheduled over the coming months.
Seek funding to introduce energy efficiency and low carbon heating in council buildings	2023	Buildings	Funding was secured from Salix Finance to produce heat decarbonisation plans for a further 13 of the council's most energy intensive buildings. These will be completed by 31 March 2024. The plans will contain details of actions and their associated costs to improve energy efficiency and install low carbon heating. The plans will inform the development of the roadmap to net zero.
Support staff to adopt energy saving behaviours at work	2023	Buildings	A communications plan has been developed to support staff to adopt energy saving behaviours.
Secure funding from the council's transformation reserve to review utility billing reform	2023	Buildings	As of January 2024, smart meters have been installed for 93% of council meters. Plans are in place to install the remaining 7%. Works are also underway to automate the process of utility billing.

Install LED lighting in council buildings where it is not already insitu	2023	Buildings	Works are underway to install LED lighting in Bushfield Sports Centre, Jack Hunt Sports Centre and the Museum. This stage of installation is expected to begin in March. A second phase of LED installation will focus on Hampton Library, Key Theatre, Premier Fitness, and Bretton Library.
Install solar panels on council buildings where there is an opportunity to do so	2023	Energy	Funding was allocated within the council's budget to install solar panels on 4 buildings. Re-evaluation of the business case showed this would be better allocated to the installation of LED lighting in council-owned buildings to reduce electricity usage. Additional solar and other renewable energy generation solutions are being explored.
Continue to seek grant funding or sponsorship to support delivery of 125 hectares of tree planting per annum to deliver the council's 25% tree canopy cover target by 2035	2023	Land use	An additional £226,192 has been secured from Treescape Fund 3 to plant and establish 250 established trees (standards) and 3600 young trees (whips), bringing the total funding secured since 2021 to £962,634. There has also been a substantial increase in canopy cover, with current cover of 24.2% up from 20.4%, though this is partly due to the 2018 analysis using data collected when not all trees were in full leaf.
Explore options for additional electric vehicle charging at council buildings	2023	Transport	Peterborough City Council is currently working with both the CPCA and Cambridgeshire County Council to develop an area-wide EV strategy which will set out the vision and strategic priorities. Alongside this, the three authorities are also working towards a joint procurement exercise to secure a supplier to provide EV Charging Infrastructure. For Peterborough this will likely include both on-street and off-street charging infrastructure. Funding from Government is subject to the submission of a business case in Autumn 2024 with procurement expected in Spring 2025.
Implement actions identified within the council's travel plan, which will be developed following	2023	Transport	Workshops to promote active travel and support staff in sustainable travel are in development. A cycle maintenance stand is expected to be installed and available to staff by September 2024. A

completion of the travel survey by staff			full list of actions and targets are included in the Travel Plan and will be published on the PCC website over the coming weeks.
Implement actions within the procurement plan which is currently in development. The plan will aim to reduce emissions throughout the council's supply chain, by working with and supporting suppliers	2023	Purchases	Officers are developing a Climate Change Commercial Ask with the intent of reducing emissions within the supply chain; this will be implemented in stages. Resources to support suppliers in emissions reductions are under development, including documents providing an introduction to potential carbon reduction measures and signposting to additional net zero transition guidance.
Monitor and support councillors and officers to deliver upon carbon reduction pledges made during carbon literacy training	2022	Overarching	A process to monitor delivery of Carbon Literacy pledges is in place. The Climate Change Public Education Officer is able to offer support for councillors and staff to support them to develop and deliver pledges when needed.
Work with officers to conduct a review of each service to determine how the council can reduce carbon emissions	2022	Overarching	The 2024-25 service plan template requires service leads to identify the top 3 most significant emissions that the service influences across the council and the city, and to identify potential mitigations to limit this. The climate change team will utilise this information to work with services to reduce emissions. This information will feed into the roadmap to net zero.
Develop a process by which in the council's budget setting process, wherever possible, spending plans are reprioritised to enable Peterborough City Council to better achieve its corporate objective of achieving net zero carbon by 2030	2022	Overarching	Initial Carbon Impact Assessments have been undertaken for all budget proposals as part of the 2024-25 budget setting process. Alongside this, the Head of Service for Environment and Climate Change regularly attends the Capital and Transformation Board to ensure climate-related issues are flagged at early stages of project development.
Develop a process to consider the financial and environmental value of carbon capture and carbon emission reductions. Financial and environmental costs will result from the impacts of climate change if global	2022	Overarching	The council has appointed a Climate Change Project Development Officer, who began at the council in December 2023. They will continue research and consult with guidance to achieve this. Learnings from colleagues at other local authorities will be sought.

