Cambridgeshire County Council

Cambridgeshire County Council Annual Carbon Footprint Report

April 2024 – March 2025

This is the Council's Seventh Annual Carbon Footprint Report.

FINAL DRAFT – October 2025

Contents

1. Executive Summary

Cambridgeshire County Council (CCC) has previously published its annual carbon footprint for the financial years 2018-19 to 2023-24. This is the seventh annual carbon footprint and covers Cambridgeshire County Council's emissions up to the financial year 2024-25 and Cambridgeshire county area emissions for the calendar year 2023.

The Council's carbon footprint for 2024-25 is summarised below:

Scopes 1 and 2 (Market-based)	764 tCO_2e	51% reduction since 2018/19	Target: Net zero by 2030
Scope 3 (excluding Rural Estates)	123,647 tCO_2e	32% reduction since 2018/19	Target: 50.4% reduction between 2018 and 2030
Avoided emissions	-2,690 tCO_2e		
Total Net Emissions	**121,721 tCO_2e**	**32% reduction since 2018/19 baseline**	

Scopes 1 and 2: Direct emission from council buildings and fleet vehicles.

- In 2024-25, the largest share of scope 1 and 2 emissions came from gas consumption (66%), followed by emissions from business travel (30%).
- Key emissions reductions from the 2018-19 baseline include decarbonising heating & property rationalisation, and some fleet vehicles switching to lower carbon HVO fuel.
- The emissions in 2024-25 are lower than the linear pathway to achieving the Scope 1 & 2 emissions target for the first time since 2020-21, when there were significant reductions due to Covid-19 restrictions.
- Based on current policies and known planned projects, future Scope 1 & 2 emissions are expected to continue to decrease slightly until 2027-28, then remain relatively constant until 2030-31. Further work to identify actions and routes to deliver these will be important.

Scope 3 emissions are indirect emissions from assets outside of CCC's control, such as those of our contractors and suppliers. Scope 3 also includes emissions from employee commuting and homeworking energy use.

- In 2024-25, the latest share of scope 3 emissions came from waste (55%), followed by emissions from construction and other materials (24%), and transport (11%).
- In 2024-25, CCC's Scope 3 emissions increased by 1% compared to 2023-24, however have decreased by 32% from CCC's baseline in 2018-19.
- Key emissions reductions from the 2018-19 baseline have resulted from reduced construction activity since 2020 (partially due to Covid-19 restrictions); and decreases in utility consumption for maintained schools (combination of academisation moving schools out of CCC's emissions boundary; and retrofit of some remaining schools).
- Based on a linear pathway to achieving the Scope 3 emissions target, 2024-25 emissions are lower than 'annual target' for this year.

- Based on current policies and known planned projects, however, future Scope 3 emissions are expected to exceed this linear pathway, and by 2030-31 emissions are anticipated to not have reduced enough to meet the Scope 3 target. Further work to identify actions and routes to deliver these will be important.

Rural Estate Emissions:

Due to the size of these emissions compared to the rest of the Council's emissions, following industry best practice, and as agreed in 2024, these emissions are separated from the rest of the Scope 3 emissions and are to have their own target.

No new primary data from tenants has been collected to estimate the 2024-25 emissions – emissions changes in 2024-25 therefore only reflect changes in number and type of farms owned.

Cambridgeshire area emissions:

The carbon footprint of the geographical area of Cambridgeshire comprises greenhouse gas emissions from commercial, industrial and public sector sources, domestic homes, transport, agriculture, waste, and land use, for the calendar year 2023. This data is published by the UK Government Department for Energy Security and Net Zero (DESNZ) on emissions by local authority area.

The total greenhouse gas emissions for Cambridgeshire were 6.45 million tonnes CO_2e. This is a reduction of 1.5% compared to 2022 and is similar to national trends. Cambridgeshire has seen a dip in emissions in 2020 due to COVID-19 restrictions, subsequent rebound, and re-continued decline. Emissions are now for the first time lower than they were in 2020.

Transport remains the highest emitting sector in the county, accounting for 27% of emissions, followed by land use, land use change and forestry (LULUCF), at 24%, agriculture (17%) and domestic sector (12%).

At a district level in Cambridgeshire, there are differences in total emissions, which sectors contribute the most emissions, and in some cases, anomalies compared to national trends. This includes East Cambridgeshire being one of only 21 local authority areas in the UK to have increased emissions between 2022 and 2023; and South Cambridgeshire and Huntingdonshire being two of only eight local authority areas that have had increased transport emissions between 2005 and 2023. These are explored in the report.

2. Introduction

2.1 About this report

This is Cambridgeshire County Council's annual carbon footprint report for the period April 2024 to March 2025. This report examines both the carbon footprint of Cambridgeshire County Council (CCC) as an organisation (for the financial year 1 April 2024 to 31 March 2025), and for the geographical area of Cambridgeshire as a whole (for which the most recent data available is the calendar year 2023).

Cambridgeshire County Council updated its Climate Change and Environment Strategy in 2022, setting a number of targets relating to reducing greenhouse gas emissions, including reducing the Council's own 'scopes 1 and 2' (direct) emissions to net zero by 2030, reducing 'scope 3' (indirect) emissions by 50.4% by 2030 (compared to the 2018 baseline), and to support delivery of net zero for the county of Cambridgeshire by 2045. To monitor progress against these targets, it is necessary to measure the Council's carbon footprint each year.

2.2 What is a carbon footprint?

A carbon footprint is a measure of greenhouse gases (GHGs) emitted into the atmosphere. The most common GHG is carbon dioxide (CO_2), which makes up around 80% of UK GHGs. Other GHGs such as methane (CH_4) or nitrous oxide (N_2O) are measured in 'carbon dioxide equivalent' (CO_2e), which takes into account the different global warming potential (GWP) of different gases.

GHGs are produced by a variety of activities, including energy generation (burning fossil fuels such as coal, oil and gas), transport (burning fossil fuels like petrol and diesel), agriculture (such as methane from livestock and nitrous oxide from fertilisers), waste management (such as methane from landfill sites) and land use (such as carbon loss from soil erosion or deforestation).

We can measure the carbon footprint of a geographical area, or of an organisation, or of a product or an activity. In this report we have included both the carbon footprint of Cambridgeshire County Council as an organisation (Section 3), and that of the geographical area of Cambridgeshire (Section 4).

2.3 What are scopes 1, 2 and 3?

Emissions-releasing activities of organisations are classified in the GHG Protocol Corporate Standard into three groups known as scopes. These are described in Table *1* and illustrated in Figure 1 below.

Table 1: Scopes

Scope	Description
Scope 1 (Direct)	Emissions that occur directly from sites or assets owned or controlled by the organisation (e.g. gas boilers at own premises, fleet vehicles).
Scope 2 (Energy indirect)	Emissions from purchased electricity, heat or steam.

Scope	Description
Scope 3 (Other indirect)	Emissions that occur due to the organisation's activities / products / services, but at assets not owned or controlled by that organisation (e.g. travel in employee-owned vehicles or public transport, purchased goods and services).

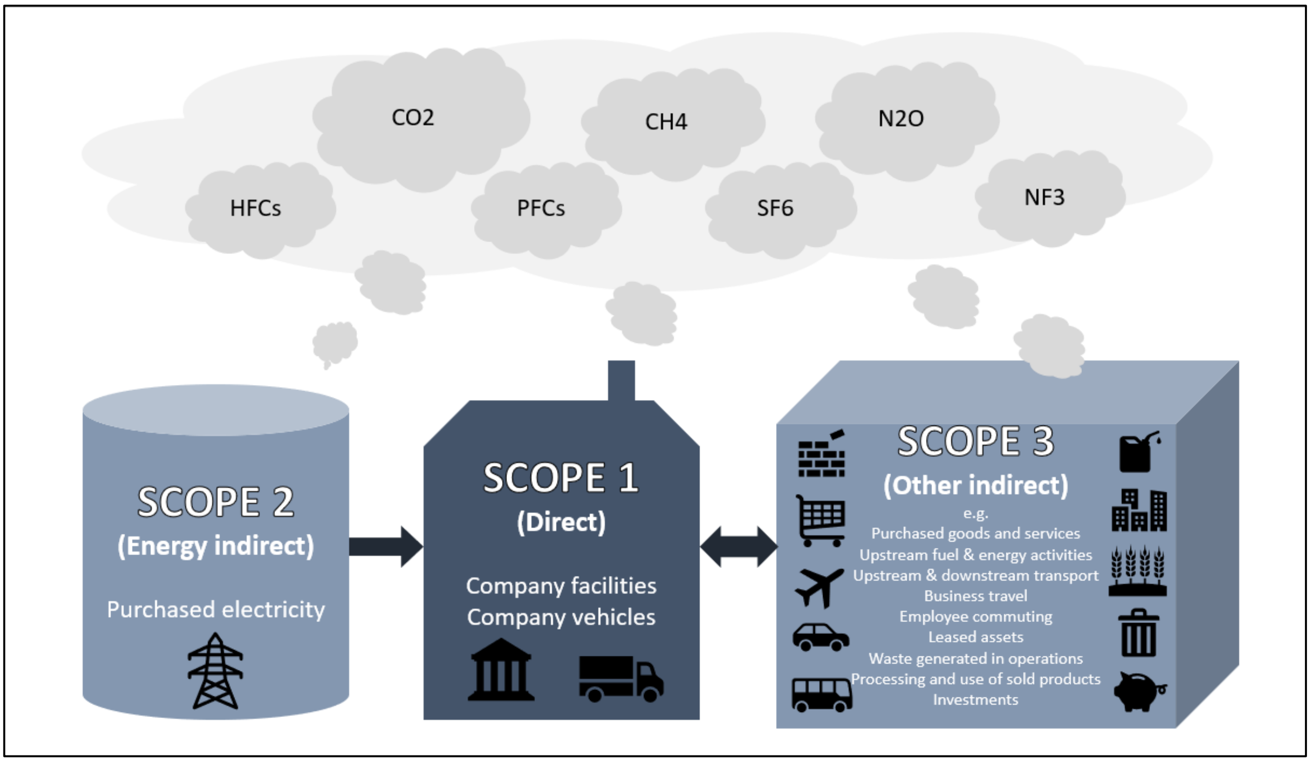


Figure 1: Diagram of scopes 1, 2 and 3 GHG emissions

Activities in all three scopes have been included in this report. However, Scope 3 emissions are more difficult to account for, because the required data often lies with other organisations. As a result, there is a higher degree of estimation in the scope 3 categories.

The vast majority (99%) of the Council's GHG emissions fall under 'Scope 3', which means these are indirect emissions from assets outside of the Council's direct control.

3. Cambridgeshire County Council's Carbon Footprint

3.1 Emissions overview

Cambridgeshire County Council's full carbon footprint is estimated as 432,683 tonnes CO2e (tCO_2e) for 2024-25. Outlined below are detailed breakdowns for Scope 1 and 2 emissions, Scope 3 emissions, and the Rural Estate. Most purchased goods and services are excluded from the reported CCC emissions inventory due to only spend data being available. Whilst this can give us an indication of the potential size of these emissions, it is considered the least robust method for calculating these emissions. Where more detailed data is available (such as quantities of materials bought), estimated emissions are included within the appropriate category within the Scope 3 emissions.

The comparative proportions of these emissions for CCC is shown in Figure 2 (market-based approach used for Scope 2). In 2024-25, emissions from the Rural Estate accounted for 45.6% of CCC's total estimated emissions; followed by Scope 3 emissions (28.5%), Other Purchased goods and services that are excluded due to lack of robust data (25.8%), and Scope 1 and 2 emissions (0.2%).

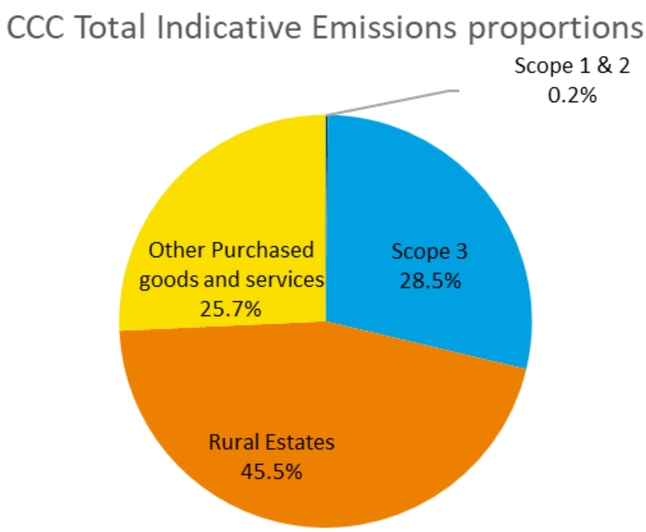
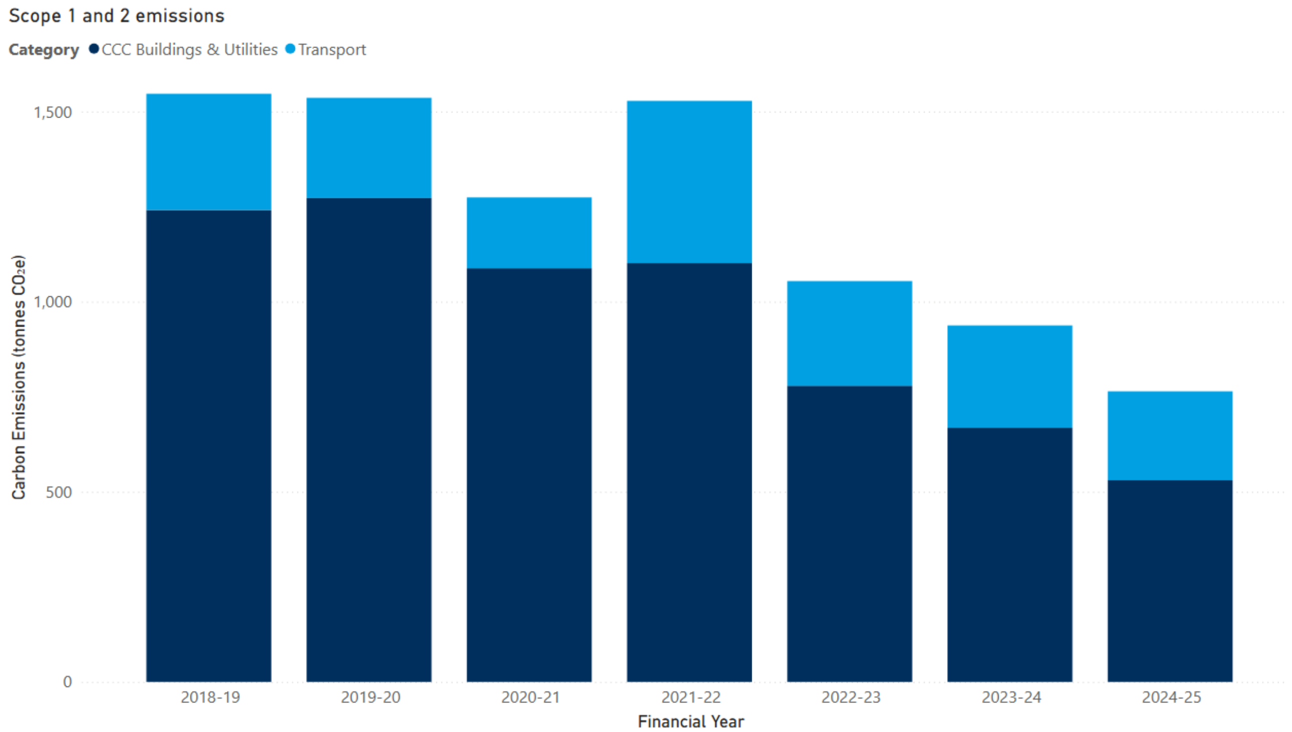


Figure 2: CCC split of total indicative emissions by scope

3.2 Scope 1 and 2 emissions

Scope 1 and 2 emissions are those that CCC has the most control over, as they comprise of emissions from our own assets, such as Council buildings or vehicles. Scope 1 comprises of direct emissions from the council's assets and includes emissions from gas and oil boilers for heating our buildings, fugitive refrigerant gases and emissions from fleet vehicles. Scope 2 is emissions from purchased electricity for our buildings and street lighting.



