

Enfield's Carbon Emissions Review - 2024/25



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Overview

This report presents the annual greenhouse gas emissions for Enfield Council as an organisation and Enfield Borough. The purpose of this report is to transparently present progress against Climate Action targets and analyse the progress to date, with the aim to utilise data to monitor the impact of projects and policies and help inform ongoing priorities. The report sets out the methodologies and data sources used, indicating where there are gaps in data or proxies have been used in absence of more accurate data sources. The aim is to continue to improve methodologies and reporting year on year, particularly relating to hard to monitor emissions such as Scope 3.

The Council committed to Enfield becoming a carbon neutral borough by 2040. This means reducing Scope 1 & 2 emissions by 64% with residual emissions offset locally (Climate Action Plan 2020). The annual report presents the latest data against this target, utilising data published by the GLA.

The Council has committed to becoming a carbon neutral organisation by 2030. This means reducing Scope 1 & 2 emissions by 73% with residual emissions offset locally (Climate Action Plan 2020). The annual report presents the latest data against this target, and represents the Council's commitment to transparency on our Climate Action journey.



Enfield Council Organisational Emissions

Introduction

Council emissions are greenhouse gas emissions from within the Council's organisational boundary which include assets which the Council own and operate such as buildings, fleet and street lighting, defined as Scope 1 and 2 emissions. Scope 3 emissions are from sources the Council either does not own or control but has influence over including staff travel, council homes and capital goods. This is consistent with the GHG protocol for corporate emissions (<https://ghgprotocol.org/>).

A baselining exercise was undertaken in late 2019 as part of our Climate Action Plan development for which emissions are continued to be assessed against. The current reporting year is 2024/25, aligning with the financial year.

Summary

The Council's combined Scopes 1 and 2 for 2024/25 show:

- 8% decrease in Council greenhouse gas emissions from last year
- 34% decrease in the Council's direct emissions over the baseline

The Council remains slightly above our carbon neutral trajectory (Figure 7). Despite this, emissions have been reduced by 34% in the last 6 years. The Council's Scope 1 & 2 emissions remain largely driven by energy use in buildings, accounting for 73% of the Council's footprint (Figure 5). This is largely driven by gas used for heating and hot water in buildings equating to almost half the emissions (4%), this is followed by electricity in buildings (33%). Data for fugitive emissions (refrigerant gases in air conditioning units and heat pumps) has not been included this year, though in the previous analysis it accounted for only 1% of total Scope 1 & 2 emissions. Diesel in fleet account for 17% of emissions with remaining emissions from electricity for street lighting (5%) and fleet (0.2%).

Maintained schools are the largest emission sector by building portfolio (32%), following by corporate operational buildings (24%). Both corporate buildings emissions and school emissions have fallen this year by 9% and 3% respectively. Conversely council housing emissions have increased slightly, mostly driven by a 9% increase in electricity use.

The largest carbon savings this year, similar to last year, has been from the reduction in natural gas in buildings for heating and hot water. This may both be a result of initiatives to address the impact of the energy crisis and high energy costs and investment in heat decarbonisation technologies. The warmer winter may also be a contributing factor.

While the electricity grid has been decarbonising year on year, there was a small increase in 2023, and 2024 remained almost level. The 3% increase in Scope 2 (electricity emissions) are almost entirely driven by the increase in communal housing electricity use.



Council emissions by category (Scope 1 & 2)

