# Council Climate Change Action Plan

June 2023

# Contents

## 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, decision-making and continuous improvement.

To achieve this 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 us[1]. This means, on average, each of us is using too much of the world's resources to produce the food we eat, treat the waste we produce, generate the energy we use, consume the goods and services we take for granted, and the travel around the are a and beyond.

Peterborough City Council has committed to take action to help support Peterborough to become a net zero carbon city, reversing the trend of increasing consumption of natural resources and instead put Peterborough on the road to becoming a truly sustainable city.

Peterborough City Council not only has an important role in place-shaping and in developing a city-wide vision, but 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 this, the council annually measures its carbon footprint and produces an action plan to achieve further reductions in greenhouse gas emissions.

In the financial year 2021/22, Peterborough City Council emitted 13,647 tonnes $CO_2e$. In this and the previous financial year, the council's carbon footprint has included emissions from the goods and services purchased through the Peterborough Highways Services contract, however this data was not available prior to this, or for other contracts which the council holds. Excluding this data, the council emitted 8,839 tonnes $CO_2e$, this represents a 24% reduction in greenhouse gas emissions relative to the 2018/2019 baseline. After reductions due to the purchase of green electricity, net emissions reduced from 13,647 to 9,927 tonnes $CO_2e$.

Last year, the council committed to 25 actions to reduce its carbon emissions. Key successes have included securing funding to plant trees and researching and drafting a procurement plan to reduce supply chain emissions.

This action plan proposes 11 actions to reduce greenhouse gases in the upcoming year. These include developing a roadmap to net zero emissions, installation of solar panels and LED lighting for

[1] WWF (2019) EU Overshoot Day. Living beyond nature's limits https://wwfeu.awsassets.panda.org/downloads/wwf_eu_overshoot_day___living_beyond_nature_s_limits_web.pdf

suitable buildings and implementation of a carbon reduction procurement plan to support suppliers to reduce emissions.

## Climate change

The climate science is undeniable, with the impacts of climate breakdown already causing serious damage around the world. Extreme weather events are likely to occur more severely and more frequently across Peterborough.

### Global climate change commitments

Since the industrial revolution it is estimated that humans have caused global temperatures to increase by 1.07°C, as of 2019[2]. The Paris Agreement, which has been signed by almost all countries across the world, commits each signatory 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 Climate Change Conference of Parties (COP) is held annually to ensure action continues towards the Paris Agreement goals. COP27 was held in Egypt in November 2022, where it was noted that there is a "clear emissions gap between current national climate plans and what's needed to limit temperature rise to 1.5 degrees C."[3,4]

### Climate impacts

Climate impacts are being seen across the world. Global temperatures have increased faster over the past 50 years than at any other time within the past 2000 years. 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 any other century in the last 3000 years. Each of these scientific observations has high certainty.[2]

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 closed to Peterborough). Intense periods of rainfall have occurred across Peterborough, most recently in December 2020, July 2021 and October 2022 where several properties were flooded internally for the first time in roughly 20 years, impacting people's lives and livelihoods. In the summer of 2022, 8 areas across the UK were declared to be in drought. These weather events are predicted to become more severe and more frequent as global temperatures rise further. The latest UK climate projections suggest that the UK climate will continue to warm over

[2] 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

[3] World Resources Institute (2022) COP27: Key Outcomes from the UN Climate Talks in Sharm el-Sheikh | World Resources Institute (wri.org)

[4] House of Commons Library (2023) What was agreed at COP27? (parliament.uk)

the rest of this century and on average will result in hotter and drier summers, warmer and wetter winters with more extreme weather events expect[Error! Bookmark not defined.]

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. For example, across the county, one in 10 homes are predicted to face river flooding, with higher risk in East Peterborough. Surface water flooding is a risk in paved areas due to intense rainfall over short periods of time. 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. Peatland degradation will increase carbon emissions and make land less suitable for farming.[5] These observations and scientific predictions evidence the need to act urgently to minimise the impact of climate change.

## Greenhouse gases

Human activity has caused accelerated release of greenhouses 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, however since the industrial revolution, humans have been responsible for releasing unsustainable amounts of greenhouse gases. This has caused more and more energy to become trapped and has led to rising global temperatures.

There are four main gases which have contributed to global temperatures rises, these are carbon dioxide, methane, nitrous oxide and fluorinated gases. Carbon dioxide is 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 rise, it is essential that greenhouse gas emissions are limited and a net zero state is reached as soon as possible. A net zero state is defined as when an equal amount of greenhouse gas emissions are captured, as those emitted.

## 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 October 2021

- 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 the ascertain 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. Organisations, such as 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.

# Peterborough City Council's Carbon Footprint

## Methodology

To determine the effectiveness of the council's actions and to prioritise plans for future decarbonisation, organisational emissions need to be calculated. A few key features of the approach to carbon footprinting are highlighted below.

### 1. Emissions are reported in $CO_2e$

There are four main gases which contribute to global temperature rises, these are carbon dioxide, methane, nitrous oxide and fluorinated gases. Each greenhouse gas has a different capacity for trapping heat. The amount produced of each gas is multiplied by its Global Warming Potential to calculate a carbon dioxide equivalent ($CO_2e$) value, this allows for easy comparison between emission causing activities. All data within this document is reported using $CO_2e$ values.

### 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 produced, by the energy dissipated 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 are difficult to measure as they are not controlled by the organisation. There is a data collection challenge, made more difficult by the large number of suppliers the council works with and the immaturity in emission reporting seen across many organisations nationally. For goods and services that are purchased from a non-exclusive supplier, there is the additional difficulty in assigning emissions to each customer and for materials purchased from sub-contractors there are additional layers of emission reporting required. There is an acknowledgement that not all of the council's scope 3 emissions are included in the carbon footprint presented.