In 2024-25, CCC's Scope 1 and 2 emissions are 764 tonnes CO_2e. This is a 4% decrease from 2023-24, and a 51% decrease from CCC's baseline in 2018-19. This is predominantly a result of decreasing emissions from those included within CCC's Buildings and Utilities category, whilst Transport Scope 1 and 2 emissions have stayed broadly constant, particularly from 2022-23 onwards. Greater detail on these emissions are covered in the sections below.

Based on a linear pathway to achieving the Scope 1 & 2 emissions target (Figure 3), 2024-25 emissions are lower than 'annual target' for this year, the first time this has occurred since 2020-21, when there were significant reductions due to Covid-19 restrictions.

Based on current policies and planned projects, future Scope 1 & 2 emissions are expected to continue to decrease slightly until 2027-28, then remain relatively constant until 2030-31. Without additional actions, the net zero by 2030 for Scope 1 & 2 emissions would not be met.

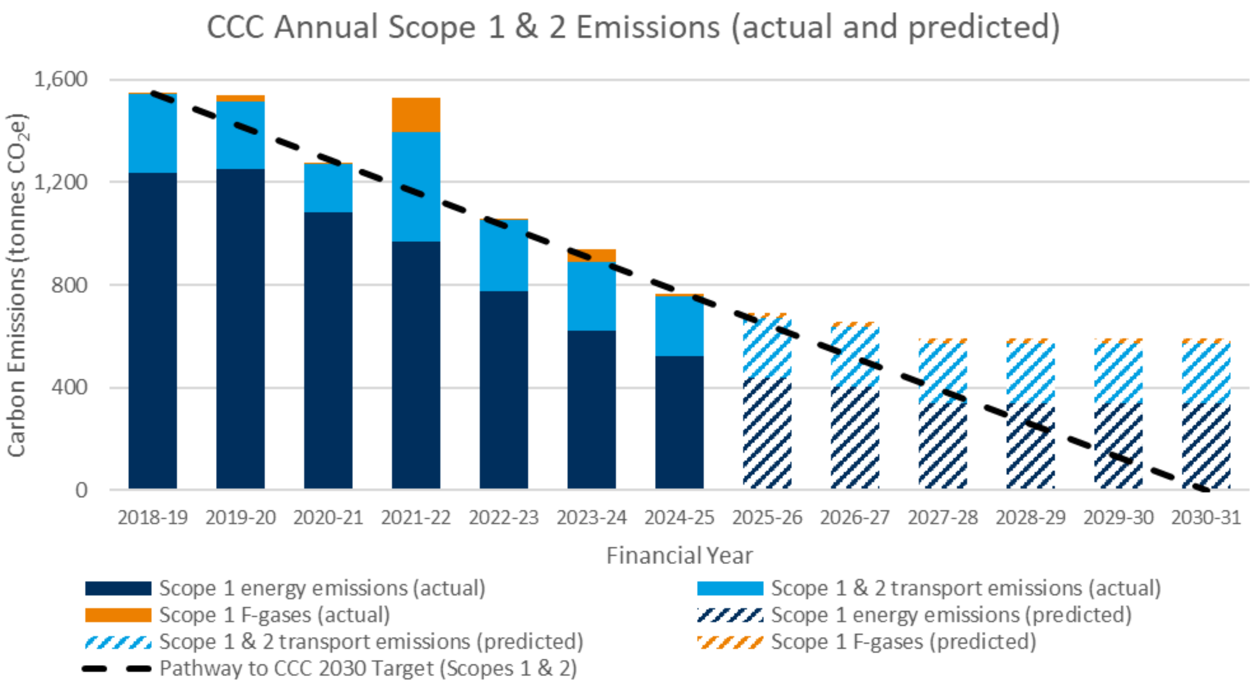


Figure 3: CCC Annual Scope 1 & 2 emissions, showing actual emissions for 2018-19 to 2024-25 (solid bars), and predicted (striped bars) based on current policies, plans and projects planned. The Scope 1 & 2 emissions target pathway is shown by the dashed black line.

For Scope 1 and 2 emissions, key reductions from the 2018-19 baseline include using a green electricity tariff, decarbonising heating & property rationalisation, and some fleet vehicles switching to lower carbon HVO fuel. These actions will need to be maintained to continue to see the reductions shown in Figure 4.

Further actions to reduce Scope 1 and 2 emissions have been identified, as shown in the orange bars in Figure 4. This includes rationalisation and enhancement of council buildings to support low carbon heating of a remaining 35 sites (523 tCO_2e); wider fleet electrification (234 tCO_2e) and stopping / minimising F-gas leakage (4 tCO_2e). To note, F-gases are found in air conditioning units and heat pumps, so as further heat pumps are installed to decarbonise buildings' heating the prevalence of units with F-gases is expected to increase.

Key priorities will be to identify further funding to enable actions shown in orange in Figure 4.

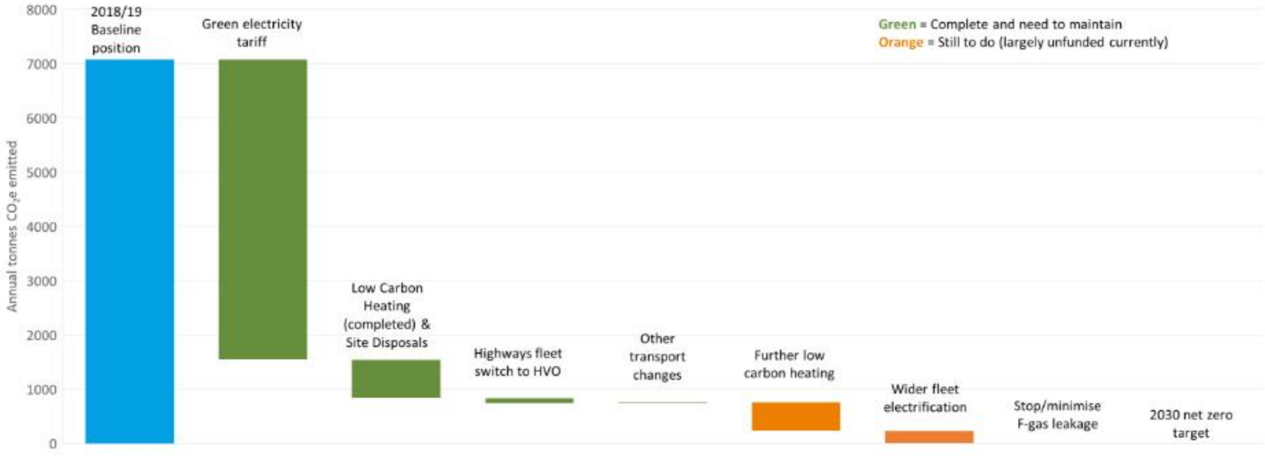
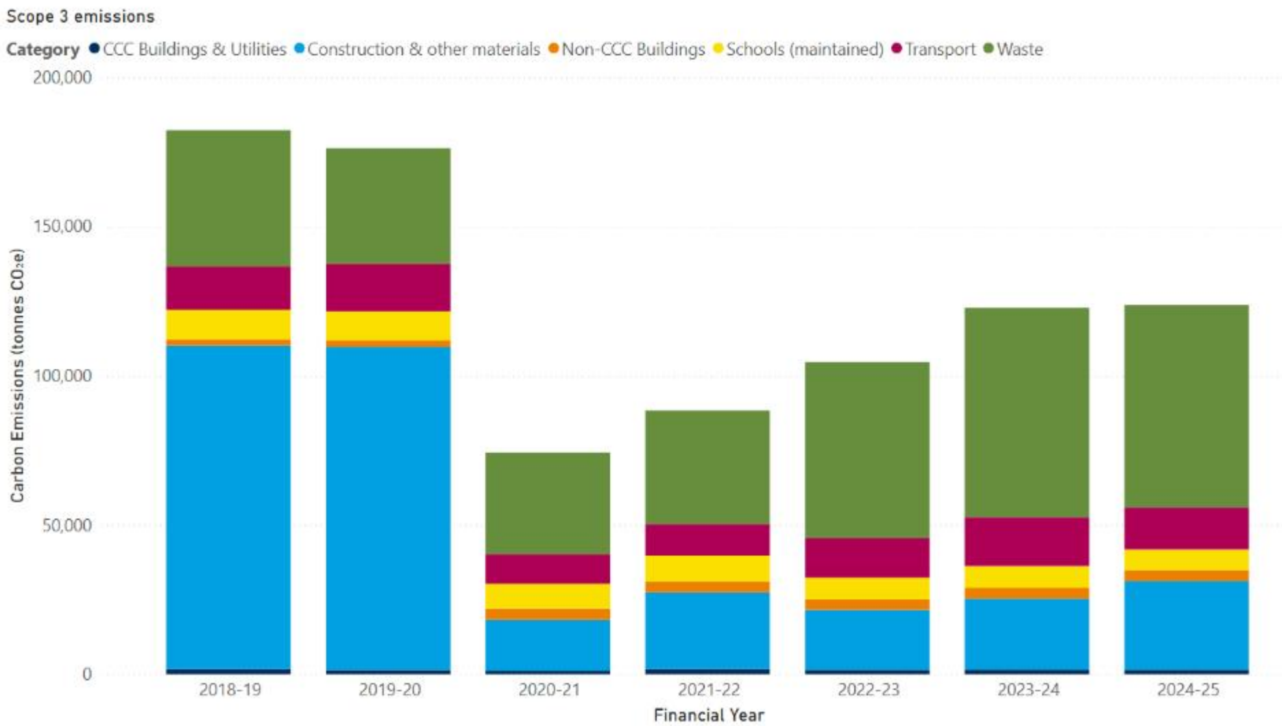


Figure 4: Scope 1 & 2 emissions key changes to date, and further actions needed to meet the Scope 1 & 2 target

3.3 Scope 3 emissions

Scope 3 emissions are indirect emissions from assets outside of CCC's control, such as those of our contractors and suppliers. This means it is harder to measure scope 3 emissions, as we do not always have access to all of the required data, and more might be based on estimates.

Some additional emissions associated with purchased goods and services are not yet included, because we do not have data to calculate these. However, we are working to improve this coverage. More information on data improvements, along with a list of what has been included and excluded, together with reasons for exclusions, are in section 3.12.



In 2024-25, CCC's Scope 3 emissions are 123,647 tonnes CO_2e. This is a 1% increase from 2023-24, however a 32% decrease from CCC's baseline in 2018-19. This is predominantly due to reduced construction activity from 2020 onwards. Waste emissions have increased since the

2018-19 baseline, however have increased less in absolute emissions than the decrease in construction emissions. We therefore see an overall decrease in Scope 3 emissions between 2018-19 and 2024-25. Greater detail on these emissions categories within Scope 3 are covered in the sections below.

Based on a linear pathway to achieving the Scope 3 emissions target (Figure 5), 2024-25 emissions are lower than 'annual target' for this year. Based on current policies and planned projects, however, future Scope 3 emissions are expected to exceed this linear pathway, and by 2030-31 emissions are anticipated to not have reduced enough to meet the Scope 3 target.

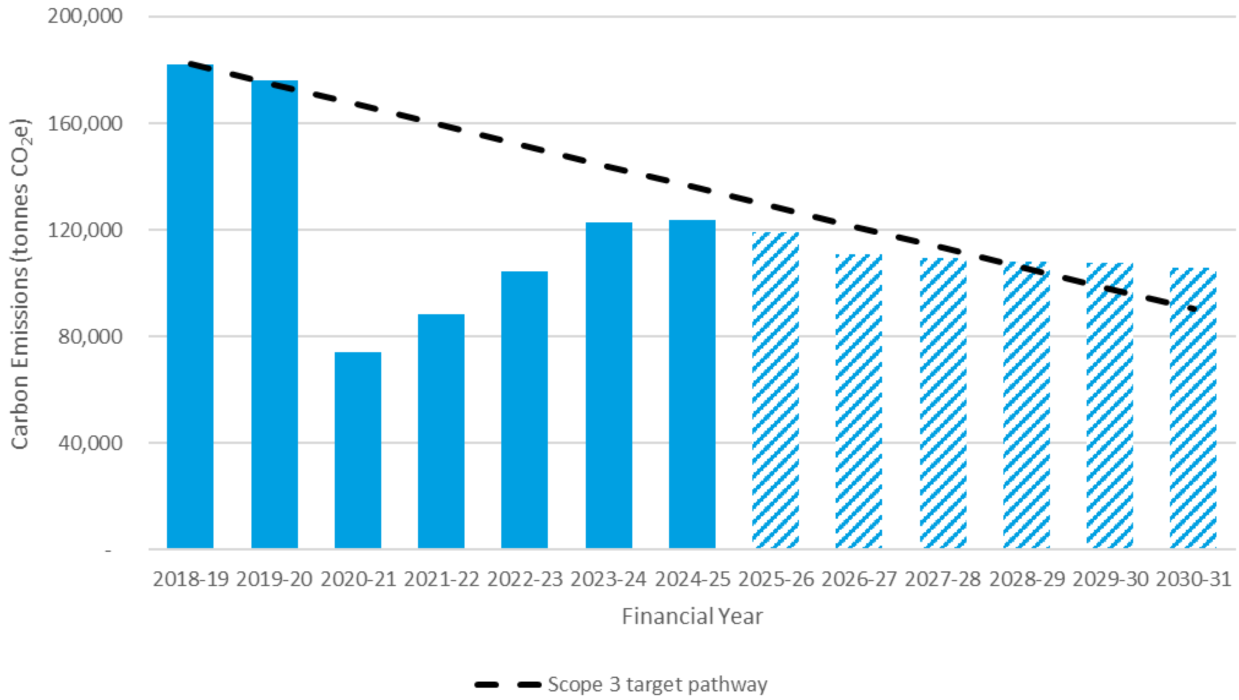


Figure 5: CCC Scope 3 actual emissions (solid bars for 2018-19 to 2024-25) and predicted emissions (striped bars for 2025-26 to 2030-31) based on current policies, plans and planned projects. The Scope 3 target pathway, for a 50.4% reduction, is shown by the dashed black line.

For Scope 3 emissions, key reductions from the 2018-19 baseline include reduced construction activity since 2020 (partially due to Covid-19 restrictions); and decreases in utility consumption for maintained schools (combination of academisation moving schools out of CCC's emissions boundary; and retrofit of some remaining schools) (Figure 6).

Further actions and changes reducing future Scope 3 emissions have been identified, as shown in the orange bars in Figure 6. This includes decarbonising and academisation of maintained schools (3,684 tCO_2e); and highways decarbonisation (5,334 tCO_2e). An emissions gap exists however (18,043 tCO_2e), where further reduction actions as yet unidentified are required to reach the Scope 3 target by 2030.

There is some uncertainty as to levels of future construction, however based on current forecasts for upcoming capital projects, these emissions are forecast to decrease further between now and 2030. Should this significantly increase, there will be a larger emissions gap to reach the 2030 scope 3 target. The Council will need to consider its forward capital programmes for schools and infrastructure projects to understand the impact these will have on carbon emissions and incorporate this into pathway planning.

Key priorities will be to identify further funding to enable actions shown in orange in Figure 4; and identify further actions to reduce emissions.