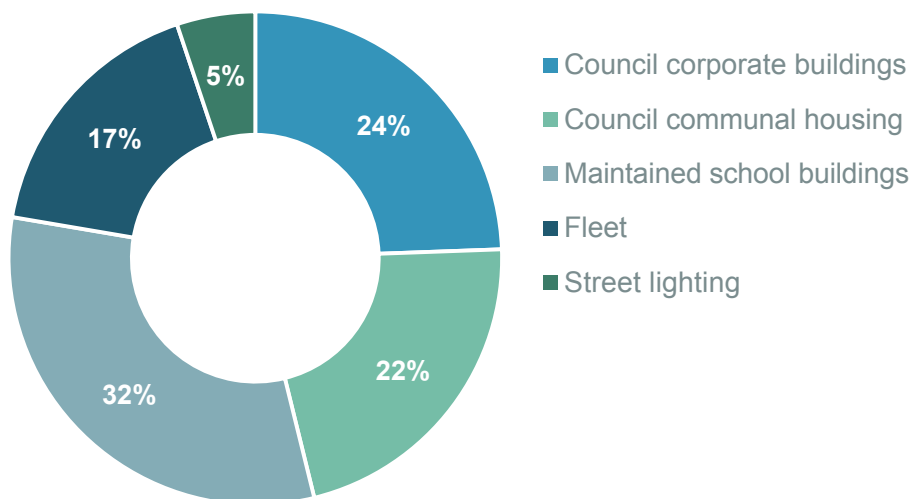


FIGURE 1 - 2024/2025 COUNCIL SCOPE 1 & 2 EMISSIONS

Council direct & Indirect emissions		2018/19	2023/24	2024/25	% year	% BL year	BL	% of total
Scope 1 & 2	Council corporate buildings	16,960	3,860	3,521	-9%	-79%	▼	24%
Scope 1 & 2	Council communal housing	Included	3,055	3,133	3%	0%	-	22%
Scope 1 & 2	Maintained school buildings	Included	4,662	4,544	-3%	0%	-	32%
Scope 1 & 2	Fleet	2,470	3,393	2,477	-27%	0%	▲	17%
Scope 2	Street lighting	2,478	747	742	-1%	-70%	▼	5%
Total Scope 1 & 2 (tCO2e)		21,908	15,717	14,418	-8%	-34%	▼	

TABLE 1 - SCOPE 1 & 2 EMISSION BY ASSET CATEGORY

Council direct & Indirect emissions								
Council Scope 1 & 2 (tCO2e)		2018/19	2023/24	2024/25	% year	% BL year	BL	% of total
Scope 1	Buildings (Natural Gas)	8,729	6,812	6,384	-6%	-27%	▼	44%
	Building (Gas Oil)	No data	0	0	0%	0%	-	0%
	Buildings (Fugitive)	No data	115	0	-100%	0%	-	0%
	Fleet (Diesel-GTL)	2,470	3,393	2,477	-27%	0%	▲	17%
Total Scope 1 (tCO2e)		11,199	10,319	8,862	-14%	-21%	▼	61%
Scope 2	Buildings (Electricity)	8,231	4,650	4,815	4%	-42%	▼	33%
	Building (Heat)	No data	14	5	-63%	0%	-	0%
	Street Lighting (Electricity)	2,478	747	742	-1%	-70%	▼	5%
	Fleet (Electricity)	No data	30	49	61%	0%	-	0%
Total Scope 2 (tCO2e)		10,709	5,442	5,611	3%	-48%	▼	39%
Total Scope 1 & 2 (tCO2e)		21,908	15,761	14,472	-8%	-34%	▼	