carbon reduction is not achieved			
Collaborate with other local authorities to ensure best practice is shared and opportunities to collaborate are identified and developed	2022	Overarching	The council routinely collaborates with its neighbouring local authorities to share best practice and identify joint opportunities. The council has recently joined Innovate UK's Net Zero Living cohort, consisting of partners delivering upon projects awarded funding through this funding stream. This presents wider opportunities for collaboration with a broad range of local authorities at the leading edge of decarbonisation.
Engage with national government on the resources and legislation necessary to empower and fund local government to deliver the council's climate ambitions	2022	Overarching	The council responds to relevant government consultations and survey requests as routine.
Seek to utilise section 106 and other external funding to expand the capacity of the climate change core team	2022	Overarching	A Climate Change Public Education Officer joined the team in October 2023 and a Climate Change Development Officer joined the team in December 2023. In October 2023 the council employed 3 members of staff under the Local Government Association's National Graduate Development Programme, one of whom has been working in the climate team to calculate the council's Carbon Footprint, monitor progression of actions from the previous iterations of the Council's Climate Change Action Plan and will be focusing on developing the roadmap to net zero.
Develop a business case for Aragon to use low carbon fuel (e.g. HVO) across its fleet	2022	Transport	Aragon undertook an initial trial to identify the viability of using HVO across the refuse fleet. A further trial will take place shortly across a wider range of fleet vehicles and a recommendation will be made to determine if this is an appropriate intervention.
Work with Milestone to increase the uptake of low carbon fuel across the supply chain	2022	Transport	Milestone is developing a subgroup of its low carbon working group to focus on its supply chain. In addition, Milestone is assisting Aragon with a further HVO trial in freighters which if successful will lead to a large-scale

			carbon reduction and substantial uptake of low carbon fuel.
Develop an air travel policy which seeks to eliminate air travel for journeys within Great Britain and require Director signoff for overseas air travel	2022	Transport	The draft policy will be included in the draft roadmap to net zero. The Climate Change and Environment Scrutiny Committee will be invited to comment upon the draft policy, ahead of inclusion in the adopted roadmap.
Support and promote car sharing, active travel and use of public transport to staff and councillors	2022	Transport	The council's Travel Plan includes a quarterly communications plan to encourage active travel and public transport. New starters will also be offered a personalised route plan detailing the routes from home to Sand Martin House.
Develop a policy to incorporate the transport hierarchy across the council's capital projects. This would ensure that facilities were in place and information available to support staff and visitors to walk, cycle or take public transport over travelling by car	2022	Transport	The draft policy will be included in the draft roadmap to net zero. The Climate Change and Environment Scrutiny Committee will be invited to comment upon the draft policy, ahead of inclusion in the adopted roadmap.
Develop a policy to incorporate the waste hierarchy across the council's capital projects and service delivery. This would ensure that facilities were in place and information available to support staff and visitors to deal with waste in the following order of prioritisation: prevent, reduce, reuse, recycle, recover and dispose	2022	Waste	The draft policy will be included in the draft roadmap to net zero. The Climate Change and Environment Scrutiny Committee will be invited to comment upon the draft policy, ahead of inclusion in the adopted roadmap.
Conduct a sampling exercise of council waste to inform the setting of a council waste target. Deliver targeted communications to improve waste reduction and separation	2022	Waste	Quotes to undertake this work have been sought. Sampling of the office waste from Sand Martin House will be conducted by 31 st March.