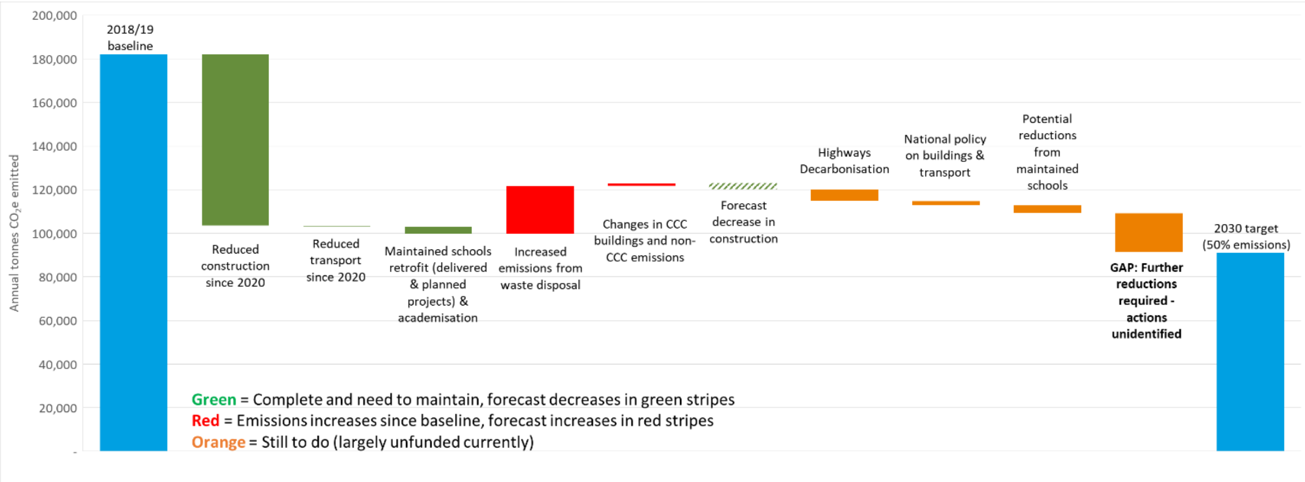


Figure 6: Scope 3 emissions key changes to date, and further actions needed to meet the Scope 3 target

3.4 Rural Estate

CCC owns a large rural estate of around 33,000 acres, which is let out to more than 170 tenants. Most of the County Farms estate is cropland (arable farms), with a small amount of livestock. CCC also owns other land, including parkland, built-up land (buildings and highways) and forest/woodland. These emissions are all part of CCC's Scope 3 emissions, but are excluded from the main Scope 3 emissions target.

Agricultural emissions can occur from various sources including livestock and from application of fertiliser to land. These emissions are difficult to calculate as they depend on many factors, for example soil type, fertiliser type and application rate, livestock type.

In 2023-24, CCC's Just Transition Fund paid for a piece of work by Eunomia Research & Consulting Ltd to help CCC better understand the agricultural and land use related GHG emissions from its rural estate. This provided an estimated baseline of these emissions for 2022-23, a tool to recalculate these emissions in future, and information about potential pathways and actions to reduce emissions.

There is considerable uncertainty associated with estimating agricultural emissions. Eunomia undertook surveys with a sample of the Council's tenants (around 14%) to better understand their properties, land use and practices. The survey data was used to help estimate emissions from other similar properties. The Council aims to expand the number of tenants that have been surveyed during the winter of 2025-26. This will increase the number of properties we have collected more reliable survey data from, as well as expanding the dataset used to estimate emissions for non-surveyed properties.

In 2024-25, gross GHG emissions of the rural estate were 199,935 tCO_2e, with -2,649 tCO_2e sequestered during the same period[1]. Of the gross emissions, more than 97% comes from agricultural activities ('Farmland and habitat'), with the remainder from on-farm and residential buildings. Based on the limited data, these proportions have been relatively consistent year-on-year. There has been a less than 1% decrease in emissions from 'Farmland and habitat' and 'Buildings' and no change in 'Total sequestration' emissions between 2018-19 and 2024-25. The slight decrease in 'Farmland and habitat' emissions is the result of changes to properties owned by the Council.

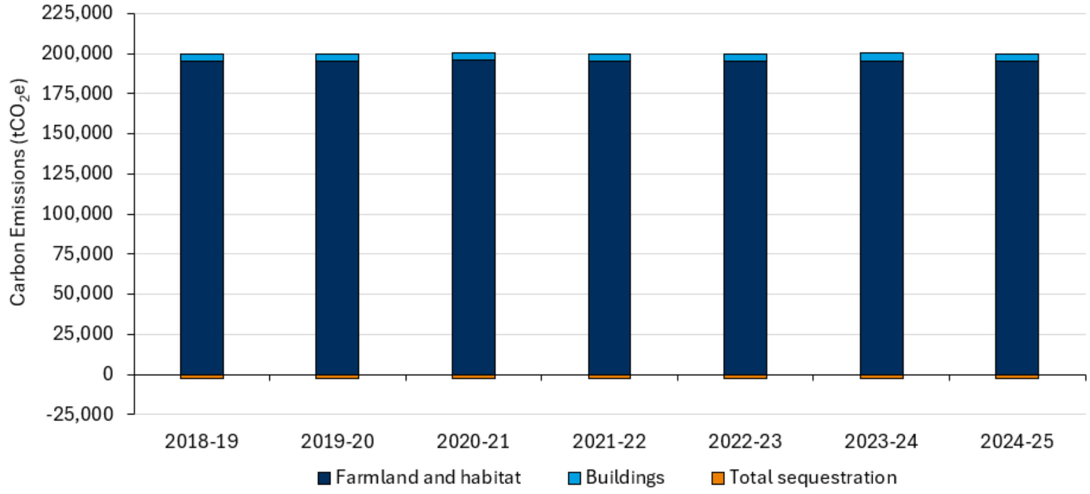


Figure 7: CCC Rural Estate emissions

Breaking down the 'Farmland and habitat' category by property type (Figure 8), the proportional split of emissions by property type is consistent across all years. In 2024-25, 67% of the 'Farmland and habitat' emissions are from arable land on peat soils, accounting for 134,658 tCO_2e in 204-25. This is followed by 15% from arable land on non-peat soils (30,358 tCO_2e).

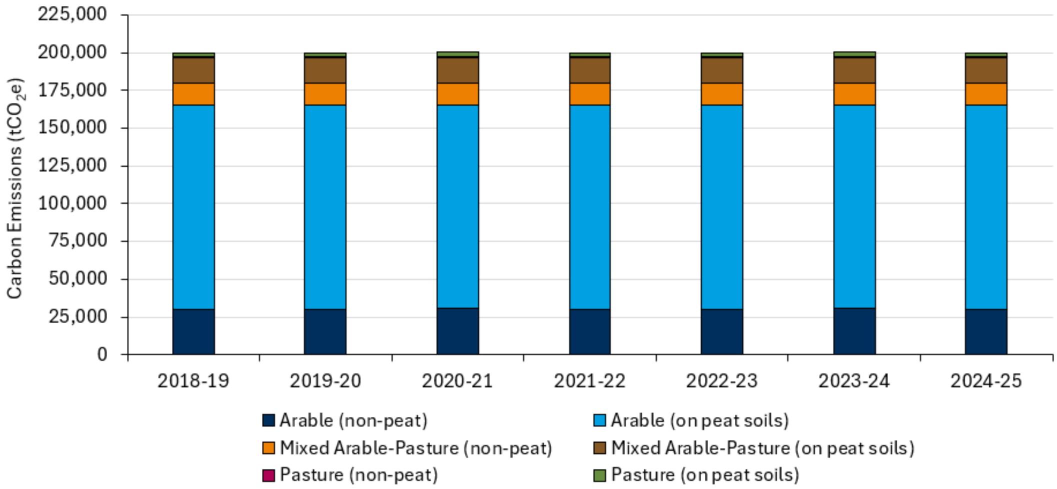


Figure 8: CCC Rural Estate emissions for farmland and habitat, broken down by property type

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[1] A separate report commissioned to inform the Council's Trees and Woodland Strategy looked at (amongst other topics) carbon sequestration across all of the Council's land holdings, including rural estates, urban estates, highways, footpaths and bridleways, byways, hedgerows and wildlife sites. This suggested that the total carbon sequestration from all of these could be as much as -15,000 tonnes CO_2e per year. Further work is needed to understand this in more detail.

From the consultancy work the carbon emissions baseline is greater than thought in earlier carbon footprint reports, and that achieving net zero in agriculture, land use, and land use change is not possible. Even very ambitious plans could only reach 54% emissions reductions by 2045 and would require significant national policy support and new business economic models. There are further constraints in achieving this level of emissions reductions, for example, the volume of land that would need to be taken out of food production. More work is needed to identify what can be achieved on the rural estate, by when and which partnerships are needed to support delivery.

Due to the size of these emissions compared to the rest of the Council's emissions, and following industry best practice, and as agreed in 2024, these emissions are to have their own target, separated from the rest of the Scope 3 emissions. Decisions related to this target will be included in the refreshed Climate Change and Environment Strategy later in 2025-26.

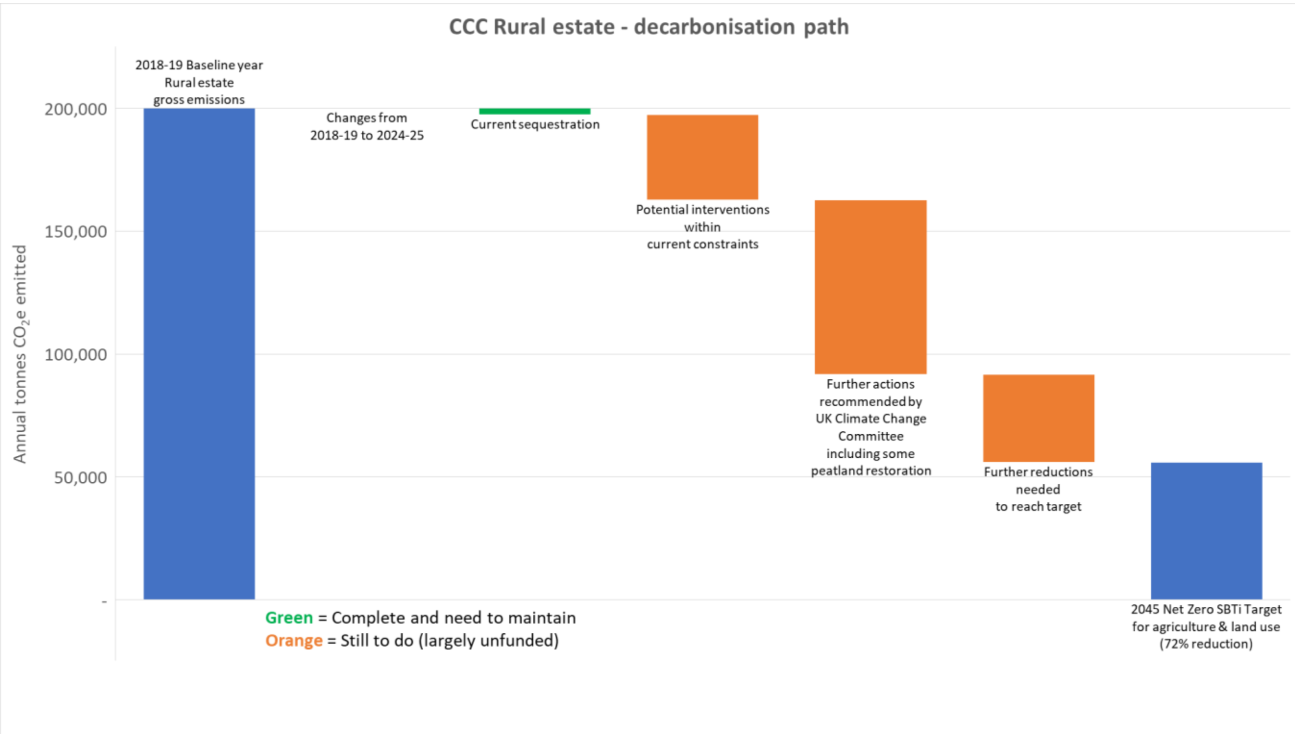

Figure 9: CCC Rural Estates potential decarbonisation pathways

3.5 Full emissions breakdown

Table 2: Cambridgeshire County Council Greenhouse Gas emissions 2024-25, breakdown

Category	GHG emissions (Tonnes CO_2e), 2024-25 (rounded to nearest tonne)				
	Scope 1	**Scope 2 (market-based)**	**Scope 3**	**Total in scopes 1-3**	**Outside of scopes**
CCC Buildings & utilities	530	-	1,507	2,037	-
Gas	505		83	589	-
Oil and other heating fuels	18		3	21	-
Refrigerant gases	7		-	7	-
Electricity for CCC buildings		-	645	645	
Electricity for street lighting		-	745	745	
Water & sewerage for CCC sites	-		31	31	
Schools (maintained)			6,917	6,917	-
Electricity			2,550	2,550	
Gas			3,805	3,805	
Oil & Other heating fuels			562	562	-
Non-CCC buildings			3,683	3,683	-
Electricity for data centre			41	41	
Cloud-hosted IT services			16	16	-
Commissioned care homes			2,076	2,076	-
Employees home working			1,085	1,085	-
Transport	234	-	14,064	14,298	109
Business travel	232	-	1,697	1,930	-
Highways vehicles	2	-	25	27	109
Social & education transport	-	-	9,418	9,418	-
Employee commuting		-	1,915	1,915	-
Construction transport	-	-	1,009	1,009	-
Waste			67,783	67,783	23,836
Asbestos disposal			0	0	-
CCC site waste			121	121	-
Construction waste			1,206	1,206	-
County waste disposal - landfill & MBT			61,378	61,378	21
County waste disposal – other processes			5,057	5,057	23,815
Highways waste			21	21	-
Construction and other materials	-	-	29,692	29,692	-
Education capital projects	-	-	7,799	7,799	-
Highways and major infrastructure	-	-	18,849	18,849	-
Large Energy Projects	-	-	2,936	2,936	-
Minor works	-	-	66	66	-
IT hardware	-	-	42	42	-
Total (gross, before reductions)	**764**	**-**	**123,647**	**124,411**	**23,945**
Avoided emissions from solar assets				- 2,690	
Net total emissions				**121,721**	

For transparency, and to align with the GHG Protocol Scope 2 Guidance, scope 2 emissions are reported using both the market-based and location-based methods.

Using the location-based method for scope 2 emissions, scope 2 emissions are 4,220 tCO_2e (all within the 'buildings and utilities' category). 1959 tCO_2e of this was for electricity for street lighting, and the remaining 2262 tCO_2e was for electricity for buildings and other assets. Emissions in all other categories would be the same as in Table 2.

Using the market-based method, the Council's scope 2 emissions for 2024-25 were 0 tCO_2e, as shown in Table 2.

Emissions from all previous years back to our baseline year of 2018-19 have been recalculated in order to be more accurate where updated data becomes available, and to ensure consistency in terms of what is included in the emissions inventory and the calculation methodology. These changes mean that the baseline year net emissions for 2018-19, in total for all three scopes, are now calculated at 180,002 tCO_2e (using the market-based method for scope 2). (This is excluding the rural estate).

CCC's total net GHG emissions in 2024-25, for all three scopes, was 121,721 tCO_2e (net, after reductions for avoided emissions and excluding the rural estate). This is 32% lower than our baseline year of 2018-19.

The tables below show CCC's total carbon emissions across all three scopes, for each year since 2018-19, using both the market-based method (Table 3) and the location-based method (Table 4) for scope 2.