TABLE 2 - SCOPE 1 & 2 EMISSION BY FUEL TYPE

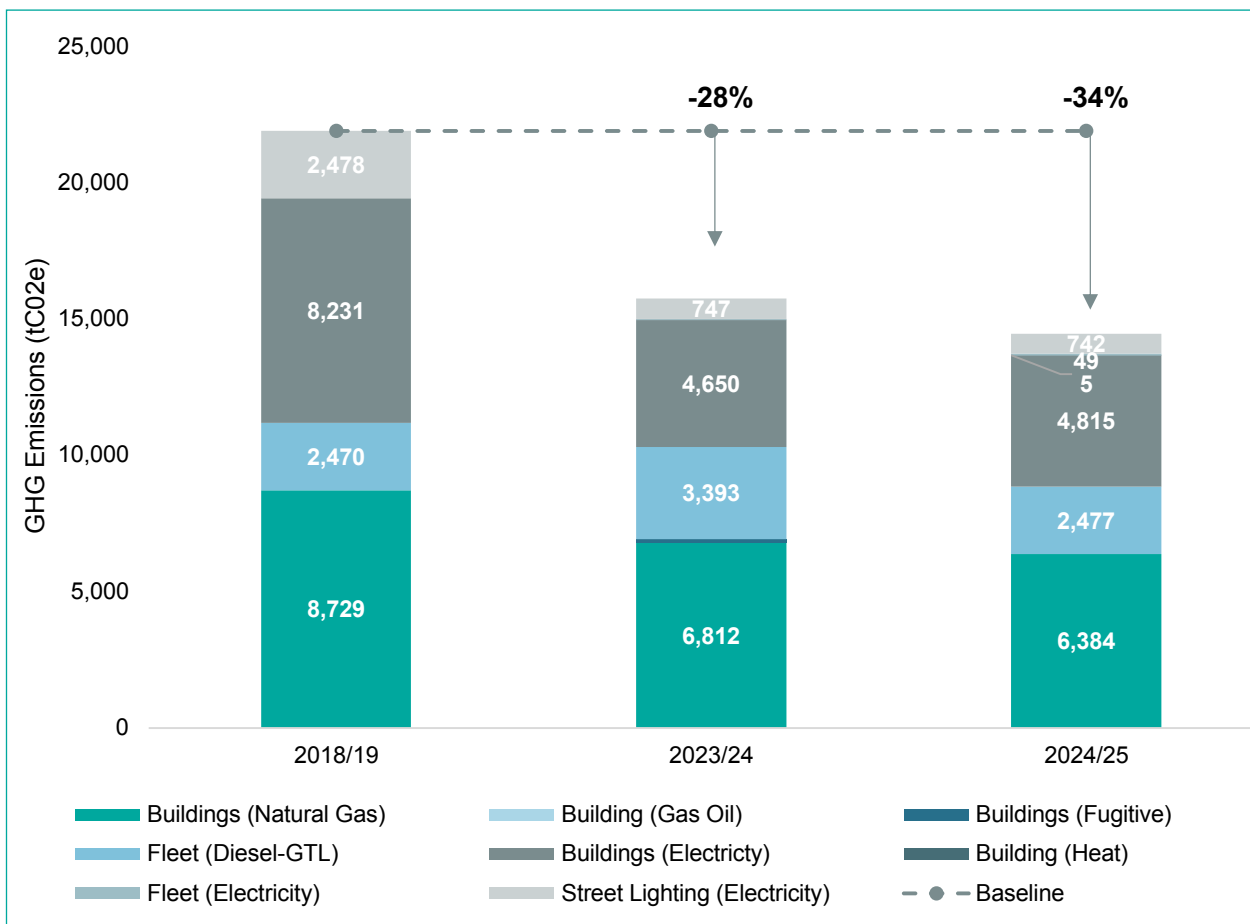


FIGURE 2 - COUNCIL SCOPE 1 & 2 EMISSIONS

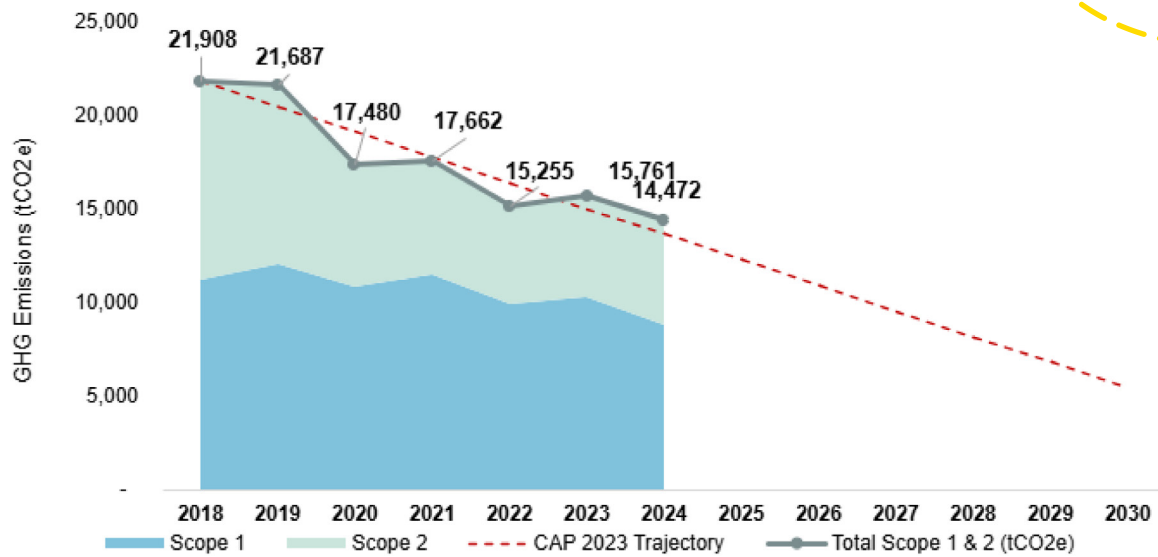


FIGURE 3 – COUNCIL SCOPE 1 & 2 EMISSIONS 2030 TRAJECTORY

Council Scope 1 & 2 (by fuel type)						
Fuel		2018/19 Baseline	2023/24	2024/25	% year	% BL year
Natural Gas (kWh)	Buildings	47,451,529	37,236,964	34,904,734	-6%	-26%
Diesel (litres)	Fleet	918,915	1,406,763	985,955	-30%	7%
Gas Oil (Litres)	Gas oil	No data	-	-	0%	0%
Electricity (kWh)	Buildings	29,076,639	22,455,409	23,253,348	4%	-20%
Electricity (kWh)	Street Lighting	8,754,884	3,609,054	3,582,033	-1%	-59%
Electricity	Fleet	NA	146,969	237,016	61%	0%
Heat (kWh)	Buildings	-	105,260	238,585	127%	0%
Fugitive Emissions (kg)	Buildings	No data	95	-	-100%	0%

TABLE 3 – SCOPE 1 & 2 CONSUMPTION BY FUEL TYPE

Scope 1 emissions in detail

Scope 1 emissions are direct emissions occurring at the source, from council owned or controlled assets, such as gas combustion from boilers in council operated buildings and fuel usage in fleet vehicles, this can also include fugitive emissions from refrigerant use.

In 2024/25 reporting period Scope 1 emissions decreased by 14% when compared to the previous year, this has largely been a result of a drop in Diesel-GTL in fleet (-27%) and a small decrease in natural gas in buildings (-6%).

Fleet

Fleet carbon emissions had increased in previous years due to continued insourcing of vehicles and a resultant increased fleet number through the introduction of services back-in house. Yet 2024/25 saw a 26% drop in fleet in emissions in part due to the increased electrification of the fleet, and possibly improved data gathering. There has been a 61% increase in fleet electricity carbon emissions from the previous year. This is mainly due to the proper introduction of electrical vehicles as part of the fleet and represents about 2% of the fleet emissions.

Buildings

Natural gas used in buildings for heating and hot water decreased 6% from the previous year, with savings being seen across corporate, housing and school sites. These savings are likely to have been driven by a combination of energy saving behaviour in light of the energy crisis changing weather patterns, infrastructure improvement and heat pump installation.

A review of the mean air temperature (Figure 8) shows that winter was broadly colder than the previous year, increasing the heating requirement. This year was a cooler than previous years in both winter and summer (Figure 8) This would be expected to increase hearing demand in winter, and yet emissions fell – suggesting the change is due to other factors including; a response to the energy crisis, infrastructure improvements and efforts made to reduce costs through consolidating office space.