Ensure the council's use of single use plastic is reduced	2022	Waste	A policy on single use plastic waste will be introduced to the climate change commercial ask.
Set low carbon construction methods and materials as default options within the Milestone highways contract	2022	Purchases	Milestone has obtained PAS2080 accreditation, which is a standard associated with carbon management in infrastructure. Additionally, a materials working group including Milestone and PCC officers will be set up to work on incorporating a new step in the decision-making process which ensures low carbon construction options are consistently presented.
Continue to improve asset management of council owned mobile phones and IT equipment to further reduce unnecessary purchases and wastage	2022	Purchases	Alternate modes of communication are being made available in order to decrease the number of mobile phones needed. Chargers are no longer issued with mobile phones as individuals will already have their own. The expected lifespans of laptops are being extended by replacing them on an as-needed basis rather than on a default 3-4 year cycle. Additionally, the council is shifting to a cloud-based system instead of on-site servers, which is expected to lead to substantial CO ₂ e reductions as cloud providers are better able to optimise their energy use and source more renewable power.
Investigate the potential of setting up a carbon credit scheme to complement the council's tree planting ambition	2022	Land use	Exploring grants funded by carbon credits is a project continually under review.
Work with Aragon to optimise climate friendly practices, both to mitigate and adapt to climate change	2022	Land use	Officers continue to work closely with Aragon to identify opportunities. This year Aragon have: upgraded their refuse collection fleet with the receipt of two fully electric refuse trucks; undertaken a trial to collect batteries and vapes at the kerbside which is due to roll out citywide shortly; and undertaken an initial trial to identify the feasibility of using HVO in key vehicles which will shortly be expanded to trial on a wider range of fleet vehicles.
Promote licenses to cultivate. These allow local residents and community groups to tend to planted	2022	Land use	Officers are in the process of simplifying the existing licensing system. These reforms may include adding suitable allotment terms and conditions to these licenses and a potential expansion of

areas of council-owned land			waivers where appropriate for the associated administrative fees. Options for website communications are also being explored.
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The council's roadmap to net zero, which is currently in development, will provide a comprehensive overview of actions the council can take to achieve its net zero ambitions.

Approach for project development

There are no new projects proposed in this report, as these will feature in the roadmap to net zero. When projects are developed the following approach will be taken.

Finance

The council will explore various finance options for project development. External funding will always be considered before the use of internal council funds. Finance options include:

- Grants: Decarbonisation, energy efficiency and engagement funds will be interrogated to determine if any funding streams are suitable for projects within Peterborough. The Climate Change Team has appointed a Project Development Officer who designs projects to pursue a range of funding streams.
- Match-Funding: Grant awarding bodies and other third-party funders may offer part funding for projects with the stipulation that the council funds the remaining costs.
- Transformation or invest to save: Projects funded via invest to save budgets will deliver future savings to the council. Business cases for proposals are required to demonstrate how the cost of borrowing will be covered and show how the individual scheme is self-financing and so has no overall negative impact against the council's long-term financial position.
- Internal Resources: Schemes may also be considered that require investment through the medium term financial strategy (i.e. carry an additional cost to be factored into the budget, subject to approval) where they contribute towards delivery of service improvements, or to achievement of council priorities. This includes funding for revenue schemes or financing the borrowing for capital schemes. Should any schemes be identified they will undergo business case development and appropriate approvals will be sought.

Where additional funding is required to progress actions further, approvals will be sought via existing governance structures and the development of business cases to ensure value for money is achieved.

Offsetting

For an organisation to become net zero carbon, it must capture or offset as many greenhouse gas emissions as it is responsible for emitting. Validated offsetting schemes exist in which organisations can financially contribute to facilitate projects which lower carbon emissions. This allows the organisation to offset its greenhouse gas emissions and achieve a net zero carbon status without eliminating all its carbon emissions.

The council has not participated in any offsetting schemes to date. It is deemed that there are additional projects that could be done to lower the council's gross emissions and any available funds should prioritise this work before offsetting is considered. Should this position change in the future and all viable projects to reduce emissions were already completed, then the approach to offsetting may be reconsidered. This will be addressed in the upcoming roadmap to net zero.