Table 3 CCC Annual GHG emissions - using market-based method for scope 2

(tonnes CO2e)	**2018-19**	**2019-20**	**2020-21**	**2021-22**	**2022-23**	**2023-24**	**2024-25**
Scope 1	1,547	1,536	1,274	1,528	1,054	938	764
Scope 2 (market-based)	0	0	0	0	0	0	0
Scope 3	182,213	176,195	74,269	88,359	104,566	122,702	123,647
Gross total scopes 1-3	**183,760**	**177,731**	**75,544**	**89,888**	**105,620**	**123,639**	**124,411**
Reductions	-3,758	-3,371	-3,085	-2,818	-2,710	-2,580	-2,690
Net total in scope after reductions	**180,002**	**174,360**	**72,459**	**87,070**	**102,910**	**121,059**	**121,721**
Outside of scopes	16	62	213	15,131	17,874	26,602	23,945

Table 4 CCC Annual GHG emissions - using location-based method for scope 2

(tonnes CO2e)	**2018-19**	**2019-20**	**2020-21**	**2021-22**	**2022-23**	**2023-24**	**2024-25**
Scope 1	1,547	1,536	1,274	1,528	1,054	938	764
Scope 2 (location-based)	5,537	5,021	4,349	4,138	3,727	4,259	4,221
Scope 3	182,213	176,195	74,269	88,359	104,566	122,702	123,647
Gross total scopes 1-3	**189,297**	**182,753**	**79,893**	**94,025**	**109,347**	**127,898**	**128,632**
Reductions	-3,758	-3,371	-3,085	-2,818	-2,710	-2,580	-2,690
Net total in scope after reductions	**185,539**	**179,381**	**76,808**	**91,207**	**106,636**	**125,318**	**125,942**
Outside of scopes	16	62	213	15,131	17,874	26,602	23,945

For an explanation of the methodology (including emissions outside of scopes) see section 3.12.

3.6 CCC Buildings and utilities

Emissions in this category include those from fuels and electricity used to heat and light CCC buildings, water supply and sewerage, and refrigerant gases (used in air conditioning units and heat pumps).

The Council's buildings and utilities were responsible for 2037 tCO_2e in 2024-25; with 530 tCO_2e in Scope 1 and 2, and the remaining 1507 tCO_2e as Scope 3.

For Scope 1 and 2, this accounts for 69% of CCC's total Scope 1 and 2 emissions. Scope 1 and 2 buildings and utilities emissions include fuels and electricity used to heat and light CCC buildings, and refrigerant gases (used in air conditioning units and heat pumps). Scope 2 emissions from electricity use were zero using the market-based method, as CCC purchases a zero carbon electricity tariff. The Council purchased around 41 million kWh of electricity in 2024-25, over half of which was for street lighting.

In 2024-25, 95% (505.2 tCO_2e) of this category's scope 1 and 2 emissions was from gas consumption. Burning oil (kerosene) and other heating fuels, although more carbon intensive than gas, accounted for only 17.9 tCO_2e in 2024-25, because there were very few CCC sites that use these fuels. Fugitive emissions of refrigerant gases accounted for 7.2 tCO_2e in 2024-25, with diesel and electricity accounting for 0 tCO_2e in 2024-25.

In 2024-25, Scope 1 and 2 emissions in this category have decreased by 57% compared to 2018-19; and 21% since 2023-24 (Figure 10).

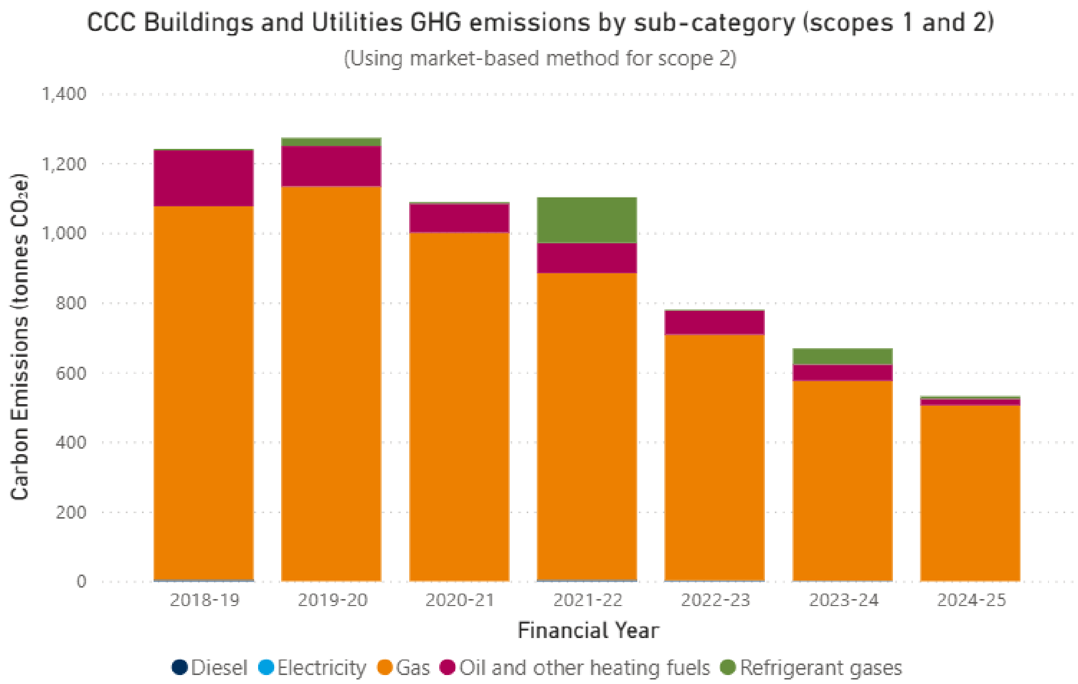

Figure 10: CCC Buildings and Utilities Scope 1 and 2 emissions

This reflects continued decreasing consumption of mains gas (53% decrease compared to 2018-19; and 12% decrease since 2023-24), mainly due to the replacement of fossil fuel heating with low carbon air source heat pumps in some buildings. The reduction since 2023-24 can mainly be attributed to further reduced gas and oil consumption, due to the low carbon heating programme replacing carbon intensive heating systems with greener alternatives.

Scope 3 buildings and utilities emissions include scope 3 components of the fuels used to heat and light buildings, and water and sewerage.

Scope 3 emissions associated with the electricity still apply (with either the location-based or market-based method), which account for transmission and distribution losses in the electricity grid, and 'well-to-tank' emissions associated with extraction and production of fuels used for electricity generation. These scope 3 emissions connected to the council's electricity usage accounted for 1,390 tCO_2e for street lighting and electricity used in council buildings and other assets in 2024-25. This accounts for 92% of this category's Scope 3 emissions.

The trends for the scope 3 components of the fuels used (apart from electricity) reflect the trends seen for the same fuels in scope 1 and 2. CCC's water and sewerage are classed entirely as scope 3 emissions, and since 2022-23, have continued to reduce. This is largely due to ongoing efforts to install automatic meter readers and early leak detection systems on some of CCC's largest water supplies, reducing water supply volume. Water sewerage volume has increased over the same time period, however emissions have decreased due to a national decrease in carbon intensity.

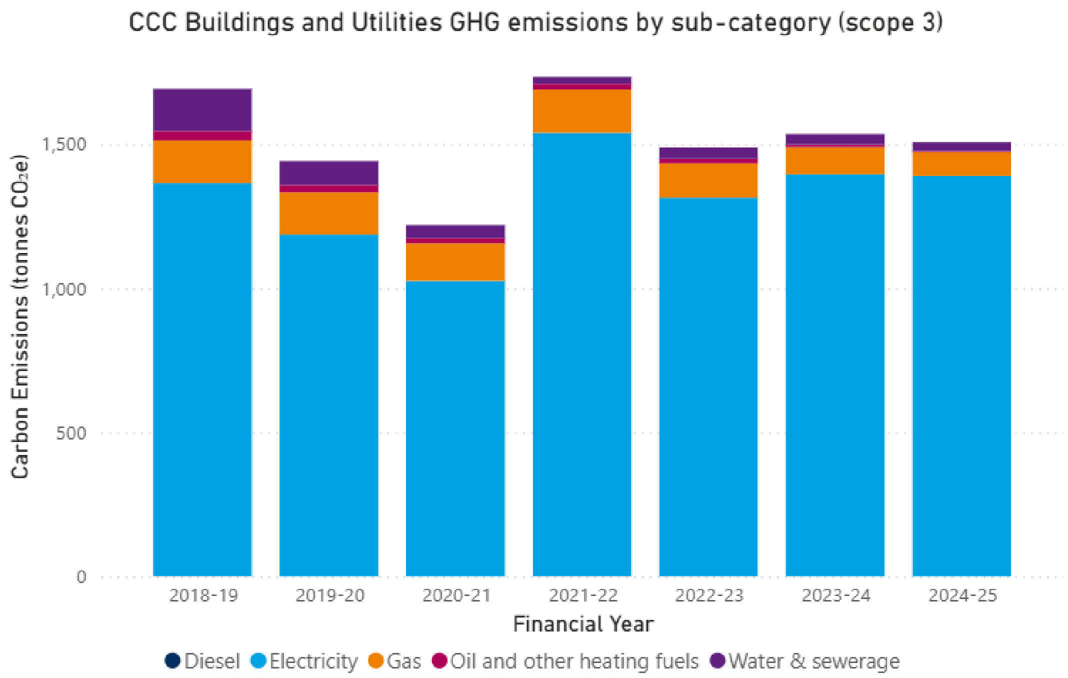

Figure 11: Scope 3 emissions from CCC Buildings and Utilities

3.7 Maintained schools' buildings

This category includes data for all Cambridgeshire maintained schools. We do not currently have data for schools' water and sewerage services, or air conditioning gases in schools. Academy schools are not included in these figures since these are not under CCC's control.

Where Cambridgeshire maintained schools either do not purchase their utilities through ESPO[2] or have not provided their utilities data directly to us, we have estimated their emissions based on the average utility consumption for schools we do have this data for. Year on year emissions therefore represent the best estimate of emissions for all Cambridgeshire maintained schools.

Maintained schools accounted for 6,917 tCO_2e in 2024-25. This is all within CCC's Scope 3 emissions, accounting for 6% of CCC's Scope 3 emissions.

[2] Eastern Shires Purchasing Organisation

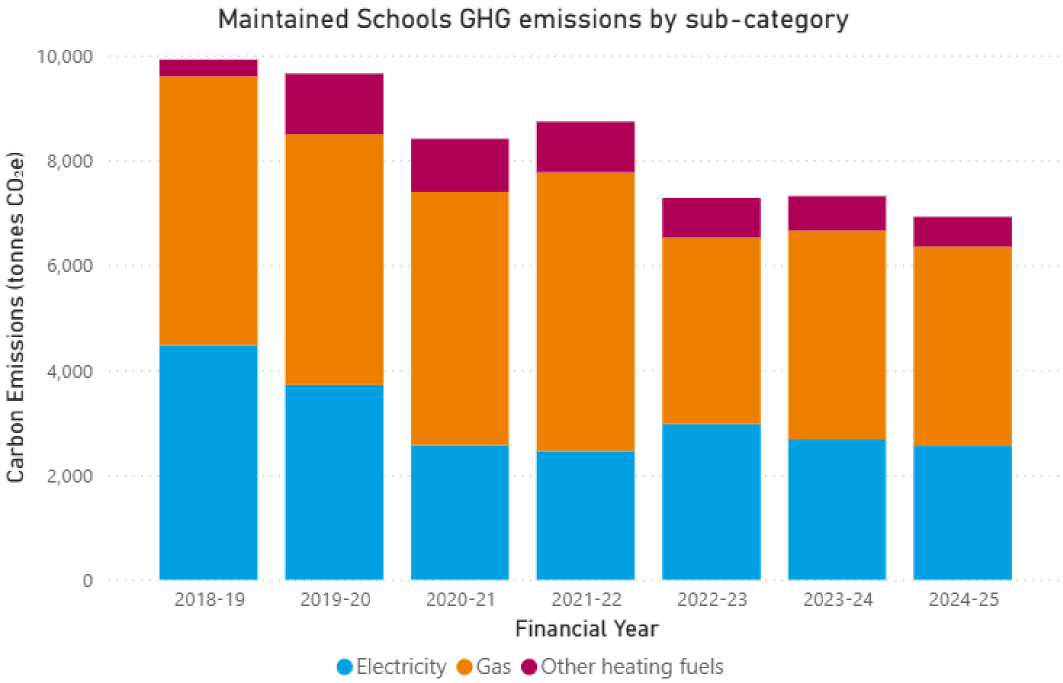

Figure 12: Scope 3 emissions from CCC Maintained schools

In 2024-25, 55% of emissions in this category are from gas consumption, 37% from electricity consumption, and 8% from other heating fuels. These proportions have stayed relatively consistent year-on-year.

2024-25 maintained schools' emissions have decreased by 5% compared to 2023-24 and decreased by 30% since 2018-19.

This is mainly due to less gas, electricity and other heating fuels being consumed (Figure 13), corresponding with a net loss of 25 maintained schools between 2018-19 and 2024-25. 29 schools have either closed or academised during this period, and 4 have been introduced as maintained schools.

The schools' decarbonisation programme has further transitioned some sites away from fossil fuels, decreasing fossil fuel consumption, whilst increasing electricity consumption. This can be seen in the corresponding lines in Figure 13.

Despite small increases in electricity consumption as a result of the decarbonisation programme, due to the decarbonisation of the national electricity grid these electricity emissions have remained relatively low.

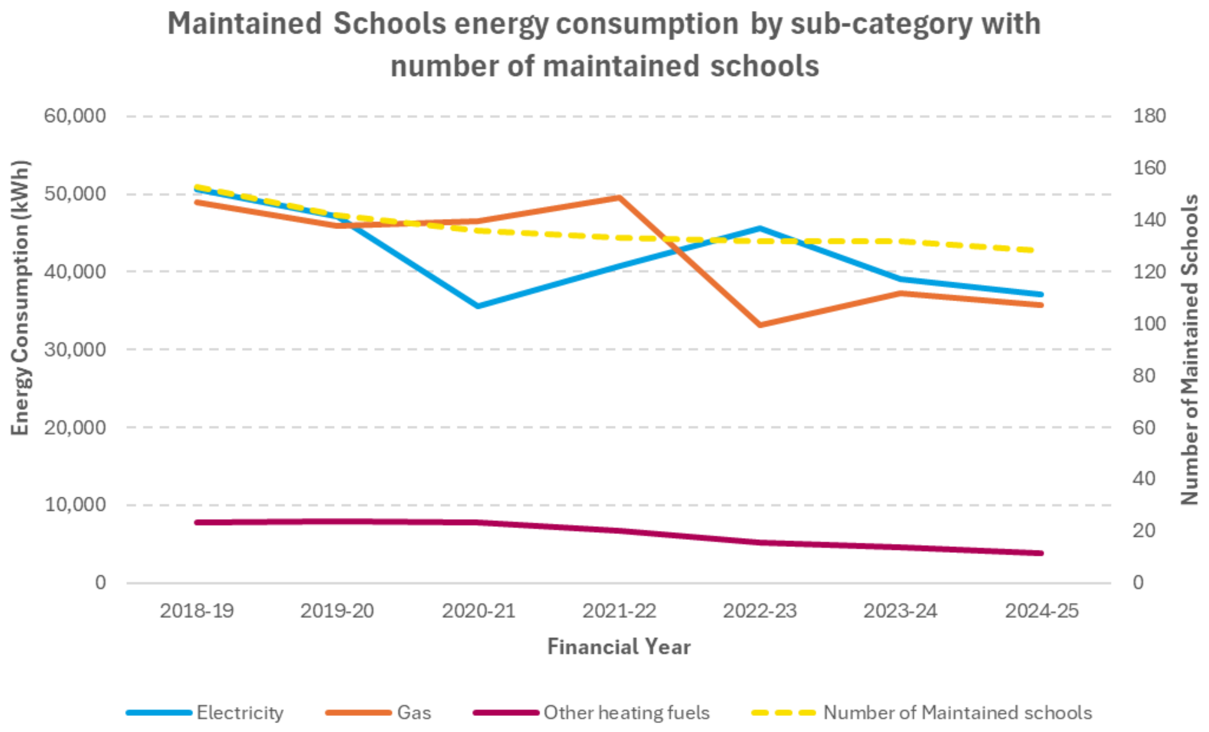

Figure 13 Maintained schools' emissions with number of maintained schools

3.8 Other (non-CCC) buildings

Emissions from other (non-CCC) buildings were 3,683 tCO_2e in 2024-25, all within Scope 3.