Calculating scope 3 emissions remains a challenge for all organisations, including local authorities. Work is being undertaken in some councils to estimate these emissions, early outputs indicate that this activity accounts 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. 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.

Work will continue to increase the scope 3 emissions measured and therefore scope 3 emissions are likely to rise in future years due to improved data collection. This rise in reported emissions would not be reflective of a worse environmental impact. The council's net zero carbon ambitions relate to all scopes, and so work will be undertaken to reduce scope 3 emissions as well in addition to better monitoring.

**4. 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.

Electricity used on site 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, to avoid double counting any zero carbon electricity, the national electricity carbon factor should be used to determine the organisation's carbon footprint, this 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 market-based reporting. For full transparency of data, both location-based and market-based emissions are reported.

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. This results in a net emissions value, which has been reported.

Our carbon footprint is calculated in line with the UK Government's Environmental Reporting Guidelines for Voluntary Greenhouse Gas Reporting[6]. A fuller explanation of the methodology used to calculate the council's carbon footprint can be found in appendix A.

[6] HM Government (2019) Environmental Reporting Guidelines: Including streamlined energy and carbon reporting guidance March 2019 (Updated Introduction and Chapters 1 and 2)

## Council carbon footprint 2021/22

The council's carbon footprint has been calculated for the year 1st April 2021 to 31st March 2022. The total emissions equals 13,647 tonnes $CO_2e$.

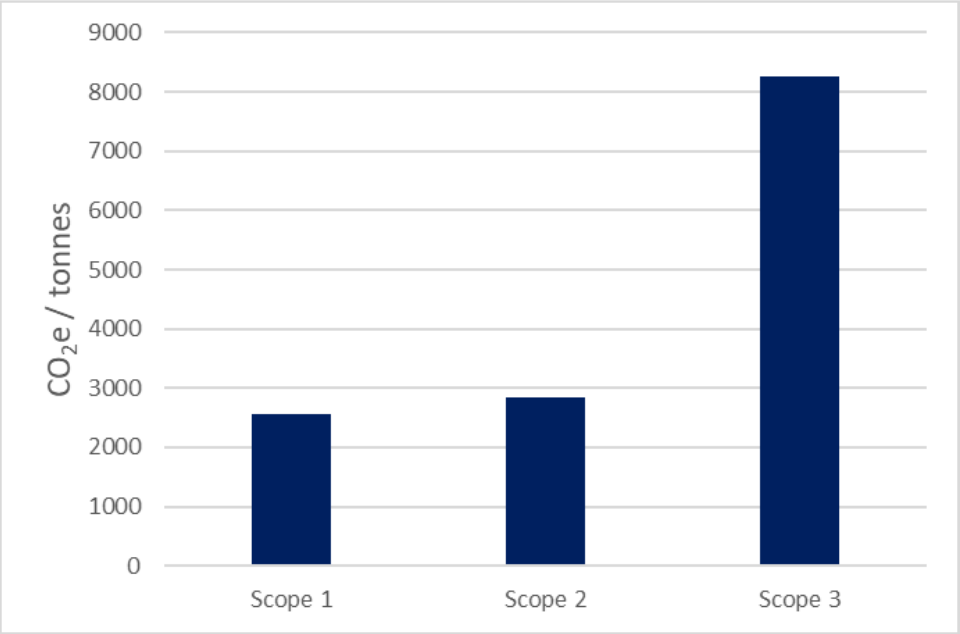


Figure 1: Council carbon footprint 2021/22 (gross emissions)

## Comparison to previous years

Peterborough City Council has reported its carbon emissions in this manner since 2018/19, data is shown for comparison.

| | Emissions (tonnes $CO_2e$) | | | |
|---|---|---|---|---|
| | **2018/19** | **2019/20** | **2020/21** | **2021/22** |
| **Scope 1** | 2,721 | 2,255 | 2763 | 2554 |
| **Scope 2** | 4,924 | 3,503 | 2551 | 2838 |
| **Scope 3** | 3,962 | 3,855 | 9476 | 8256 |
| **Total** | **11,607** | **9,613** | **14,789** | **13,647** |

Table 1: Council carbon footprint comparison of years 2018/19, 2019/20, 2020/21 and 2021/22 (gross emissions)