Project management

Successful implementation and delivery of the decarbonisation programme requires a robust, transparent governance structure which will ensure strategic ownership of the council's carbon reduction aims. This governance process will bring together the diverse range of projects undertaken throughout the council which contribute to the organisation's overall environmental impact.

Identifying Projects

The council is committed to identifying opportunities to reduce carbon emissions across all areas of its operations.

There are a number of routes to identifying carbon reduction projects.

- A core group of officers, representing key service areas, has been identified. These officers meet on a regular basis in order to discuss ongoing and forthcoming projects. This allows early conversations about opportunities to reduce carbon to take place.
- Carbon literacy training is being delivered to officers and councillors. The training equips attendees to consider climate change in project development and requires delegates to make climate action pledges to reduce organisational emissions. This process will directly create a series of carbon reduction projects and will empower officers and councillors to identify projects in the future.
- Service reviews are being undertaken to determine activities of high emissions and projects to reduce these. Projects will focus on reducing organisational and city-wide emissions.
- Decisions taken by the council are subject to a Carbon Impact Assessment (CIA). Responsible officers are required to undertake a review of their project/decision and consider the impact it will have on the council's target to achieve net-zero carbon emissions for the organisation and the city. A summary of the CIA is included in the accompanying governance report to enable the relevant decision maker to make an informed decision considering the impact of carbon emissions. This process enables officers and councillors to consider the potential impacts on carbon emissions throughout the project design and decision-making process.
- Close working relationships with the Combined Authority and constituent Local Authorities will ensure that regional efficiencies are realised and guidance and opportunities are shared.

Initiating Projects

Before any project is initiated the relevant lead council officer will ensure that all of the necessary procurement and governance steps are undertaken. Consideration will be given to any communication activity that may be required.

Monitoring Projects

The impact of individual projects will primarily be monitored by analysing emissions data, accompanied by other relevant available data. Data will be used to ensure resources are directed to projects with the most significant impact. Where appropriate, engagement activities will be undertaken to monitor the impact of projects. Programme management will be undertaken centrally to ensure that all projects progress.

Reporting Progress

Each year the council will produce an annual report detailing the emissions arising from all emissions sources within the organisation's operational boundary as well as reporting progress on previous climate change commitments.

Climate Change and Environment Scrutiny Committee

The Climate Change and Environment Scrutiny Committee is a cross-party group of elected members, whose role includes scrutinising elements of the climate change programme, including mitigation of council and city-wide carbon emissions and adaptation to climate change. The scrutiny committee is a vital part of the governance structure of the programme, directing the climate change programme.

Council adoption / approval

Any new policy which requires Cabinet or Council adoption will be developed in line with the council's governance process.

City-wide climate action plan

When declaring a climate emergency, Peterborough City Council made two major commitments. Alongside becoming a net zero organisation by 2030, the council also committed to helping support the Peterborough to become a net zero carbon city.

Update on the development of a city-wide climate action plan

Action on this second commitment will be the focus of a plan due to be released in late summer 2024.

The development of the city-wide climate action plan is grounded in the evidence base of the Local Area Energy Plan (LAEP) which was completed by Energy Systems Catapult on behalf of the council. The LAEP evaluated pathways for the city to reach net zero by 2030, 2040, and 2050, and concluded that 2040 was the earliest plausible date for this goal to be achieved.

The Climate Change and Environment Scrutiny Committee recommended that officers produce a city-wide climate action plan in line with a 2040 net zero target. Work is now underway to develop the plan with this ambitious, yet realistic goal. This work will also draw on the results of the Peterborough Climate Debate, a public engagement campaign which invited residents, schools, and businesses to offer their perspectives on decarbonisation possibilities. The draft plan will be published for consultation to gain views from the public on future plans.

Adaptation Plan

The council has secured funding through the UK Shared Prosperity Fund to develop a climate change adaptation plan for the city. This will consider how the city will adapt to a changing climate and weather events, such as heatwaves, droughts and flooding, that are expected to increase in intensity and frequency.