These emissions include CCC's share of electricity used for our data centre (space shared with Peterborough City Council), commissioned care home places, CCC employees' homeworking, and cloud-hosted IT services.

Cloud-hosted IT services include CCC's use of Microsoft 365, Microsoft Azure and AWS. This currently does not include wider Microsoft products used, such as PowerBI or CoPilot; if this data becomes available from Microsoft we will seek to include in emissions figures.

In 2024-25, commissioned care homes accounted for 69% of this category, followed by homeworking (29%), electricity use at the IT data centre (1%) and cloud-hosted IT services (less than 1%). These proportions are relatively consistent year-on-year.

Emissions in this category have increased by 76% since 2018-19, with a 1% increase between 2023-24 and 2024-25 (Figure 14). This is predominantly due to increased emissions from commissioned care homes and homeworking.

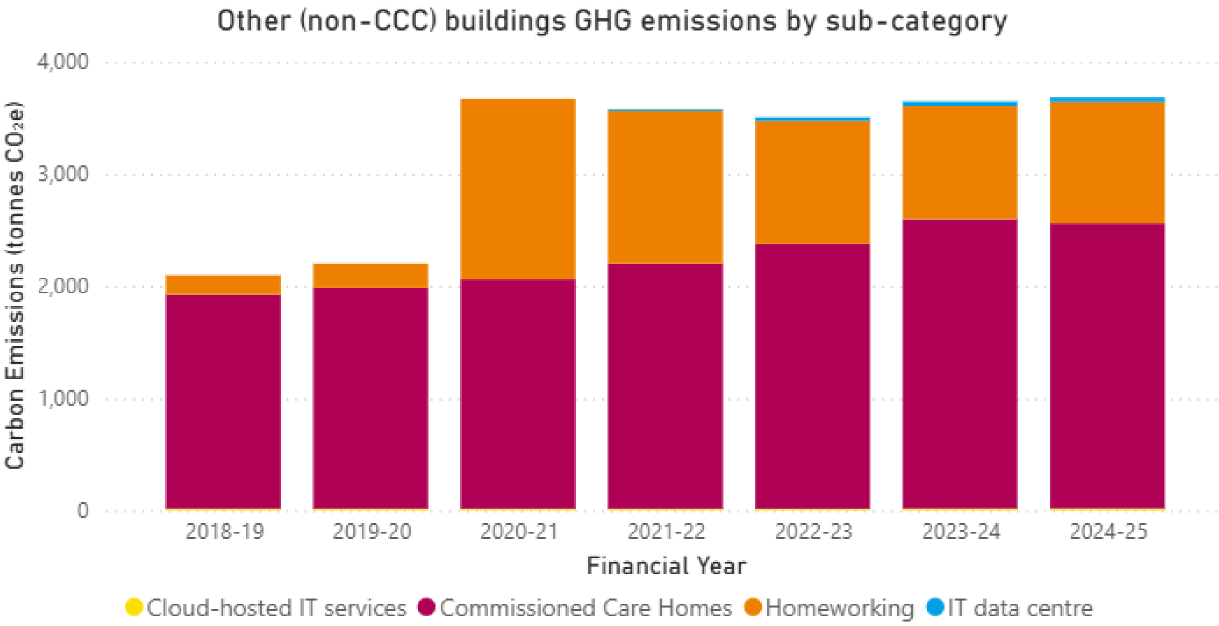

Figure 14 Scope 3 emissions from Other (non-CCC) buildings

The number of CCC clients is estimated to have increased by 28% between 2018-19 and 2024-25, with increases in estimated electricity and gas consumption also seen (38% and 41% respectively).

Between 2023-24 and 2024-25, the number of CCC clients increased by 3%. Despite this, electricity consumption is estimated to have decreased by 7%, whilst gas consumption increased by 0.3%, resulting in a slight overall decrease in consumption (Figure 15) which is mirrored in the 2024-25 emissions.

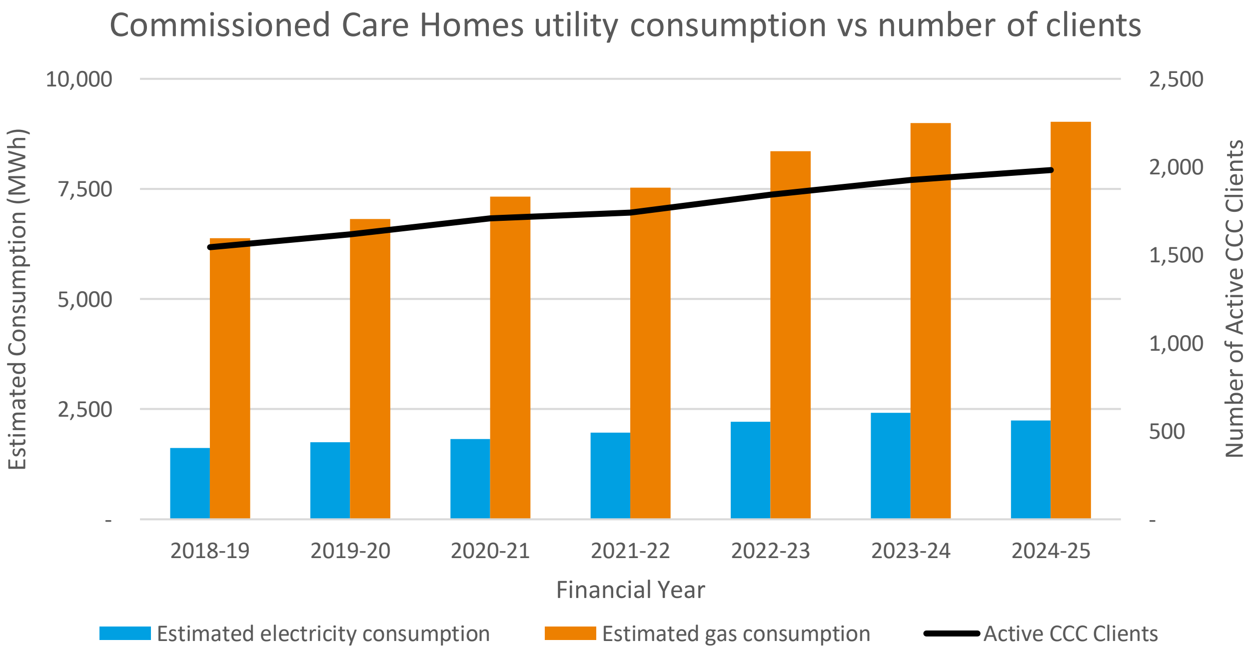

Figure 15 CCC Commissioned care homes utility consumption per year, shown against the number of active clients

Prior to 2020, homeworking was only around 10% of employee time, but this increased significantly at the start of the Covid-19 pandemic in 2020 to over 80%. There were resultant significant increases in emissions from homeworking in 2020-21 following changes in ways of working due to Covid-19, however these emissions gradually declined from 2020-21 to 2023-24. In 2024-25, they increased slightly (by 7%), reflecting an uptick in the proportion of employee time homeworking (Figure 16).

When people work from home more and travel less, the increased emissions associated with home working are much smaller than the associated reduction in emissions from employee commuting (Figure 16). This is because, for most people, travel causes more emissions than home energy use.

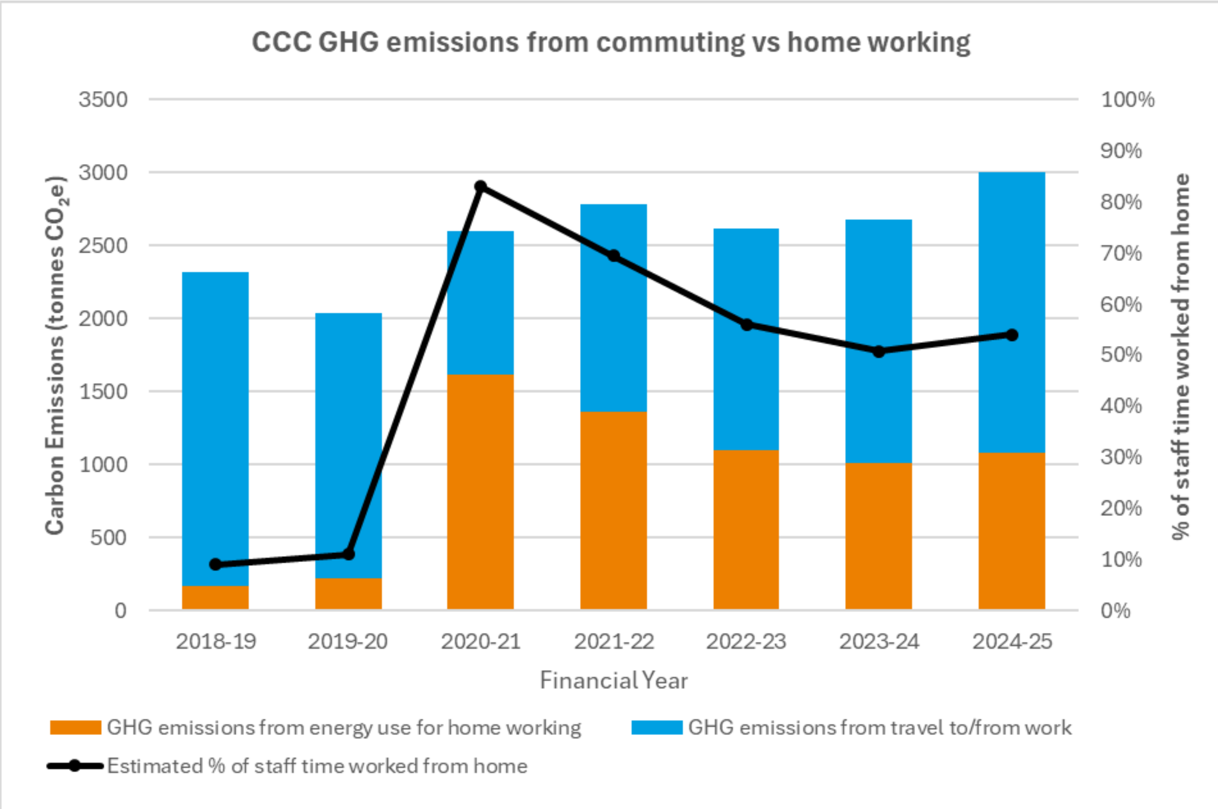

Figure 16 CCC emissions from homeworking and employee commuting per year; with the percentage of staff time worked from home shown by the black line.

3.9 Transport

In 2024-25, transport accounts for 14,298 tCO_2e, split between Scope 1 and 2 (234 tCO_2e) and Scope 3 (14,064 tCO_2e).

Scope 1 emissions include emissions from CCC fleet vehicles; whilst Scope 3 emissions include the Scope 3 components of emissions from CCC fleet vehicles, and emissions from vehicles not under control of CCC, such as vehicles belonging to CCC employees or contractors.

In 2024-25, over 99% of Scope 1 and 2 transport emissions were from ‘business travel’ (covering pool and hire cars, and fuel cards), with the remaining less than 1% from highways vehicles. For 2018-19 to 2023-24, data has been available to identify social and education transport emissions within the business travel data; in 2024-25 this was unavailable, and all has been classed as business travel. Since 2022-23, emissions from highways vehicles have been a very small proportion of Scope 1 and 2 transport emissions, as a result highways services transport switching to HVO fuel.

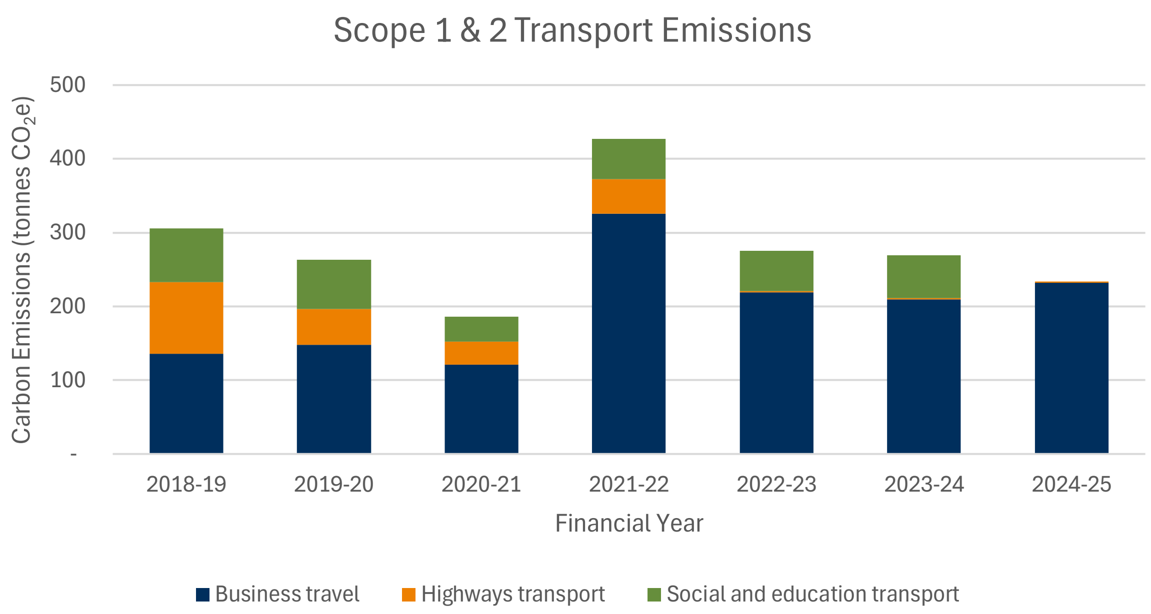

Figure 17 CCC’s Scope 1 & 2 transport emissions, split by sub-category

In 2024-25, 67% of Scope 3 emissions in this category were from social and education transport, 14% from employee commuting, 12% from business travel, 6% from construction transport, and 1% from highways transport. In all years since the 2018-19 baseline, social and education transport has accounted for the largest proportion of annual Scope 3 transport emissions. Social and education transport includes home to school transport, homecare providers transport, and other social and education transport used by contractors and volunteers. The total estimated distance for home to school transport has increased by 183% (from 6.5 million km in 2018-19, to 18.3 million km in 2024-25), contributing to these emissions increases seeing.

As seen in the construction and other materials section (section 3.11), the amount of construction transport can be expected to vary year-on-year, depending on the number and size of capital projects occurring in any one year.