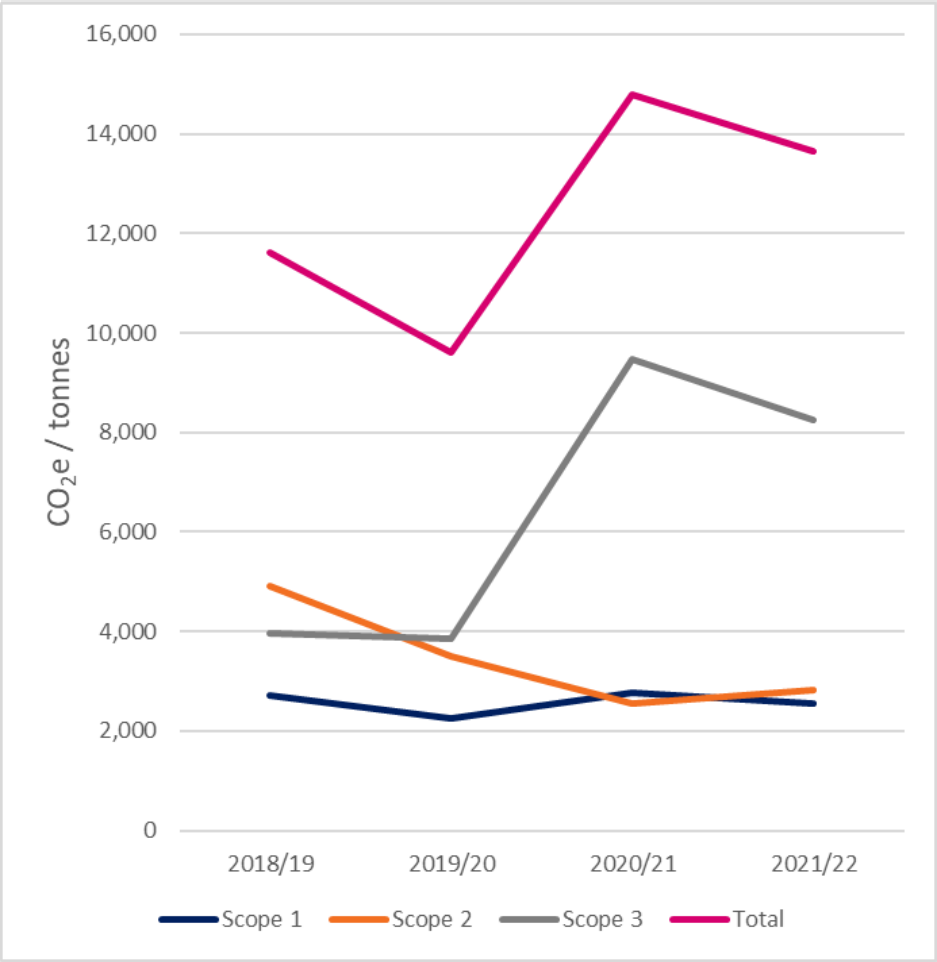


Figure 2: Council carbon footprint comparison of years 2018/19, 2019/20, 2020/21 and 2021/22 (gross emissions)

The council's carbon footprint can be allocated to different categories to allow fuller understanding of what activities are contributing to emissions.

| | 2021/22 Greenhouse gas emissions (tonnes $CO_2e$) | 2021/22 Percentage of total |
|---|---|---|
| **Buildings & utilities** | **6809** | **49.9%** |
| Council buildings* – electricity | 2392 | 17.5% |
| Council buildings* – gas | 2780 | 20.4% |
| Street lighting – electricity | 1394 | 10.2% |
| Car parks – electricity | 42 | 0.3% |
| Milestone buildings – electricity | 6 | 0.0% |
| Milestone buildings – gas | 17 | 0.1% |
| Aragon buildings** – electricity | 65 | 0.5% |
| Aragon buildings** – gas | 114 | 0.8% |
| **Transport** | **2013** | **14.8%** |
| Council transport | 102 | 0.7% |

| | | |
|---|---|---|
| Council staff business travel | 193 | 1.4% |
| Milestone transport | 48 | 0.4% |
| Aragon transport | 1670 | 12.2% |
| **Purchased goods and services** | **4809** | **35.2%** |
| Milestone purchased goods and services | 4808 | 35.2% |
| Hotel stays | 1 | 0.0% |
| **Waste** | **16** | **0.1%** |
| Council waste | 7 | 0.1% |
| Milestone waste | 9 | 0.1% |
| **Total** | **13647** | **100%** |

Table 2: Breakdown of council emissions 2021/22 (gross emissions)

*Some of the buildings which Peterborough City Council pays the energy bills for are rented to commercial organisations, therefore although the council owns the asset, it is not under full control of its operation.

**Aragon utilities are purchased by the council, however are reported here separately to show organisational boundaries.

** An assumption for the amount of waste produced from council buildings has been used (based on previous financial years). Officers have identified improvements that are required for this data collection, which will be performed for future calculations. Using assumed data is not expected to significantly impact the overall data or conclusions as it represents less than 1% of the council's emissions.

There are several factors that have contributed to the change in 2021/22 carbon footprint from the previous year, 2020/21.

The most significant impact to the carbon footprint is the decrease in emissions from materials and sub-contractors within the Peterborough Highways Services contract, which is operated by Milestone, as reflected in the decreased scope 3 emissions. In 2020/21 this equated to 6,093 tonnes $CO_2e$, in 2021/22 this had dropped to 4,809 tonnes $CO_2e$.

It should be noted that the financial year 2020/21, saw disruption to previous ways of working, including closures of some buildings. Therefore in the past year electricity usage has increased, as did business mileage.

Transport emissions within the Milestone contract were also reduced. In part this is due to switching to HVO, a biodiesel, part way through the year. HVO releases 90% less $CO_2e$ per litre of fuel in comparison to diesel. Emissions from this fleet are expected to reduce further next year when HVO is used in place of diesel throughout the reporting period.

The council's gas usage was decreased in comparison to the previous year, this is likely due to a comparatively warm winter period.

| | 2021/22 Greenhouse gas emissions (tonnes $CO_2e$) | 2021/22 Percentage of total |
|---|---|---|
| **Buildings & utilities** | 6809 | 50 |
| **Transport** | 2013 | 15 |
| **Purchased goods and services** | 4809 | 35 |
| **Waste** | 16 | 0 |
| **Total** | **13,647** | **100** |

Table 3: Council carbon footprint 2021/22. Data categorisation showing percentage contribution to the total carbon footprint (gross emissions)

## Green electricity tariff

The above data reports on gross greenhouse gas emissions. There are a number of items which can be deducted from an organisation's gross emissions to obtain its net emissions. Examples of deductions include emissions offset by purchasing zero carbon energy by verified carbon capture schemes, by owned renewable energy generation or by verified offsetting schemes.

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 tariff electricity 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 is reflected in market-based reporting.