A Just Transition

A just transition is an important concept throughout climate change action. The Cambridgeshire and Peterborough Independent Commission on Climate identified a set of principles to follow to ensure that climate change plans follow a just transition⁸, and in 2023 Peterborough City Council resolved to ensure that just transition is a key theme within the development of climate change action plans.

Different members of our communities will be impacted differently both by climate change and by the actions to tackle climate change, and so our approach for climate change action must be fair to all. The benefits of addressing climate change should be shared by all and everyone should have equal opportunity to engage with action. The Commission's principles and the Council's just transition-oriented approach will be embedded into city-wide action plans.

⁸ Cambridgeshire & Peterborough Independent Commission on Climate (2021) Fairness, nature and communities: addressing climate change in Cambridgeshire and Peterborough

Appendix A

Methodology used to calculate the Council's Carbon Footprint

Defining The Scope

The starting point for carbon management is to accurately establish the scope of the emission sources to be used to calculate the emissions baseline and subsequent Carbon Footprint updates. The scope of the baseline includes the required types and sources of emissions over a defined timescale. The baseline is a fixed point against which a reduction target can be set and future performance monitored.

Emissions-releasing activities are classified into three groups known as scopes. Scopes are defined in the Greenhouse Gas Protocol Corporate Standard as follows.

Scope	Definition / Activity
1 (Direct)	Emissions from sources that are owned or controlled by the organisation
Fuels	Fuel sources combusted at a site or in an asset owned or controlled by the organisation.
Refrigerants	Refrigerants that leak from air-conditioning equipment.
Passenger vehicles	Travel in cars and on motorcycles owned or controlled by the organisation.
Delivery vehicles	Travel in vans and heavy goods vehicles that are owned or controlled by the organisation.
2 (Indirect)	Emissions that are a consequence of the organisation's operations, but occur from sources owned or controlled by another company
Electricity (grid)	Electricity used by an organisation at sites owned or controlled by them.
3 (Other Indirect)	Emissions that are a consequence of the organisation's operations, which occur at sources which they do not own or control
Business travel	Travel for business purposes in assets not owned or directly operated by the organisation.
Hotel stays	Overnight hotel stays for work purposes.
Material use	Process emissions from purchased materials.
Waste disposal	Emissions from end-of-life disposal of materials using a variety of different disposal methods.
Water supply	Emissions from water delivered through the mains supply network.
Water treatment	Emissions from water returned to the sewage system through mains drains.
Transmission & Distribution	Emissions associated with grid losses (the energy loss that occurs in getting the electricity from the power plant to the organisations that purchase it).
Well-to-Tank (WTT)	Upstream emissions of extraction, refining and transportation of a primary fuel source prior to its point of combustion.

Table 1: Greenhouse gas emission scopes and associated emission releasing activities⁹

The Organisational Boundary

The organisational boundary is defined by establishing what activities and functions are included in scope for the purpose of determining the council's emissions and what activities and functions are out

⁹ World Resources Institute and World Business Council for Sustainable Development (2015) The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)

of scope. This stage of the process involves reviewing the council’s operations to determine activities that give rise to carbon emissions. This year’s update has involved a revision to the council’s operational boundaries.

In most organisations, greenhouse gas emissions are reported for every operation which is owned and operated by the organisation or where there is financial control. The council has a complex operational structure, which includes a portfolio of council-owned buildings which are leased to third parties, where the council may purchase the energy but does not influence energy use. Peterborough City Council takes an operational approach to the organisational boundary and therefore now only includes emissions from buildings and services over which it has direct control (or wholly owns the company in direct control, in the case of Peterborough Limited) in its Carbon Footprint. Emissions from buildings and services over which the council does not have control are instead included in scope 3 of the council’s Carbon Footprint Plus.

The council aims to improve measurement of emissions arising from its purchased goods and services to include in its Carbon Footprint Plus, but at this time the only contract which reports into the council’s Carbon Footprint Plus is the highways contract.