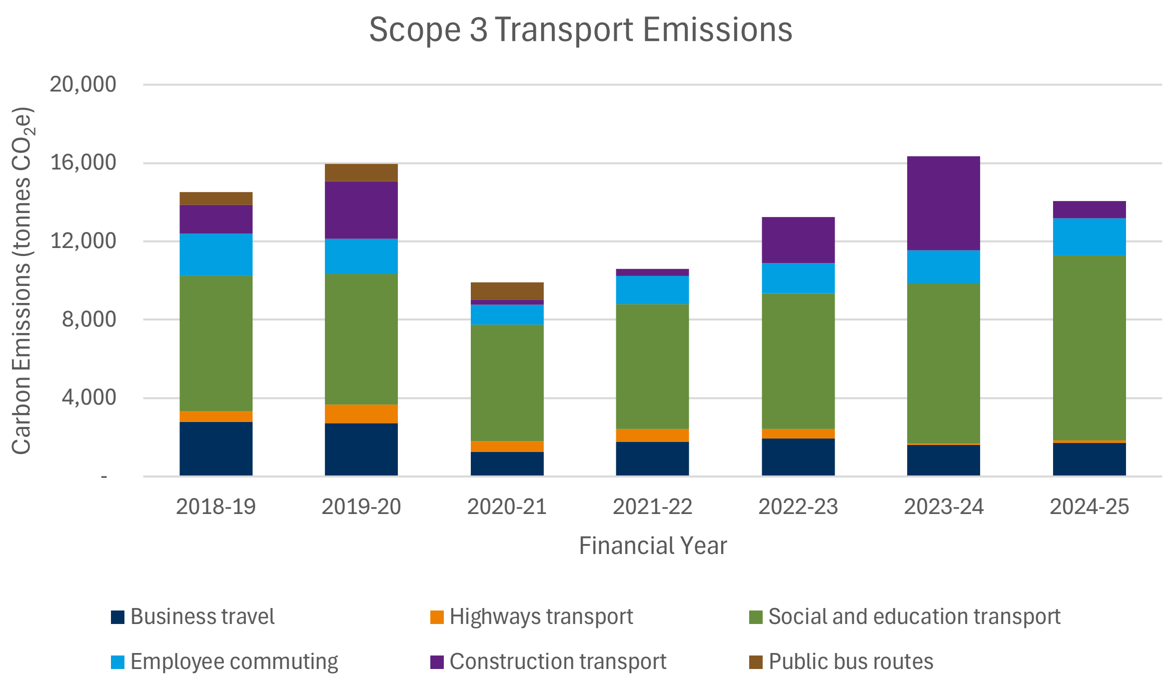

Figure 18 CCC Scope 3 Transport emissions, by sub-category

3.10 Waste

Waste accounts for the largest share (55%) of CCC's Scope 3 emissions in 2024-25, at 67,785 tCO_2e. The vast majority of this (estimated at 66,435 tCO_2e) is due to the Council's statutory responsibility as the Waste Disposal Authority for treatment and disposal of waste from Cambridgeshire residents (Figure 19).

Note that waste collection is the responsibility of the City and District Councils, therefore transport of waste is not included in these figures, whereas treatment and disposal is the responsibility of the County Council and is included.

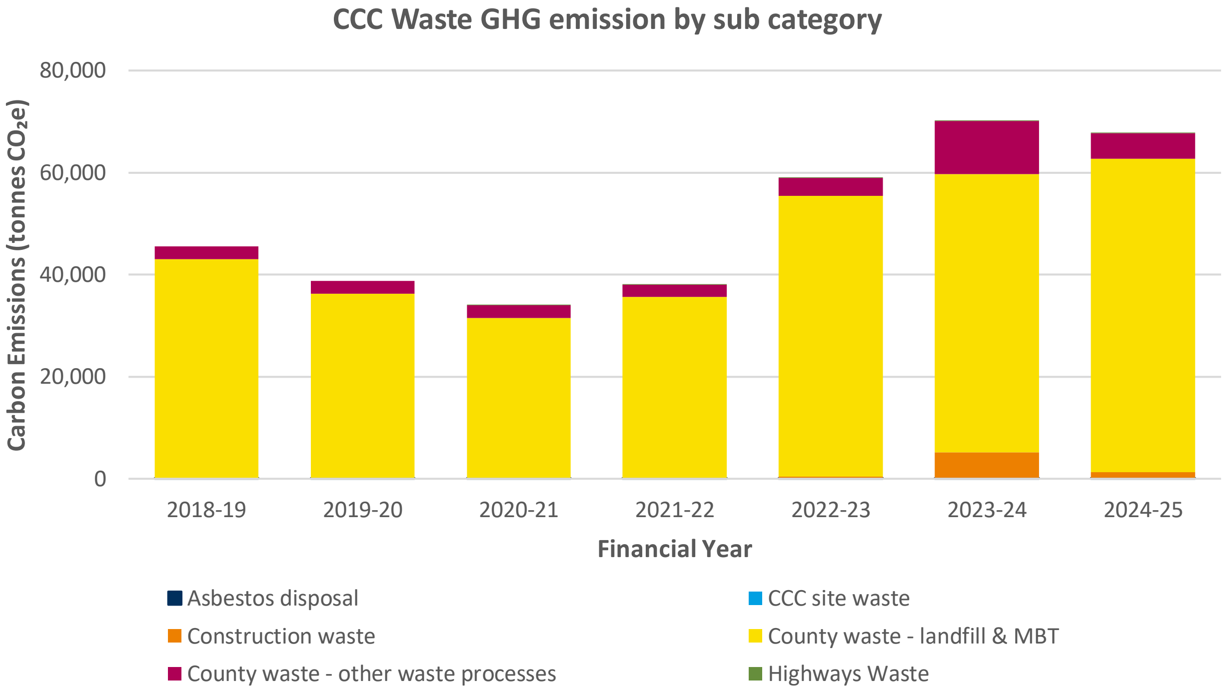

Figure 19: CCC Annual waste emissions, split by sub-category

In 2024-25, there were 288,785 tonnes of waste collected from both the household kerbside collections and the Council's nine Household Waste Recycling Centres. This is a 6% decrease in total tonnage compared to 2023-24 (Figure 20).

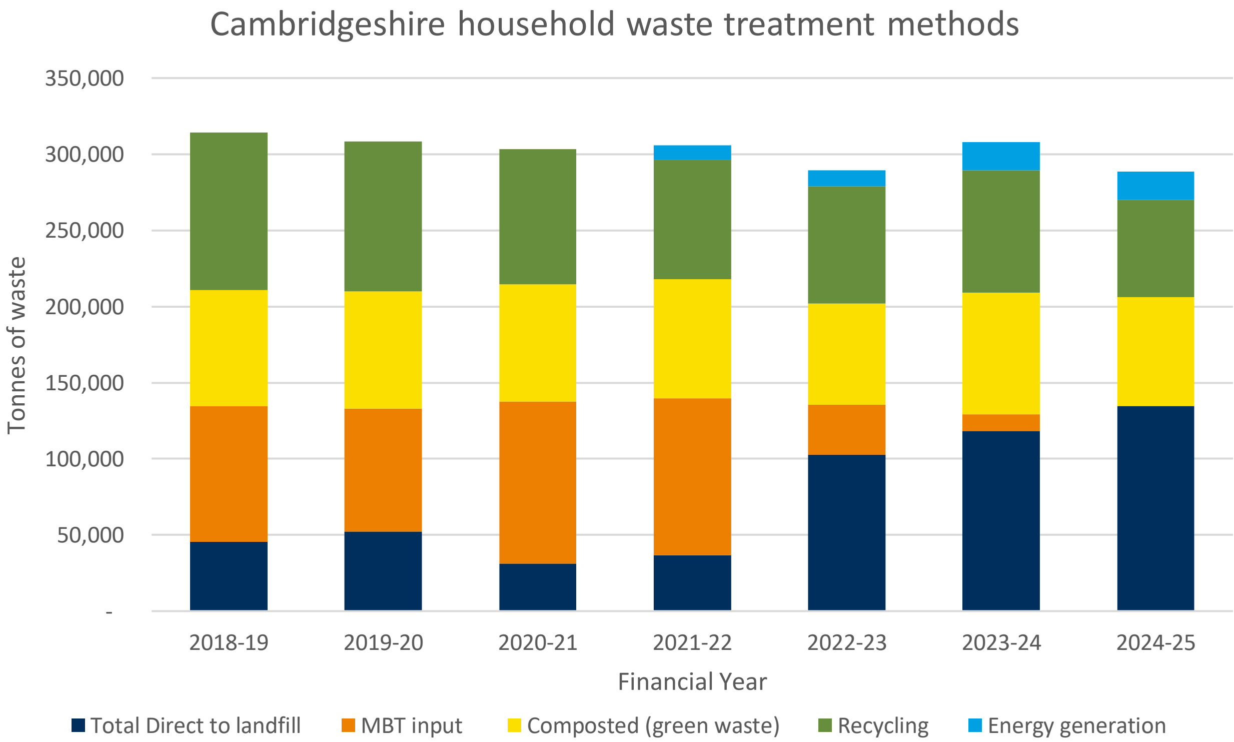

Figure 20 Annual tonnes of household waste collected in Cambridgeshire, split by treatment method

In 2024-25, 47% of total tonnage collected went directly to landfill, 25% was composted, 22% was recycled and 6% was used for energy generation, and 0% was processed through a Mechanical-Biological Treatment (MBT) plant.

Emissions from household waste have increased by 2% since 2023-24, and increased by 46% since the 2018-19 baseline. Waste emissions have increased this year due to more waste being sent to landfill, despite the lower overall waste tonnage collected.

In previous years, emissions avoided as a result of waste-to-energy have been reported in Section 3.5 Full emissions breakdown. In the 2024-25 report, these emissions have been removed for all years. This follows GHG Protocol guidance & updated guidance in Local Partnership's Waste Calculator to not include or deduct these emissions within or from the inventory. They can be reported separately, using a project accounting methodology. This will need further work to re-estimate these emissions according to latest guidance in future.

The small remainder of the waste category is from construction waste accounting for 1206 tCO_2e, the waste generated at the Council's own sites (121 tCO_2e), highways waste (21 tCO_2e) and asbestos disposal (less than 1 tCO_2e).

3.11 Construction projects and other materials use

This section includes emissions (all of which are classed as scope 3) from construction projects undertaken by contractors, and from other materials that were purchased for CCC business. This category only includes energy and materials from construction projects, construction transport and construction waste are included in the Transport and Waste sections respectively.

Construction projects are split into the sub-categories: Education Capital (such as building new schools and extensions), Minor Works (e.g. minor refurbishment works of CCC buildings), Highways (e.g. highways maintenance, resurfacing works, and highways projects completed through CCC's highways framework contracts), and Large Energy Projects (e.g. construction of CCC-owned solar farms). Raw data has been sought to calculate these emissions; where this has been unavailable, emissions estimates have been made using industry standards. We have not yet obtained full information and data for infrastructure projects carried out by the Greater Cambridge Partnership, and these projects are currently omitted from all years to provide consistency year on year. Work is underway to enable obtaining fuller data for inclusion in future years' reporting.

As major capital purchases for construction projects may differ significantly year-on-year, it is expected emissions within this category particularly for construction might fluctuate to a much greater extent than other emissions categories, depending on what projects have occurred in a particular year.

Where quantities of other materials purchased directly by CCC are known, such as IT hardware, emissions from these materials' manufacture prior to arriving at CCC are included in this category. Emissions from their use and disposal are included in the appropriate category elsewhere within this report.

In 2024-25, emissions from construction and other materials were 29,692 tCO_2e. This is 25% greater than 2023-24, but 73% less than the 2018-19 baseline year. This is predominantly due to increased highways emissions in 2024-25 compared to 2023-24, due to additional funding for highways enabling more works to be carried out.

In 2024-25, 63% of this category's emissions were from Highways, 26% from Education Capital, 10% from Large Energy Projects, and less than 1% from Minor Works and IT hardware. The relative proportions of these per year have varied since 2018-19.

In 2018-19 and 2019-20, the vast majority of emissions were from Education Capital projects (Figure 21). Since 2020-21, there have been much lower emissions from construction activity, partially due to the impacts of the Covid-19 restrictions on the construction sector. The construction of the first Large Energy Projects since 2016-17 started in 2021-22, and these construction emissions have been relatively similar year-on-year since then, with the number of projects varying between 3-4 in progress per year. Greater fluctuations are seen in the Education Capital emissions year-on-year, where the number and size of projects in progress differ to a greater extent between the years.

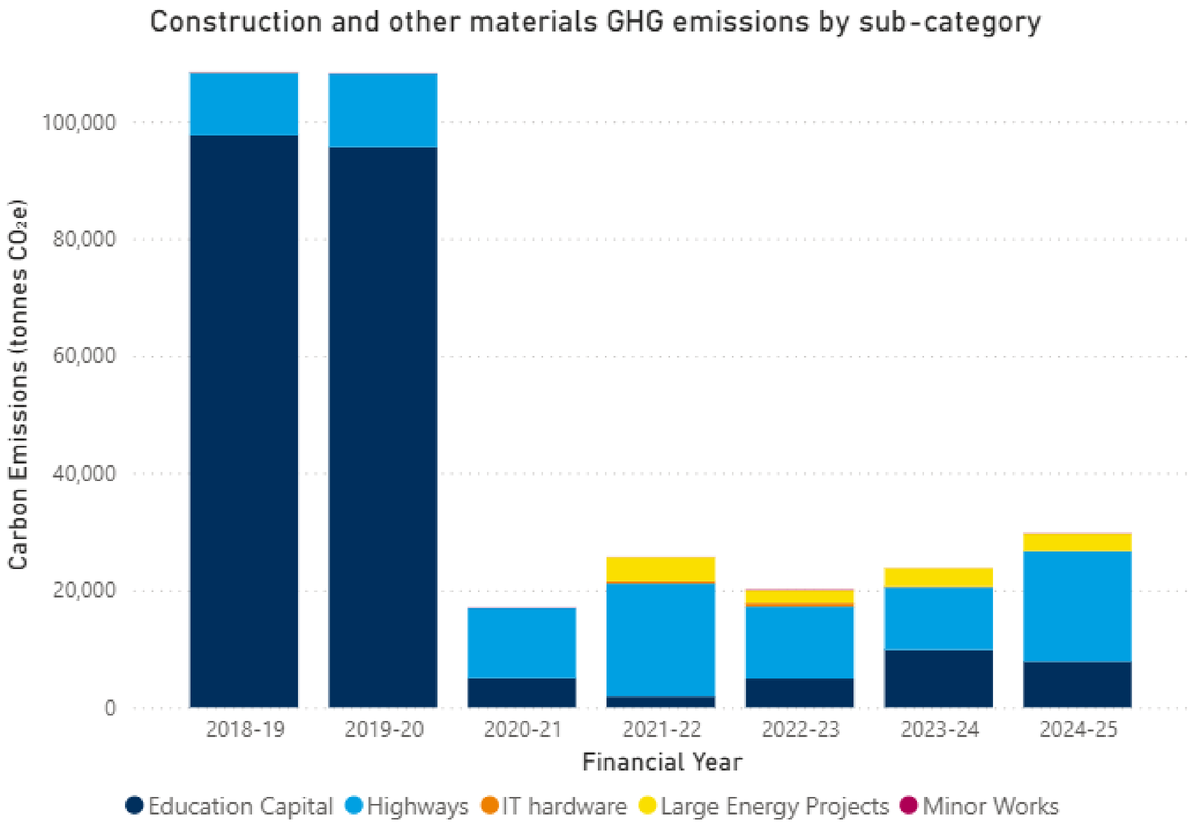

Figure 21: Annual construction and other materials emissions

3.12 Methodology

The Council's carbon footprint has been calculated in line with the UK Government's Environmental Reporting Guidelines for Voluntary Greenhouse Gas Reporting[3], which is

[3] 2019 Environmental Reporting Guidelines, Chapter 3

based on internationally recognised standards from the World Resources Institute and World Business Council for Sustainable Development: the GHG Protocol Corporate Accounting and Reporting Standard, and the GHG Protocol Scope 3 standard, as far as possible.