95% of the council's electricity use is supplied via a green electricity tariff. Most electricity accounts the council has, used a green tariff throughout the year. A small number of meters have transitioned across to a green electricity tariff part way through the 2021/22 financial year. The council seeks to transition more electricity meters across to a green electricity tariff.

The following graph shows how the reduction in electricity emissions contributes to the overall carbon footprint. It is reflected in reduced scope 2 and scope 3 emissions. After considering the market-based emissions from electricity, the net carbon footprint of the council is reduced from 13,647 tonnes $CO_2e$ to 9,927 tonnes $CO_2e$.

| | Emissions (tonnes $CO_2e$) | | | |
|---|---|---|---|---|
| | **2018/19** | **2019/20** | **2020/21** | **2021/22** |
| **Scope 1** | 2,721 | 2,255 | 2,763 | 2554 |
| **Scope 2** | 4,924 | 3,503 | 2,551 | 2838 |
| **Scope 3** | 3,962 | 3,855 | 9,476 | 8256 |
| **Total gross emissions** | **11,607** | **9,613** | **14,789** | **13,647** |
| **Green tariff** | N/A | N/A | 2,713 | 3,720 |
| **Total net emissions** | **11,607** | **9,613** | **12,076** | **9,927** |

Table 4: Council carbon footprint comparison of years 2018/19, 2019/20, 2020/21 and 2021/22 (gross and net emissions)

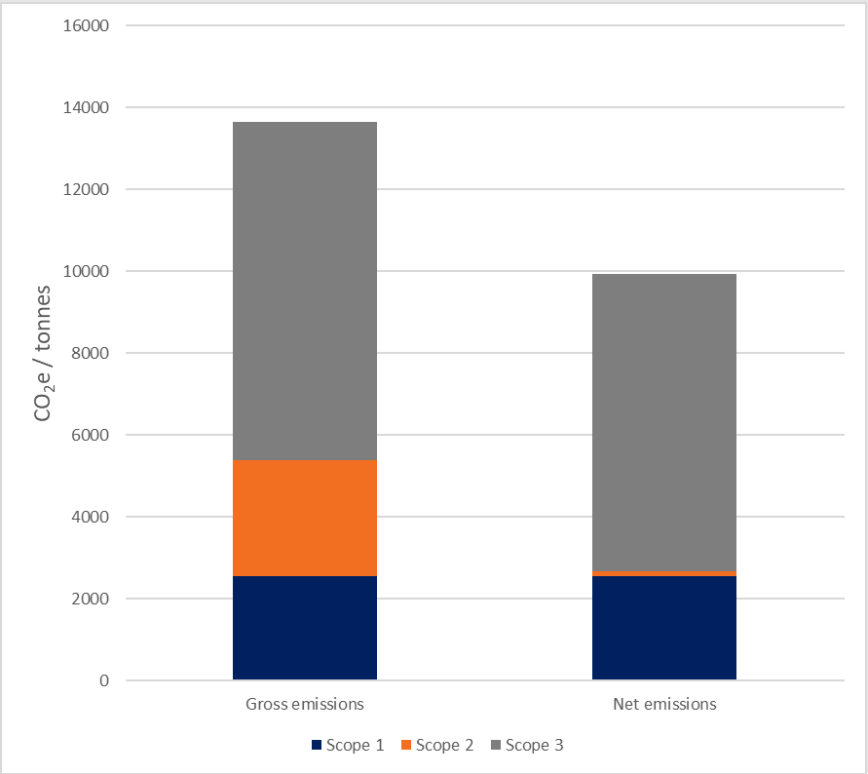


Figure 3: Council carbon footprint comparison of gross and net emissions for the financial year 2021/22

## Renewable energy

1,224 MWh of renewable energy was generated in 2021/22 from Peterborough City Council owned solar panels. This generation offset 356 tonnes $CO_2e$ that would have elsewise been produced.

## 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. The council employed 1,122 full time equivalent (FTE) staff in 2021/22 which equates to an intensity measure of 8.85 tonnes $CO_2e$/FTE. There are limitations in this data as there are buildings which are rented to external organisations, for which the staffing count is not considered.

The council spent £549,480,000 in 2021/22[7] (subject to audit), which equates to an intensity measure of 18.07 tonnes $CO_2e$ per £1m spent.

| | 2018/19 Gross emissions | 2019/20 Gross emissions | 2020/21 Gross emissions | 2020/21 Net emissions | 2021/22 Gross emissions | 2021/22 Net emissions |
|---|---|---|---|---|---|---|
| **Intensity ratio – greenhouse gas emissions per staff (tonnes $CO_2e$/FTE)** | 12.17 | 10.08 | 13.12 | 10.43 | 12.16 | 8.85 |
| **Intensity ratio – greenhouse gas emissions per spend (tonnes $CO_2e$/£1m spent)** | 19.18 | 19.01 | 29.88 | 23.76 | 24.84 | 18.07 |

Table 5: Intensity ratio comparison of years 2018/19 (gross), 2019/20 (gross), 2020/21 (gross), 2020/21 (net), 2021/22 (gross) and 2021/22 (net) emissions.

It should be noted that the council delivers some of its services via 3rd party arrangements and the staff number for these services is not included. The council also delivers a number of services via partnership arrangements with Cambridgeshire County Council; this is reflected in the overall FTE count.

## Future decarbonisation of the national electricity grid

The national electricity grid is expected to show a decarbonising trend over time. From a 2021 baseline, the carbon emissions factor is expected to reduce by 77% by 2030 and by 99% by 2050[8]. This will mean that future electricity use will become less carbon intensive. If the council's electricity use remained at 2021/22 levels, this would represent a 3,002 tonne decrease in the council's gross carbon emissions by 2030. Additional emissions savings would be made as the carbon footprints of suppliers from which the council purchases goods and services would also be reduced. However as the total emissions are not currently included in the council's emissions, the reduction cannot be calculated.