The council’s Carbon Footprint is calculated using the following sources.

Scope	Typical activities for a local authority organisation		Identified Council emission sources
1	Buildings	Production of electricity, heat or steam	• Gas used in buildings which are operated by the council or by Peterborough Limited.
	Transport	Fleet transportation	• Travel in vehicles operated by the council or by Peterborough Limited.
	Fugitive	Hydrofluorocarbons (HFC) emissions during use of refrigeration and air-conditioning equipment	• Refrigerant top-ups for air-conditioning units.
2	Buildings	Consumption of purchased electricity, heat or steam	• Electricity used in buildings which are operated by the council or by Peterborough Limited. • Electricity used in infrastructure, such as streetlighting, car parks and feeder pillars.
3	Waste	Waste produced through council operations	• Waste produced at council buildings
	Transport	Transportation, employee business travel, employee commuting	• Staff business travel and accommodation.
	Purchases	Production emissions from purchased goods and services	• Emissions from purchased goods and services included where available in the council’s Carbon Footprint Plus

	Buildings	Production of electricity, heat or steam	<ul style="list-style-type: none"> Emissions from buildings owned but not operated by the council included where available in the council's Carbon Footprint Plus
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Table 2: Identified in scope council emissions¹⁰

Excluded Emissions

The council has deemed that the following emission sources remain out of scope for the council's Carbon Footprint calculation. Reasons are detailed below:

Scope 3

- Water supply and treatment** – Water supply emissions arise from the treatment and pumping from the water source to the tap. It was deemed that the emissions contribution from water consumption is too insignificant to justify the additional reporting burden. Water consumption is not currently calculated at an organisation wide level, and so data is not easily accessed.
- Wastewater treatment** - It was deemed that the emissions contribution from wastewater treatment is too insignificant to justify the additional reporting burden. Wastewater is not currently calculated at an organisation wide level, and so data is not easily accessed.
- Waste disposal** – This plan excludes emissions arising from city-wide waste treatment. Details on this source of emissions will be included in the city-wide climate change action plan. The rationale for this decision is that this waste is a citywide resource, some of which currently generates enough electricity to power over 16,000 homes through the Energy Recovery Facility, and therefore offsetting of these emissions should be accounted for on a city-wide level.
- Employee commuting** – Whilst the emissions relating to employees travelling for the purposes of work for which expenses are claimed is included within this report, the emissions arising from employees travelling from home to work are not included. This approach is accepted within the Greenhouse Gas Protocol guidance.
- Peatland** – The council holds a farm estate of approximately 3,000 acres, a proportion of which is comprised of peatland soils. Whilst healthy peatland is able to capture and store carbon emissions, degraded soil emits carbon. At this stage there is no data available for inclusion in this plan. The council is committed not only to understanding the emissions arising from its agricultural land but also to seeking opportunities to reduce emissions both through revised land management practices and development of energy projects to bring forward local decarbonised heat and power.
- Carbon capture by council owned trees** – Carbon capture from council owned trees has not been calculated.
- Purchased goods and services** – The largest exclusion relates to purchased goods and services. Data is not yet available for the majority of the council's purchases, but work is ongoing to improve data collection capabilities in this area. These emissions will be counted as part of measuring the council's wider Carbon Footprint Plus where available, but will not be presented in the council's Carbon Footprint to make progress more clearly measurable.

The council will review the scope on an annual or biennial basis to ensure that data is collected from all relevant sources.

¹⁰ World Resources Institute and World Business Council for Sustainable Development (2015) The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)

Data Collection

The emissions data used to calculate the Carbon Footprint was gathered from different sources including: invoices received by the council, annual energy statements from utility providers, vehicle fuel data, property services and third party providers. Work continues to ensure that this data is robust and systems are in place to ensure ongoing timely and accurate collection of data. Where estimations have been used, records are held with source data.