Broadly, the methodology used was as follows:

1. Collect data on all activities under Cambridgeshire County Council control that emit GHGs (e.g. energy used, miles travelled, materials purchased). Actual data has been used wherever available.
2. Assumptions and estimates are only used where actual data was not available. Some activities have been excluded in cases where there was no data available and no basis upon which to estimate. Where this is the case, this is clearly stated below.
3. Convert data to metric tonnes of carbon dioxide equivalent (tCO_2e), to calculate gross emissions using appropriate carbon conversion factors.
4. Note actions taken to reduce emissions (e.g. solar generation), then also report net emissions.

The reporting period is the financial year 1 April 2024 to 31 March 2025.

The carbon conversion factors used for this reporting period are mostly the 2024 UK Government published carbon conversion factors, except where there is no appropriate emissions factor given, or a more accurate conversion factor is available. Where alternative methodologies have been used, these are explained in Table 5 below.

In line with the international GHG Protocol, Scope 2 emissions from electricity generation are calculated and reported in two ways: the location-based method and the market-based method. The location-based method is based on the average carbon intensity of the country's electricity grid, meaning that emissions would be the same for everyone in the UK, if they used the same amount of electricity. In contrast, the market-based method takes into account contractual arrangements and disaggregates all the emissions according to the specific fuel mix of the electricity generated for each tariff of each supplier. This method means that customers who purchase electricity from suppliers that use more renewables would have lower emissions than those whose electricity comes more from fossil fuel sources. The market-based method is the Council's primary reporting method and the one to which our targets apply. However, both methods are included for transparency.

In previous years' reports, total emissions for maintained schools and construction projects have only included those where data has been received. This year (and back-dating to the baseline), estimates have been made for maintained schools where energy consumption data is unknown, and construction projects where data hasn't been received back. This provides a fuller indication of the Council's carbon footprint, without trends being potentially a result of how much data has been received for a particular financial year.

Scope and boundary of reporting

All activities under the operational control of Cambridgeshire County Council are within the boundary of reporting, including those outsourced to third parties in cases where the overall control or responsibility still lies with the County Council. A complete list of emissions sources included is shown below in Table 5.

Emissions-releasing activities of organisations are classified into three groups known as scopes. These are defined in the GHG Protocol Corporate Standard and are described in section 2.3. Activities in all three scopes have been included in this report.

Carbon dioxide produced from biologically sequestered carbon, e.g. from the combustion of biomass for electricity and / or heat generation, is not included in either scopes 1, 2, or 3. However, this is reported separately as 'outside of scopes'. This is because an equivalent amount of carbon dioxide would have been absorbed from the atmosphere during the plant growth phase. This carbon dioxide would have been emitted when the plants - from which the biomass is derived - decayed naturally at the end of their life. However, two other GHGs – nitrous oxide and methane – are commonly emitted when biomass is combusted. These would not be emitted during natural decay and any nitrous oxide or methane emissions from biomass / biofuel consumption is included in the emissions under the three scopes. This is in line with the approach generally taken in international carbon accounting standards.

Table 5: CCC Emissions Sources Included

Area	Activity	GHG Protocol category	CCC Directorate	Methodology / Data source	Accuracy / Confidence level
CCC Buildings and utilities	Gas & oil burned for heating and hot water at CCC buildings	Scope 1 & scope 3 category 3 (Fuel- and energy-related activities not included in scope 1 or 2)	Multiple	Usage data from utility bills	High
	Electricity used at CCC buildings, and for CCC street lighting, traffic signals etc.	Scope 2 & scope 3 category 3 (Fuel- and energy-related activities not included in scope 1 or 2)	Multiple	Usage data from utility bills	High
	Refrigerant gases leakage from air conditioning units and heat pumps in CCC-controlled buildings	Scope 1	Multiple	Based on leakage identified from top-ups at servicing, applied to CCC list of A/C and heat pump units, type of refrigerant gas and capacity. Where service records were not available, estimated on assumed leakage rates of 3% to 6% (industry standard).	Medium
	Diesel used for on-site generators	Scope 1 & scope 3 category 3 (Fuel- and energy-related activities not included in scope 1 or 2)	Multiple	Litres of fuel purchased	High
	Water supply	Scope 3 category 1 (Purchased goods and services)	Multiple	Usage data from utility bills	High
	Wastewater collection and treatment	Scope 3 category 1 (Waste generated in operations)	Multiple	Usage data from utility bills	High
Non-CCC Buildings	Energy used for shared data centre in Peterborough	Scope 3 category 8 (Upstream leased assets)	Multiple	Energy usage data from sub-metering on site	High

Area	Activity	GHG Protocol category	CCC Directorate	Methodology / Data source	Accuracy / Confidence level
	Commissioned care homes energy use	Scope 3 category 8 (Upstream leased assets)	Adults, Health and Commissioning	Care homes energy expenditure data sourced from Fair Cost of Care Needs Assessment, used to estimate energy usage in each of a sample of care homes. The number of CCC clients is divided by the total bed capacity, to obtain an average energy use per client, which is then multiplied by the total number of CCC clients in all commissioned care homes.	Low
	Energy used for heating and IT equipment whilst home working	Scope 3 category 7 (Employee commuting)	Multiple	Estimate of hours worked from home based on staff travel survey and HR data.	Medium
	Cloud-hosted IT services (Microsoft & AWS)	Scope 3 category 1 (Purchased goods and services)	Multiple	Data provided by Microsoft covering their scopes 1-3; data estimated for years where data missing. Data provided by AWS (covering their scopes 1-2).	Medium
Maintained schools' buildings	Gas burned for heating and hot water at Cambridgeshire schools (purchased through ESPO)	Scope 3 category 13 (Downstream leased assets)	Children, Education and Families	Gas usage data	High
	Electricity used at Cambridgeshire schools (purchased through ESPO)	Scope 3 category 13 (Downstream leased assets)	Children, Education and Families	Electricity usage data	High
	Oil, LPG and other heating fuels not purchased through ESPO	Scope 3 category 13 (Downstream leased assets)	Children, Education and Families	Heating fuels usage data provided by the schools. Where no data is received, consumption is estimated based on the heating fuel type and average CCC maintained school consumption.	Medium
Transport	Travel in CCC pool cars, and hire cars	Scope 1 & scope 3 category 3 (Fuel and energy-related activities not included in scope 1 or 2)	Multiple	Data from mileage reports and invoices. Based on miles travelled and type of car where known.	High
	Social and education transport in CCC fleet	Scope 1 & scope 3 category 3 (Fuel and energy-related activities not included in scope 1 or 2)	Children, Education and Families	Data from fuel usage	High
	Social and education transport by contractors (including home to school transport).	Scope 3 category 8 (Upstream leased assets)	Children, Education and Families	Estimated based on known number of journeys made, estimated distances, and assumed vehicle types for each supplier.	Medium
	Social and education transport by volunteer drivers.	Scope 3 category 8 (Upstream leased assets)	Children, Education and Families	Mileage claims	Medium
	Highways maintenance gritting fleet	Scope 1 & scope 3 category 3 (Fuel and energy-related activities not included in scope 1 or 2)	Place and Sustainability	Data from fuel usage	High
	Other highways maintenance vehicles	Scope 3 category 4 (Upstream transportation and distribution)	Place and Sustainability	Data provided by Highways maintenance contractor	High
	Employee travel on CCC business in own vehicles	Scope 3 category 6 (Business travel)	Multiple	Data from miles claimed on employee expenses system	High

Area	Activity	GHG Protocol category	CCC Directorate	Methodology / Data source	Accuracy / Confidence level
	Employee travel using public transport (including flights, trains, buses and taxis, where known)	Scope 3 category 6 (Business travel)	Multiple	Data from employee expenses claims details. Some train travel estimated from spend.	Low
	Hotel stays on CCC business	Scope 3 category 6 (Business travel)	Multiple	Data from employee expenses claims, estimated from spend on hotels.	Low
	Employee home to work commuting	Scope 3 category 7 (Employee commuting)	Multiple	Estimated based on staff travel survey carried out in October 2024.	Low
	Homecare providers transport	Scope 3 category 8 (Upstream leased assets)	Adults, Health & Commissioning	Estimate based on homecare providers survey carried out in February 2025.	Low
Waste	Waste produced from CCC sites – general waste, recycling and confidential paper waste	Scope 3 category 5 (Waste generated in operations)	Multiple	Data from waste transfer notes / invoices.	High
	Waste from CCC construction projects	Scope 3 category 5 (Waste generated in operations)	Multiple	Estimates provided by project managers or contractors	Medium
	Disposal / treatment of Cambridgeshire waste (as the statutory waste authority)	Scope 3 category 1 (Purchased goods and services)	Place and Sustainability	Based on waste volumes collected by all the City and District Councils in Cambridgeshire, and from all the Household Waste Recycling Centres, and proportions of waste recycled, composted, sent to energy generation and landfilled. Emissions calculated mainly using custom carbon calculator developed with the Local Government Association and University College London.	Medium
Construction and other materials	Construction & buildings works – education capital	Scope 3 category 2 (Capital goods)	Children, Education and Families	Inventory of each material used and quantity (tonnes) data from project information and/or capital works contractors. Where unavailable, data has been estimated.	High
	Highways works	Scope 3 category 2 (Capital goods)	Place and Sustainability	Data provided by our highways contractors for the works they did on our behalf.	Medium
	Construction & buildings works – energy projects	Scope 3 category 2 (Capital goods)	Place and Sustainability	Inventory of each material used and quantity (tonnes) data from project information and/or capital works contractors. Where unavailable, data has been estimated.	Low
	Construction & buildings works – minor works	Scope 3 category 2 (Capital goods)	Finance and Resources	Inventory of each material used and quantity (tonnes) data from project information and/or capital works contractors. Where unavailable, data has been estimated.	Low
	IT hardware	Scope 3 category 1 (Purchased goods and services)	Finance and Resources	Quantities of each item purchased, and emissions per item based on manufacturer data (where known) or similar products.	Medium

Exclusions

Some additional emissions associated with purchased goods and services are not yet included, because we do not have the relevant data to calculate these. This includes:

- Parts of Adults and Children's social care provision, commissioned services (other than those reported above and our own buildings and staff travel, which are included);
- Legal, consultancy, insurance, pensions, investments, banking, telecommunications, post and other business services (other than our own buildings and staff travel);
- Office machinery, furniture and the like;
- Other goods and services not mentioned elsewhere.

Since the emissions data for these goods and services lies with other organisations it is more difficult to collect the relevant data. However, we are working to improve this. The indicative size of these emissions is suggested in section 3.1.

Our action plan includes steps to identify more of this data, which we have been doing and will continue to do. For example this year, estimates for homecare providers' transport and fuller cloud emissions have been included (and estimated back to all previous years where needed).

The following activities have been excluded from this carbon footprint calculation:

Table 6: Exclusions

Area	Activity	Reason for exclusion
Buildings and utilities	Energy used at other sites outside of CCC control e.g. space in a shared building, third party premises, and CCC-owned sites let to commercial or private tenants (other than those mentioned as included above).	We do not have access to this data.
Buildings and utilities	Biomass	There are currently no biomass facilities at any CCC sites or maintained schools.
Schools	All data for Academy schools.	These schools are outside of Council control.
Transport	Subsidised public bus routes	No longer responsibility of CCC. This is now the Cambridgeshire & Peterborough Combined Authority.
Transport	Other travel by third parties, contractors and suppliers (other than those mentioned in scope)	We do not have access to this data.
Waste	Other waste streams from CCC sites and projects not mentioned in scope above	We do not have access to this data.
Waste	Collection and transport of Cambridgeshire household waste	This is not CCC's responsibility. (City/District councils do this.)
Agriculture; and Land use, land use change and forestry (LULUCF)	County farms / rural estates activities	Provisional data is discussed in section 3.4. Currently excluded from total emissions due to the need for further analysis work. Work is in progress to refine these figures going forwards.

Area	Activity	Reason for exclusion
Purchased goods and services	All other goods and services purchased or used by CCC not accounted for elsewhere	Provisional data is discussed in section 3.1. Currently excluded from total emissions due to only spend data available. Spend-based methods for calculating emissions is considered the least robust.

4. Cambridgeshire's Area Carbon Footprint

The carbon footprint of the geographical area of Cambridgeshire comprises GHG emissions from commercial, industrial and public sector sources, domestic homes, transport, agriculture, waste and land use.

The Government publishes data at a local authority (district) level, for carbon dioxide (CO_2), methane (CH_4) and nitrous oxide (N_2O). This covers about 98% of all GHG emissions; F-gases (the missing 2%) are not included (these are included in UK-wide statistics but no breakdown by local authority area is available).

4.1 Latest GHG emissions data for Cambridgeshire

The latest data available is for 2023 (published summer 2025). In 2023, the total GHG emissions for the geographical area of Cambridgeshire were **6.45 million tonnes CO_2e**.

Total Cambridgeshire GHG emissions have fallen 1.5% in 2023 compared to 2022. For Cambridgeshire, this follows a dip in emissions in 2020 due to COVID-19 restrictions, subsequent rebound, and re-continued decline. Emissions are now for the first time lower than they were in 2020.

The trends seen in Cambridgeshire (Figure 22) are similar to the rest of the UK: continued decreases due to reduced emissions from electricity supply (grid decarbonisation due to higher electricity imports from France), a continued decrease in electricity demand, and an increased share of renewables to meet remaining demand. Emissions from domestic gas use also saw a notable fall in 2023. High energy and other costs are likely to have been a factor in reduced gas use for heating domestic buildings.

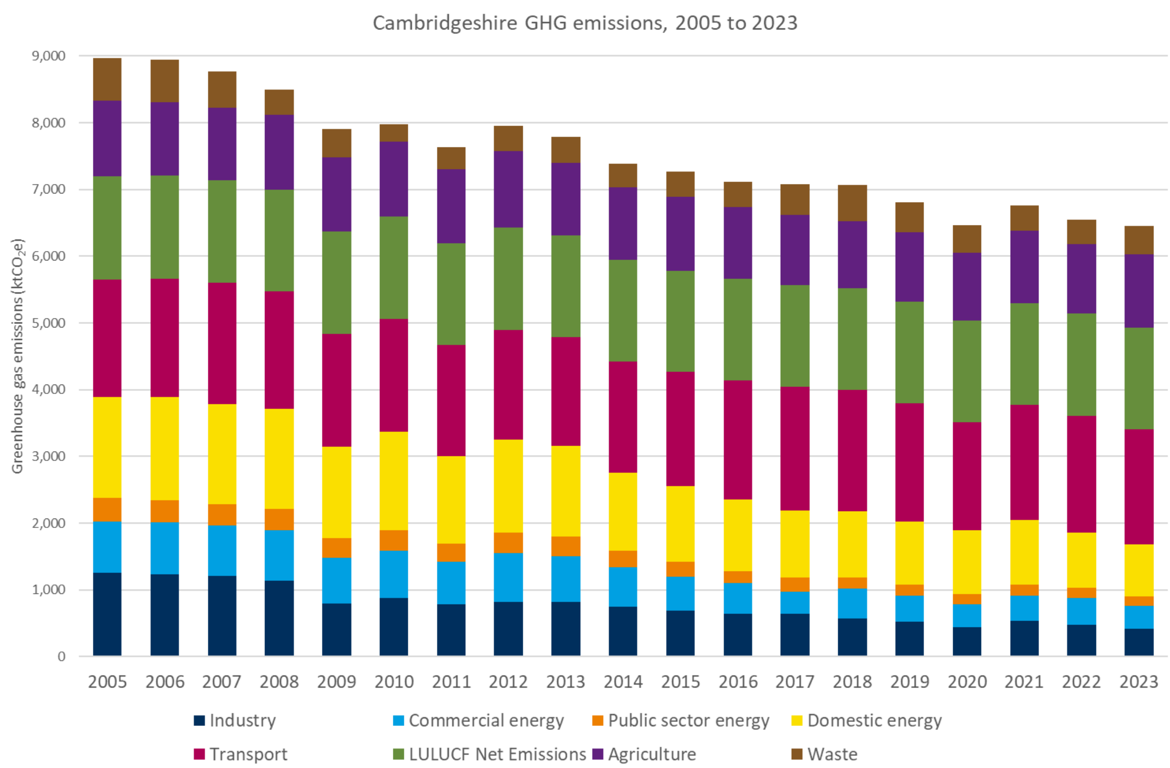

Figure 22: Cambridgeshire area GHG emissions, 2005-2023, by sector

94% of local authority areas in the UK had decreased emissions in 2023 compared to 2022. East Cambridgeshire was one of 21 LA areas that had increased emissions in 2023 compared to 2022. This is primarily due to increases in emissions from agricultural soils (e.g. urea application, liming of soils, fertiliser application to soils), as well as smaller increases in public sector emissions and waste emissions.