[7] Peterborough City Council (2022) Statement of Accounts 2021/22 Statement of Accounts 2021-22 - Draft (peterborough.gov.uk)

[8] 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

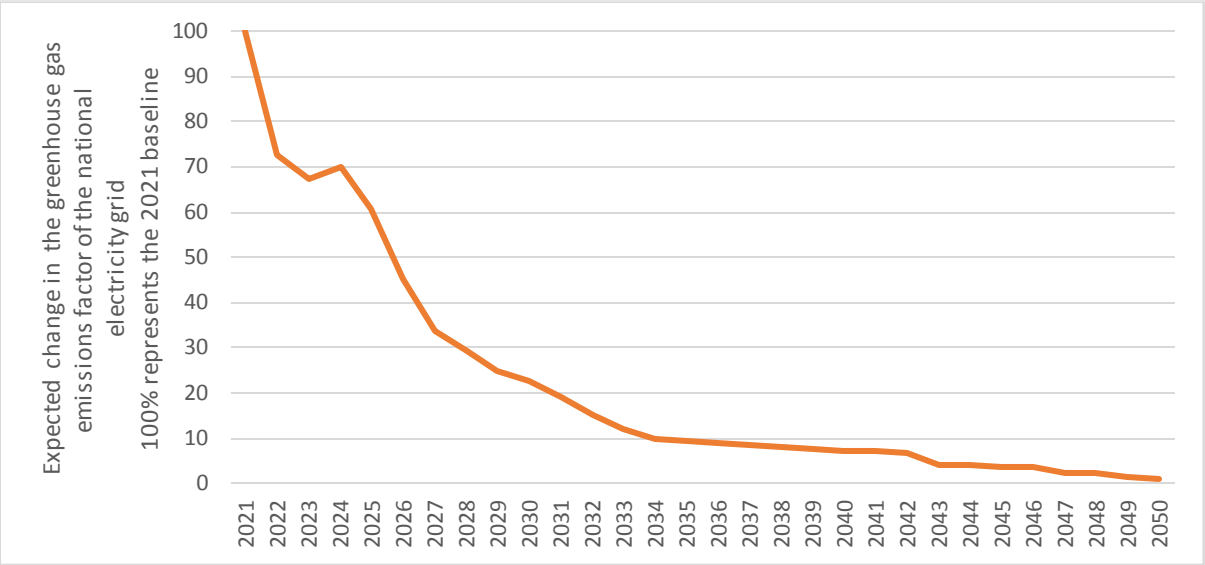


Figure 4: Governmental projections for the carbon emissions factor for the national grid, assuming public sector use, calculated using a consumption based grid-average.

## Project development

Analysis of the carbon footprint data enables identification of high emitting areas to prioritise decarbonisation projects. The most significant area of emissions is purchased goods and services through the highways contract (4,809 tonnes $CO_2e$), followed by council purchased gas (2,780 tonnes $CO_2e$) and Aragon-owned transport (1,670 tonnes $CO_2e$).

# Decarbonisation projects

In order to become a net zero carbon organisation, the council has commenced a programme of climate change projects. Each year the council makes a number of commitments to reduce organisational greenhouse gas emissions.

## 2022 Commitments to address carbon emissions

The council made 25 commitments in the 2022 Council Carbon Management Action Plan. Progress on these commitments is discussed below, any tasks which are ongoing will be continued.

| Progress on 2022 Commitments | | | |
|---|---|---|---|
| | **Commitments** | **Area of emissions** | **Update** |
| 1 | Develop a communications plan to support staff to lower carbon emissions. | Overarching | A communications plan has been developed. Messages will be circulated to staff over the following year. |
| 2 | Deliver carbon literacy training to councillors and officers. Aiming to achieve 70% over the next few years. | Overarching | Carbon literacy training has been delivered to senior officers in the Place and Economy directorate. Further opportunities will be promoted to staff and Councillors shortly. |
| 3 | Monitor and support councillors and officers to deliver upon carbon reduction pledges made during carbon literacy training. | Overarching | Trainees have been contacted to discuss progress on their carbon literacy pledges. Support will be offered where needed. |
| 4 | Work with officers to conduct a review of each service to determine how the council can reduce carbon emissions. | Overarching | A draft template has been created for discussions with service leads. It is anticipated that this work will progress in coming months. |
| 5 | 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. | Overarching | Officers from the climate change team were represented through the budget setting process to make suggestions on proposals to reduce carbon. Further work will be undertaken to improve for the following year's budget setting process. |
| 6 | 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 carbon reduction is not achieved. | Overarching | Research on this activity is ongoing. |
| 7 | Collaborate with other local authorities to ensure best practice is shared and opportunities to collaborate are identified and developed. | Overarching | Officers have been collaborating closely with colleagues from neighbouring local authorities and with the Cambridgeshire and Peterborough Combined Authority. Officers regularly attend webinars to share |