Energy Type	Source	Data Estimation techniques
Gas	Energy invoices and annual energy statements from suppliers. Collated data from third party providers.	Annualising consumption or average data calculated using data from comparable time periods.
Electricity	Energy invoices and annual energy statements from suppliers. Collated data from third party providers.	Annualising consumption or average data calculated using data from comparable time periods.
Refrigeration gases	Refrigeration gas refill records	No estimation used.
Renewable electricity generation	Electricity generation from the council's solar panels is recorded via a central site.	No estimation used.
Passenger vehicles	Staff mileage claims, fuel purchased and vehicle log books.	Annualising consumption where required and using data from comparable time periods.
Fleet vehicles	Fuel purchased and vehicle log books	No estimation used.
Waste	Waste collection tonnage data	Estimates of waste from averaged waste collection per building, annualised and using data for comparable time period.
Purchases	Data provided by suppliers	Data quality is not checked by the council.

Table 3: Source of data by energy type

Calculating emissions

To calculate CO₂e emissions, usage data (such as kWh of electricity used) is multiplied by a conversion factor.

Conversion Factors

The carbon conversion factors used for this Carbon Footprint are the 2022 UK Government published carbon conversion factors. The council uses the conversion factors which match to the year in which the majority of the relevant financial year sits. For instance, for the financial year 2022/23, the 2022 conversion factors are used.

The key conversion factors used are as follows:

Energy Type	Conversion factor
Fuels	
Natural Gas	0.18254 kg CO ₂ e / kWh (Gross CV)
Propane	1.54354 kg CO ₂ e / litre
Diesel (average biofuel blend)	2.55784 kg CO ₂ e / litre
Petrol (average biofuel blend)	2.16185 kg CO ₂ e / litre
HVO	0.03558 kg CO ₂ e / litre
LPG	2939.29 kg CO ₂ e / tonnes
Electricity	
UK electricity	0.19338 kg CO ₂ e / kWh (Gross CV)
Vehicles (passenger, delivery and business travel)	
Average car (unknown fuel type)	0.27492 kg CO ₂ e / mile
National rail	0.00892 kg CO ₂ e / passenger / km
London underground	0.00724 kg CO ₂ e / passenger / km
Purchases	
Purchased goods and services	Various. Calculated by supplier
Hotel stays (UK)	10.4 kg CO ₂ e / room / night
Waste	
Residual waste	21.2802 kg CO ₂ e / tonne
Recycling	21.2802 kg CO ₂ e / tonne
Inert waste	0.9847 kg CO ₂ e / tonne
Transmission & Distribution	
UK electricity	0.01769 kg CO ₂ e / kWh
Well-To-Tank	
Various	Various, used as appropriate from 2022 Conversion factors

Table 4: Key greenhouse gas conversion factors¹¹

Baseline Year Recalculation Policy

There may be circumstances under which it becomes necessary to recalculate the council's baseline year emissions. If significant changes were to occur, either within the council's organisation or to recognised methodologies, it could challenge the validity of comparing to existing data. To ensure comparisons remain valid, the following baseline year recalculation policy has been developed. This ensures that any significant changes are identified, measured for a recalculation threshold and processed accordingly.

Change scenario	Baseline year recalculation?
Mergers, Acquisitions, Divestitures	
Acquisition of (or insourcing) a facility that did not exist in the baseline year.	Potentially recalculate baseline year emissions depending on likely impact
Disposal of (or outsourcing) a facility to another company.	Potentially recalculate baseline year emissions depending on likely impact

¹¹ HM Government (2022) Greenhouse gas reporting: conversion factors 2022

Organic Growth and Decline	
Organic growth	No base year recalculation required
Organic decline	No base year recalculation required
Changes in Quantification Methodologies / Errors	
Changes in emission factors or methodologies (e.g. change in activity data) that reflect real changes in emissions (i.e. changes in fuel type or technology)	No base year recalculation required
Changes in measurement methodologies, improvements in the accuracy of emission factors, improvements in the accuracy or availability of activity data or discovery of previous errors/ number of cumulative errors	Potentially recalculate baseline year emissions depending on likely impact if data is available for baseline year, or correct errors

Table 5: Baseline year recalculation policy