In 2023, for Cambridgeshire as a whole, transport is the highest emitting sector in the county (27%); most of that is from A roads. Over 70% of transport emissions in Cambridgeshire are in Huntingdonshire and South Cambridgeshire. Land use, land use change and forestry (LULUCF) is the next highest emitting sector in the county (24%), mostly from peatland, particularly in Fenland and East Cambridgeshire, likely due to large areas of peatland. This is followed by agriculture (17%), mostly from soils, and again is highest in Fenland and East Cambridgeshire; and the domestic sector (12%), mostly from gas use for heating. The sector and sub-sector breakdown for Cambridgeshire's 2023 emissions are shown in Figure 23 below.

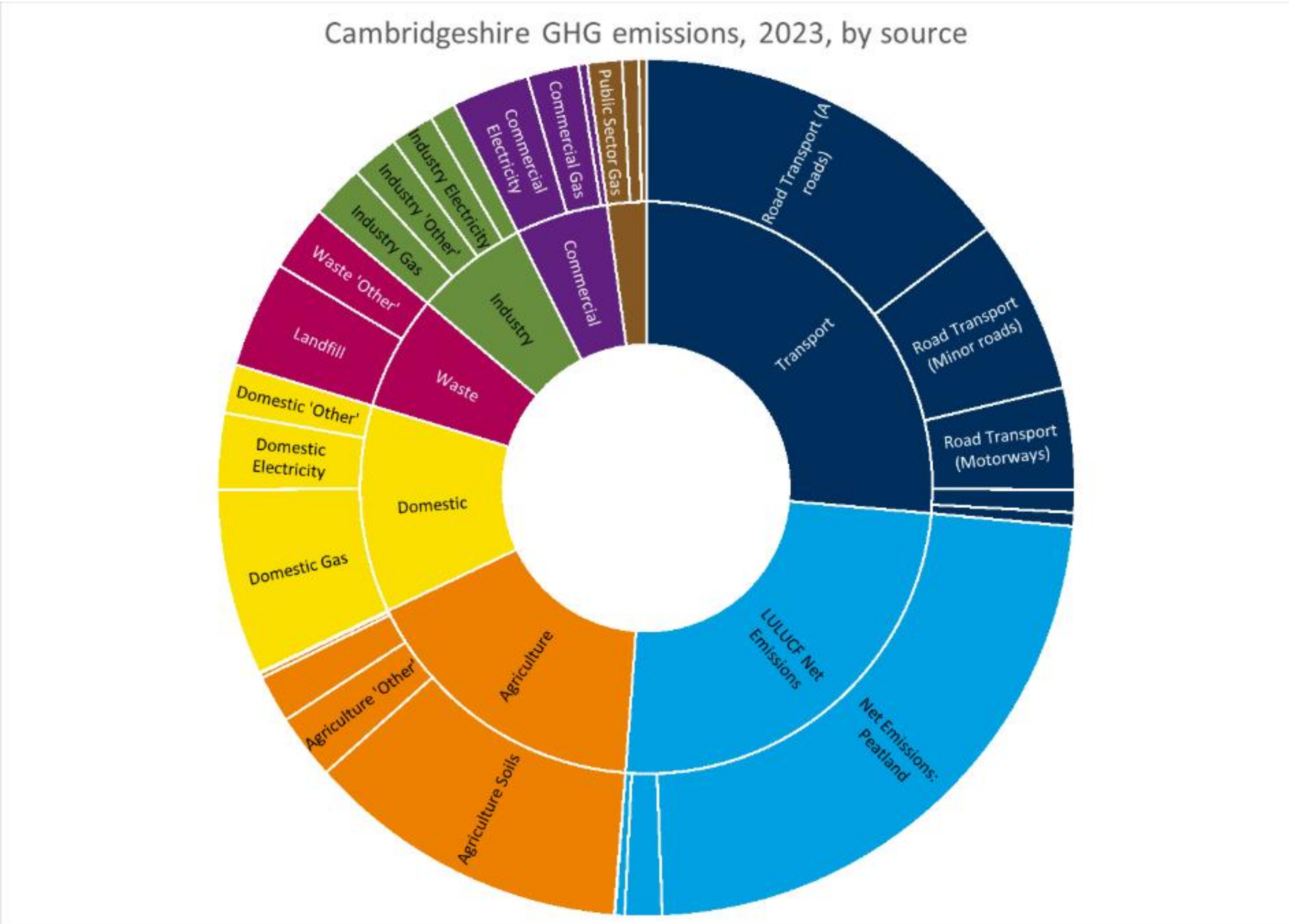

Figure 23: Cambridgeshire area GHG net emissions, 2023, by source sector and activity

Figure 24 shows a breakdown of the county's GHG emissions by district and sector for 2023 emissions. This illustrates some of the differences between different parts of the county. For example, Cambridge has the highest proportion of its emissions from the domestic sector, which is similar to 19% of local authorities nationally. East Cambridgeshire and Fenland have the highest proportion of their emissions from LULUCF, due to peatland emissions. In 2023, only 8 local authorities in the UK (4 in England, 4 in Scotland) had the highest proportion of their emissions from LULUCF. Huntingdonshire and South Cambridgeshire have the highest proportion of their emissions from transport, due to the major roads in these areas such as the A1. Across the UK, 58% of other local authorities have the highest proportion of their area emissions from the transport sector.

Despite Cambridge's relatively high proportion of domestic emissions, Cambridge alone of the Cambridgeshire districts is within the lowest domestic emissions per person category[4] (less than 1.0 tCO_2e per person), which only 17% of UK local authority areas see. This could be due to the relatively high population density in Cambridge city. Despite the lower population densities in the other Cambridgeshire districts, they have higher proportions of properties using oil for heating, which is more carbon intensive than other heating fuels, such as gas and electricity.

Across the UK, transport emissions decreased in 98% (353 of 361) local authority areas between 2005 and 2023. South Cambridgeshire transport emissions, however, increased by 10% over this same time period, and Huntingdonshire transport emissions increased 2%. The other Cambridgeshire districts all saw reductions in transport emissions (Cambridge -32%, East Cambridgeshire -10%, Fenland -14%). South Cambridgeshire contains multiple major A roads and motorways (such as A10, A14, M11, A505, A11). Cambridgeshire has a higher proportion of heavy goods vehicle miles (9%) than across England (5%); and Cambridgeshire has also had a 16% increase in motorised miles from 2005 to 2023, compared to a 7% increase across England. These may be contributing to the abnormal transport emissions trend seen in South Cambridgeshire and Huntingdonshire.

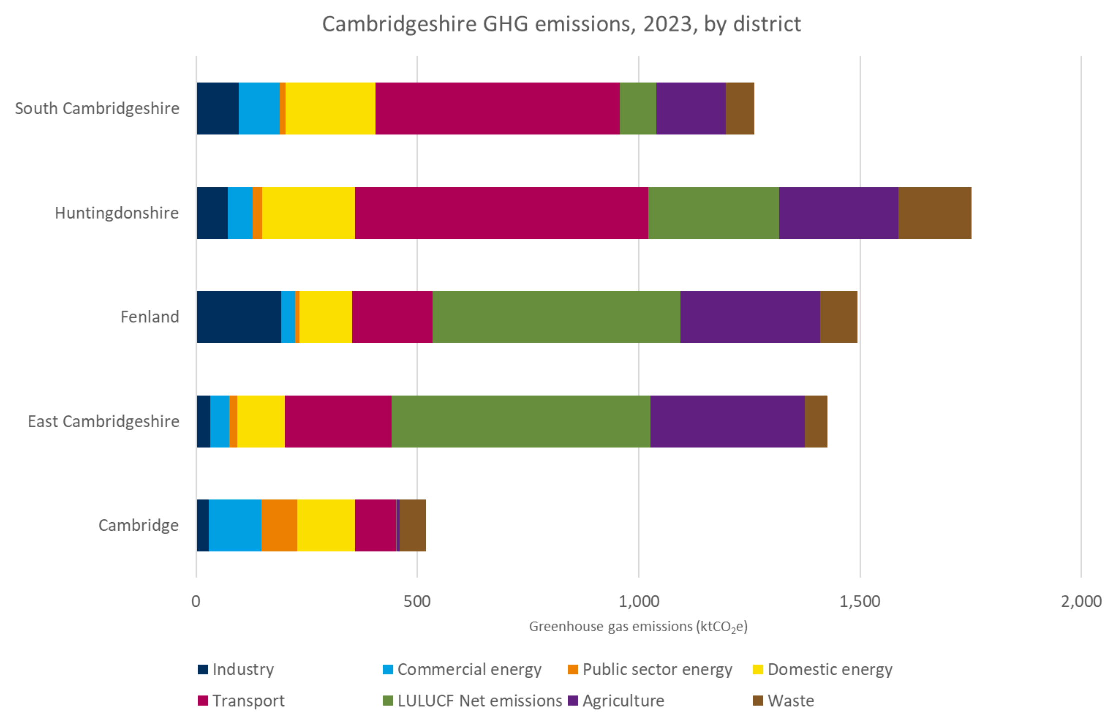

Figure 24 Cambridgeshire area emissions for 2023, split by district and sector

[4] Categories as given by DESNZ in Table 1 of [UK local and regional greenhouse gas emissions statistics, 2005-2023]

4.2 Note on Land Use, Land Use Change and Forestry (LULUCF)

Land use, land use change and forestry (LULUCF) emissions can be caused by drainage and management of organic soils (peatland), land use change on mineral soils (soil disturbance, change in amount of biomass decomposition), biomass burning (wildfires), deforestation or peat extraction.

However, LULUCF is a carbon *sink* in some areas (absorbing more GHGs than emitted), due to forest growth, grassland (mineral soil) land use change, or rewetting / restoration of peatland.

LULUCF emissions are higher in Cambridgeshire than most of the UK, due to the large areas of peatland drained for agriculture, where the wasted peat loses carbon from the soil as CO_2. This is shown in the red and orange areas of the map below. However, LULUCF is a net sink in many other regions of the UK (the blue areas of the map below), where CO_2 is removed from the atmosphere through forest growth and conversion of cropland to grassland.

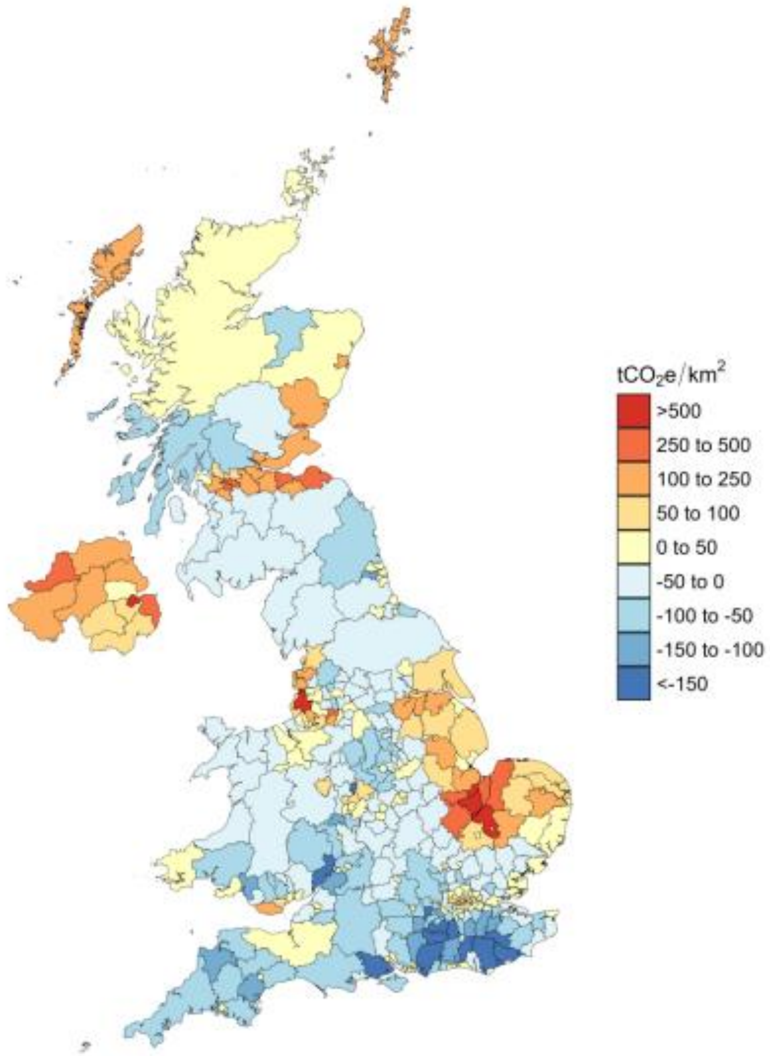

Figure 25: Emissions or removals of GHGs from land use, land-use change and forestry per local authority area (tCO_2e/km^2) in 2023. Image from DESNZ [Mapping GHG emissions and removals for the land use, land-use change & forestry sector]

5. Glossary

Expression	Meaning
Carbon	Used as abbreviation for carbon dioxide or carbon dioxide equivalent
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent: A standard unit for measuring carbon footprints. It expresses the impact of each different greenhouse gas in terms of the amount of CO_2 that would create the same amount of warming, using GWPs.
GHG	Greenhouse gas: a gas that absorbs and emits radiant energy within the thermal infrared range. Greenhouse gases cause the greenhouse effect.
Greenhouse effect	The heating of the earth's surface caused by solar radiation trapped by atmospheric gases (rather like a greenhouse roof).
GWP	Global Warming Potential: this is a measure of how efficient a chemical is at trapping heat in the atmosphere relative to carbon dioxide. For example, methane has a GWP of 28 and nitrous oxide has a GWP of 265. (Intergovernmental Panel on Climate Change) By definition, CO_2 has a GWP value of 1. Quantities of GHGs are multiplied by their GWP to give results in units of carbon dioxide equivalent (CO_2e).
kt	kilotonne = 1000 metric tonnes
LULUCF	Land Use, Land use change and forestry.
Net zero	Achieving an overall balance between emissions produced and emissions taken out of the atmosphere. This can take place on different scales and is sometimes achieved through offsetting.
Offset	An action intended to compensate for GHG emissions by an equivalent quantity of reductions elsewhere or removals.
Sequestration	The long-term removal, capture or sequestration of carbon dioxide from the atmosphere to slow or reverse atmospheric CO_2 pollution and to mitigate or reverse global warming.
WTT – Well to tank	The emissions associated with extracting, refining and transporting fuels to the point of purchase.
Zero carbon	No emissions of GHGs at all

6. Further information

Please visit https://www.cambridgeshire.gov.uk/climate-change