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| | | | insight on decarbonisation projects. |
| 8 | Engage with national government on the resources and legislation necessary to empower and fund local government to deliver the council's climate ambitions. | Overarching | Officers respond to relevant consultations and are in discussions with government departments on specific projects. |
| 9 | Seek to utilise section 106 and other external funding to expand the capacity of the climate change core team. | Overarching | A School Climate Change officer joined the climate change team in July 2022. The council is currently recruiting a Climate Change Public Education Officer, funded by the Shared Prosperity Fund. Officers are currently in the process of restructuring the climate change team. |
| 10 | Develop a business case for Aragon to use low carbon fuel (e.g. HVO) across its fleet. | Transport | HVO has been trialled in two waste fleet vehicles. Officers are in the process of writing a business case, considering learnings from this trial. |
| 11 | Work with Milestone to increase the uptake of low carbon fuel across the supply chain. | Transport | Officers are in close conversation with Milestone to progress this. |
| 12 | Develop an air travel policy which seeks to eliminate air travel for journeys within Great Britain and require Director signoff for overseas air travel. | Transport | Officers are researching similar policies in other organisations to inform the development of a draft air travel policy for Peterborough City Council. |
| 13 | Conduct a council-wide travel survey to determine post-pandemic travel habits to inform plans which could reduce emissions from business mileage. | Transport | Plans have been developed to undertake a staff travel survey; it is anticipated that this will be shared with staff shortly. |
| 14 | Support and promote car sharing, active travel and use of public transport to staff and councillors. | Transport | Officers are developing a communications plan, which we anticipate being complete shortly. |
| 15 | 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. | Transport | Officers are researching policies from other organisations to develop a version for Peterborough City Council. |
| 16 | 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 | Officers are researching policies from other organisations to develop a version for Peterborough City Council. |

| | | | |
|---|---|---|---|
| | waste in the following order of prioritisation: prevent, reduce, reuse, recycle, recover and dispose. | | |
| 17 | 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. | Waste | Officers have observed an altered waste pattern, likely to be due to increased home working. Recently members of staff have begun to return to the office and it is expected that the current arrangements (and therefore waste patterns) are expected to remain constant. For this reason, plans for a waste audit have been delayed, however this will be commenced shortly. |
| 18 | Ensure the council's use of single use plastic is reduced. | Waste | This is being considered within the development of the procurement plan and staff communications plan. |
| 19 | Research and explore options with the ambition of developing a procurement plan which will look to include progressive milestones to 2030 to support the council's supply chain to reduce emissions. | Purchases | Officers in procurement, legal and climate change have drafted a procurement plan for consideration. |
| 20 | Set low carbon construction methods and materials as default options within the Milestone highways contract. | Purchases | Milestone intends to obtain PAS2080 accreditation, which is a standard associated with carbon management in infrastructure. Council officers have undertaken training on the PAS2080 standard and will support Milestone to reduce carbon emissions across the service. |
| 21 | Continue to improve asset management of council owned mobile phones and IT equipment to further reduce unnecessary purchases and wastage. | Purchases | There is a recycling process for all IT equipment. Chromebooks which are no longer used by staff have been given to adults leaving care and Ukrainian refugees. Officers will continue to prioritise asset management of devices. |
| 22 | 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. | Land Use | The council has been successful in recent funding applications to fund the planting and establishment of trees. £261,100 was received through Treescape 1 for planting and establishing trees in 2021/22 ; |

| | | | |
|---|---|---|---|
| | | | and £299,900 was received through Treescape 2 for tree planting and establishment in 2022/23.<br><br>In addition, the council has also been successful in receiving funding through the Woodland Creation Accelerator Fund to employ an officer and work with PECT to develop tree planting plans and seek additional funding. (£149,800)<br><br>A funding bid for Treescape 3 is currently being drafted with the intention to submit in June 2023. |
| 23 | Investigate the potential of setting up a carbon credit scheme to complement the council's tree planting ambition. | Land Use | The Combined Authority Climate Change Programme contains a sustainable finance workstream. Peterborough City Council officers support this work. As this work develops, council officers will determine if this action sits best at the Local or Combined Authority level. |
| 24 | Work with Aragon to optimise climate friendly practices, both to mitigate and adapt to climate change. | Land Use | Aragon is trialling the use of glyphosate alternatives as weedkillers this summer. Previous trials have included the use of a biodegradable foam based solution to kill weeds. Councillors have suggested areas of grass that could be left uncut to promote biodiversity. |
| 25 | Promote licences to cultivate. These allow local residents and community groups to tend to planted areas of council-owned land. | Land Use | PECT has taken on areas in alliance with residents. |

Table 6: Progress update of 2022 climate change commitments

In addition to the above commitments, the council received funding for the development of heat decarbonisation plans for several of the council's buildings. Suitable energy efficiency measures and low carbon heating installations were identified for each building within scope and estimated costs and suggested project timelines were proposed. This was completed in March 2023. Analysis of these plans will help aid future decarbonisation plans.

## 2023 Commitments to address carbon emissions

To reduce the council's organisational emissions, a programme of projects for the upcoming year has been proposed.

Several aspects are considered when developing proposed actions:

- **Project cost.** Projects which could be funded by external grants or will offer financial savings may be prioritised.
- **Potential impact to emissions.** Projects with the highest potential impact to emissions may be prioritised.
- **Ease of implementation.** Staffing resources must be utilised efficiently to ensure that maximal projects can be delivered.
- **Public demonstration.** The council has an important leadership role in demonstrating how projects which tackle climate change can be completed to other organisations and businesses.

The potential impact to emissions has been assessed assuming the project was taken through to completion. For instance, the potential impact on emissions for seeking funding for energy efficiency and low carbon heating, has been assessed assuming that funding was sought and measures installed.

| 2023 Commitments | | | |
|---|---|---|---|
| | **Commitments** | **Area of emissions** | **Potential impact to emissions** |
| 1 | Develop a roadmap to detail the transition of the council's organisational emissions to net zero by 2030 | Overarching | Enabling action |
| 2 | Expand carbon literacy training offer to staff and councillors. | Overarching | Enabling action |
| 3 | Seek funding to introduce energy efficiency and low carbon heating in council buildings | Buildings | High potential impact |
| 4 | Support staff to adopt energy saving behaviours at work | Buildings | Medium potential impact |
| 5 | Secure funding from the council's transformation reserve to review utility billing reform. | Buildings | Enabling action |
| 6 | Install LED lighting in council buildings where it is not already insitu | Buildings | Medium potential impact |
| 7 | Install solar panels on council buildings where there is an opportunity to do so | Energy | High potential impact |
| 8 | Continue to seek grant funding or sponsorship to support delivery of 125 hectares of tree planting | Land use | Medium potential impact |

| | | | |
|---|---|---|---|
| | per annum to deliver the council's 25% tree canopy cover target by 2035 | | |
| 9 | Explore options for additional electric vehicle charging at council buildings | Transport | Medium potential impact |
| 10 | Implement actions identified within the council's travel plan, which will be developed following completion of the travel survey by staff. | Transport | Low potential impact |
| 11 | 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. | Purchases | Very high potential impact |

Table 7: Potential 2023 climate change commitments

It should be noted that actions within the climate change programme will not be limited to the above list, additional projects will be developed and pursued as opportunities are presented. External grant funding opportunities will likely influence the development of additional projects.

Several of the above commitments are expected to deliver co-benefits which align with other council priorities. Implementing actions within the staff travel plan to support cycling and walking will result in improved health and wellbeing due to the positive effect of exercise on both physical and mental health. This will also play a role in improving air quality due to reduced car usage. Exploring options for increased electric vehicle charging will help strengthen the local charging infrastructure network, enabling staff to transition to electric vehicles; this will contribute to improved air quality. The installation of solar panels will reduce electricity costs and therefore result in a financial saving to the council over time. Tree planting will improve the local natural environment, support wellbeing and improve biodiversity.

## Finance

The action plan features commitments which will aid the council in reaching its goal of becoming a net zero carbon organisation by 2030. It is acknowledged that the council is not currently in a financial position to commit to significant additional expenditure. 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. It is acknowledged that additional finance is required to address the urgency of climate change and will likely be sought when the council is in a sustainable financial position.

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: The Climate Change Act and agenda to achieve a green recovery from Covid-19 have given rise to a number of climate change and energy efficiency funds. These will be interrogated to determine if any funding streaming are suitable for projects within Peterborough.
- 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.

### 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, including the organisation's scope 3 emissions where calculable. Validated offsetting schemes exist in which organisations can financially contribute to 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 proposed roadmap.

# Project management

Successful implementation and delivery of the action plan 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 will 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 will be 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. This is a newly introduced committee, and it replaces the work of the Climate Change Working Group which was in operation previously.

## 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 later in 2023. The council previously intended to release the city-wide climate action plan earlier, however it was deemed beneficial to delay this to ensure that several activities could influence strategic direction of the plan. These include:

- A local area energy plan for Peterborough has been developed and was adopted by Peterborough City Council in December 2022. This evaluated current and future energy demands for the city, considering electricity consumption and heating in buildings, retrofitting of buildings to improve energy efficiency and electricity demands for electric vehicles. The local area energy plan gives an indication of the necessary measures and scale of the challenge.

- The Cambridgeshire and Peterborough Independent Commission on Climate report "Fairness, nature and communities: addressing climate change in Cambridgeshire and Peterborough" was released in October 2021. This report made a series of recommendations to reduce carbon emissions across the region.

- The Peterborough Climate Change Partnership was established in 2021. Local organisations with an interest in reducing environmental impacts are welcome to join. Early work of the group has led to the development of a Peterborough Climate Commitment, in which organisations agree to measure, monitor and act to improve upon their impact to the environment. Peterborough City Council has signed up to this pledge.

- The Cambridgeshire and Peterborough Combined Authority and the New Anglia Local Enterprise Partnership have commissioned the development of an alternative fuels strategy for the region. This is expected to produce recommendations to achieve carbon reduction across the transport sector.

- Engagement with our communities will help shape the city wide climate change action plan. The Peterborough Climate Debate public consultation is currently ongoing. Views from our local communities, including residents, young people and organisations such as businesses, community groups and Parish Councils are being sought to direct the city wide decarbonisation programme.

In order to achieve the ambitious target of becoming a net zero carbon city, every resident, business, organisation and community group will have a role to play. Significant behavioural change and technological changes will need to be adopted, and therefore we need to develop plans which are supported by our communities. The council will continue to engage with our communities following the development of the city wide climate change action plan.

- **Public engagement** The aims of public engagement will be to inform residents of climate impacts and carbon reduction choices and gather input into the design of the city-wide plans. Information

from related public engagement programmes, such consultations on the Local Transport and Connectivity Plan and the Local Area Energy Plan, may be used to provide additional insight into the climate change programme

• **Business engagement** The Peterborough Climate Change Partnership group of local organisations has recently been established. Business engagement plans will be developed in discussions with this group.

• **Schools** As well as potentially reducing organisational carbon emissions, schools also play a vital role in education and behavioural change. The council intends to work with any local school (both maintained and academy schools) to prepare a bespoke action plan for schools. The council's School Climate Change Officer works closely with schools and pupils to enable them to lead carbon reduction projects across their school.

• **Parish councils** Parish councils have a vital role in helping to meet the city's ambitious targets. Parish councils generally have a relatively low organisational carbon impact but can have a significant role championing change within its local area. Peterborough City Council can offer support to parish councils in the development of their own climate action plans.

• **Councillors** Peterborough City Council will work with its elected members to ensure resident input is considered in action planning. Carbon literacy training will be offered to councillors to support members in communicating the impact of climate change and the benefits of carbon reduction projects.

• **Other Local Authorities** The council works closely with Cambridgeshire local authorities and the Cambridgeshire and Peterborough Combined Authority. Resources and expertise are shared across a wide range of topics and there is close collaboration in the development of the combined authority's climate action plan.

## 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 transition[5].

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 will be embedded into city-wide action plans.

# Co-benefits of climate action

Delivery of carbon reduction projects often also delivers upon other priority areas. Key benefits can be associated with health and wellbeing, financial savings, supporting biodiversity, strengthening communities, reducing inequalities, improving the natural environment and supporting the local economy. These aspects will be considered through the development of the City-wide Climate Change Action Plan.

# 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 different 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 activities[9]

## 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 of scope. This stage of the process involves reviewing the council's operations to determine activities that give rise to carbon emissions.

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 purchases the energy but does not influence energy use. These buildings have also been included in scope.

In time, the council aims to report upon all emissions arising from its purchased goods and services, however as of yet the only contracts which report into the council's scope 3 emissions are the Aragon and Milestone contracts.

Vivacity was an externally operated organisation, running cultural services within Peterborough. This service is now provided in-house, and so previous Vivacity emissions are now reported elsewhere.

[9] Department for Business, Energy and Industrial Strategy (2019). Environmental Reporting Guidelines: Including streamlined energy and carbon reporting requirements https://www.gov.uk/government/publications/environmental-reporting-guidelines-including-mandatory-greenhouse-gas-emissions-reporting-guidance

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 is purchased by the council. The building may be operated by an external organisation. |
| | **Transport** | Fleet transportation | • Travel in vehicles operated by the council. |
| | **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 is purchased by the council. The building may be operated by an external organisation.<br>• Electricity used in streetlighting and car park lighting which also includes road signs and illuminated bollards |
| 3 | **Purchases** | Production emissions from purchased goods and services | Included where available (see below) |
| | **Transport** | Transportation, employee business travel, employee commuting | • Staff business travel and accommodation.<br>• Employee commuting – excluded (see below).<br>• Buildings and fleet used to deliver services by Milestone and Aragon. |

Table 2: Identified in scope council emissions[10]

## 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.
- **Waste water treatment** - It was deemed that the emissions contribution from waste water treatment is too insignificant to justify the additional reporting burden. Waste water 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,

[10] World Resources Institute and World Business Council for Sustainable Development (2004) The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition). Corporate Standard | Greenhouse Gas Protocol (ghgprotocol.org)

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 to not only understand the emissions arising as a result of its agricultural land but also to seek 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, this data will be added when available and so the calculated carbon footprint of the council is expected to rise over the coming years due to improved reporting.

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

## 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.

| Energy Type | Source | Data Quality/Estimation techniques |
|---|---|---|
| Gas | Energy invoices and annual energy statements from suppliers.<br><br>Collated data from third party providers. | Where estimations have been used, records are held with source data.<br><br>**Methods include:**<br>Annualising consumption or average data calculated using bookended data. |
| Electricity | Energy invoices and annual energy statements from suppliers.<br><br>Collated data from third party providers. | Where estimations have been used records are held with source data.<br><br>**Methods include:**<br>Annualising consumption or average data calculated using bookended data. |
| Renewable electricity generation | Electricity generation from the council's solar panels is recorded via a central site. | Where outlying data has been identified, this has been removed. |
| Passenger vehicles | Staff mileage claims, fuel purchased and vehicle log books. | Annualising consumption where required. |
| Fleet vehicles | Fuel purchased and vehicle log books | Annualising consumption where required. |
| 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 $CO_2e$ emissions, raw usage data (such as kWh of electricity used) is multiplied by a conversion factor.

### Conversion Factors

The carbon conversion factors used for this action plan are the 2021 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 2021/22, the 2021 conversion factors are used.

The key conversion factors used are as follows:

| **Energy Type** | **Conversion factor** |
|---|---|
| **Fuels** | |
| Natural Gas | 0.18316 kg $CO_2e$ / kWh (Gross CV) |
| Propane | 0.21411 kg $CO_2e$ / kWh (Gross CV) |
| Diesel (average biofuel blend) | 2.51233 kg $CO_2e$ / litre |
| Petrol (average biofuel blend) | 2.19352 kg $CO_2e$ / litre |
| HVO | 0.03558 kg $CO_2e$ / litre |
| **Electricity** | |
| UK electricity | 0.21233 kg $CO_2e$ / kWh (Gross CV) |
| **Vehicles** (passenger, delivery and business travel) | |
| Average car (unknown fuel type) | 0.07255 kg $CO_2e$ / mile |
| Domestic flights | 0.24587 kg $CO_2e$ / km |
| National rail | 0.03549 kg $CO_2e$ / km |
| **Purchases** | |
| Milestone purchased goods and services | Various. Calculated by Milestone |
| Hotel stays (UK) | 13.9 kg $CO_2e$ / night |
| **Waste** | |
| Residual waste | 21.294 kg $CO_2e$ / tonne |
| Recycling | 21.294 kg $CO_2e$ / tonne |
| Organic waste | 8.951 kg $CO_2e$ / tonne |
| Inert waste | 0.989 kg $CO_2e$ / tonne |
| Active waste | 21.294 kg $CO_2e$ / tonne |
| **Transmission & Distribution** | |
| UK electricity | 0.01879 kg $CO_2e$ / kWh |
| **Well-To-Tank** | |
| Various | Various, used as appropriate from 2021 Conversion factors |

Table 4: Key greenhouse gas conversion factors[11]

[11] Department for Business, Energy and Industrial Strategy (2020) Greenhouse gas reporting: conversion factors 2021 Greenhouse gas reporting: conversion factors 2020 - GOV.UK (www.gov.uk)

## 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 |
| Transfer of ownership/ control of emissions sources. This includes changes in lease status. | No base year recalculation required |
| **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