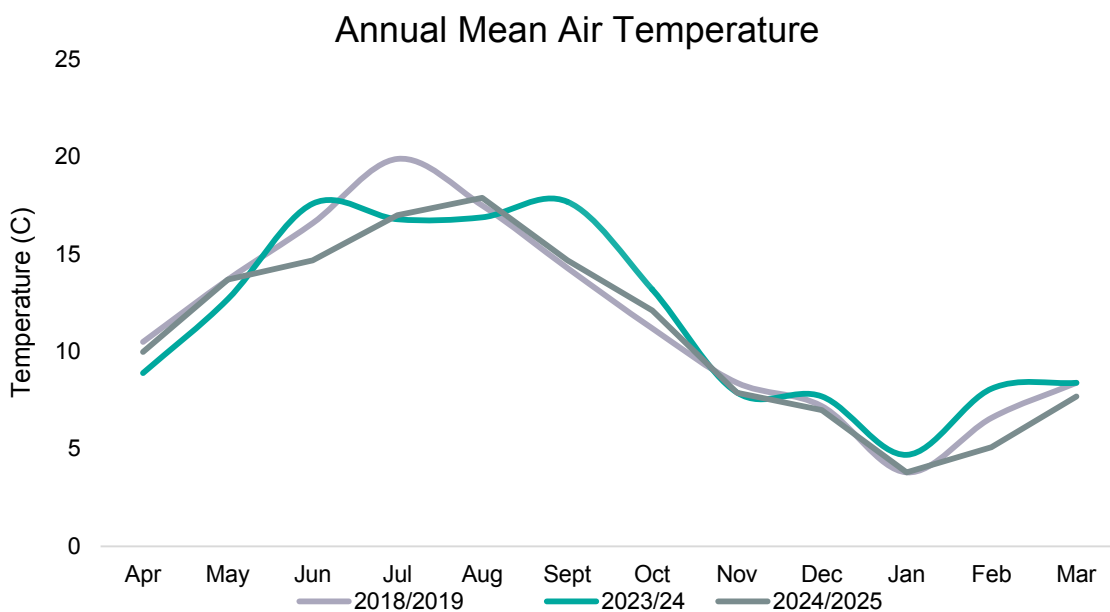


FIGURE 4 – MEAN AIR TEMPERATURE



Scope 2 emissions in detail

Scope 2 emissions are those from the generation of purchased electricity consumed by the Council. Scope 2 emissions physically occur at the facility where the electricity is generated rather than at the asset. The Council's Scope 2 emissions broadly relate to electricity used in buildings (incl. EV charging) and for street lighting. The Council saw a 3% increase in carbon emissions for this year compared to the previous year. Despite this increase there has been an overall 48% decrease in Scope 2 carbon emissions compared to the baseline year.

Grid decarbonisation and market-based emissions

The decarbonisation of the UK electricity grid has generally had a positive effect of reducing the carbon intensity of electricity and therefore the resultant Scope 2 emissions, though unfortunately this changed in 2023. The UK grid carbon factor (greenhouse gas emissions per unit of energy) has increased a 7% from 2022 to 2023, and remained the same into 2024 though there remains a 27% reduction from the 2018 baseline year.

The Council no longer procures REGO certified renewable energy, investing instead in improving the energy performance of the Council buildings.

Buildings

Electricity consumption has increased 4% over the previous year, driven by a 15% increase in council housing electricity use. This increase may be due to installation of heat pumps, as natural gas use in council housing has fallen by 7%, and is in spite of the recent investment in Solar PV panels across corporate sites.

Street Lighting

Following the success of the LED street lighting programme that completed in March 2021, our streetlighting is continuing to decarbonise alongside the electricity grid, along with securing operational energy savings where possible. There was a decrease of 1% compared to the previous year, with an overall decrease of 59% compared to the baseline year.

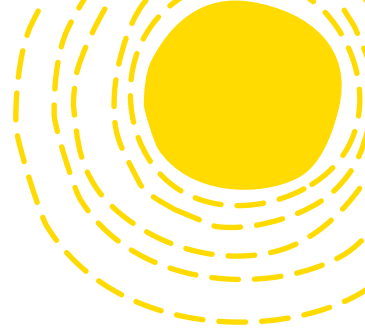
Scope 3 emissions in detail

Scope 3 emissions are the consequence of council activity but occur from sources not owned or controlled directly by the council. Scope 3 emissions can be difficult to account for, however, we are committed to following international best practices and taking steps to better understanding and transparently report on Scope 3 emissions. This includes developing new processes and methodologies for gathering data and making emissions assessments. Through improving data collection and analysis processes we will be able to better identify opportunities for emissions reductions from areas within the Council's influence, including council housing, employee commuting and construction. As we work to analyse our Scope 3 emissions more robustly, year-on-year comparison may not accurately reflect improvements made. The first stage is estimating scale, data collection and transparency to be able to better monitor change and impact.

Council influencing emissions							
Council Scope 3 (tCO2e)	2018/19	2023/24	2024/25	% year	% BL year	BL	% of total
Purchased goods & services	No data	No data	No data	0%	0%	-	NA
Capital Goods	45,440	-	13,089	0%	-71%	▼	32%
Fuel and energy related activities	913	467	491	5%	-46%	▼	1%
Water	48	No data	No data	0%	0%	-	NA
Business Travel	139	100	110	11%	-21%	▼	0%
Employee commuting	No data	1,923	2,055	7%	0%	-	5%
Upstream leased assets	No data	250	249	0%	0%	-	1%
Downstream leased assets	32,237	23,182	23,744	2%	-26%	▼	58%
Franchises	2,479	1,876	1,312	-30%	-47%	▼	3%
Total Scope 3 Emissions (tCO2e)	81,256	27,797	41,049	48%	-49%	▼	100%

TABLE 4 – COUNCIL SCOPE 3 EMISSIONS

As shown in Figure 10, our largest Scope 3 emissions challenge is gas and electricity consumption of council housing (58%). This continues to be an area of focus and investment for the Council. This will also be an area where we hope to improve our Scope 3 emissions accounting and understanding. The second most important area in reporting year was Capital Goods (32%) – the delivery of housing or other buildings. Over 12,000m2 of housing was completed in 2024/25, and an estimate has been made of the carbon impact of the materials used in construction. With more housing being developed understanding and reducing this embodied carbon will be important in reducing the Council's Scope 3 emissions.



Council emissions by category (scope 3)

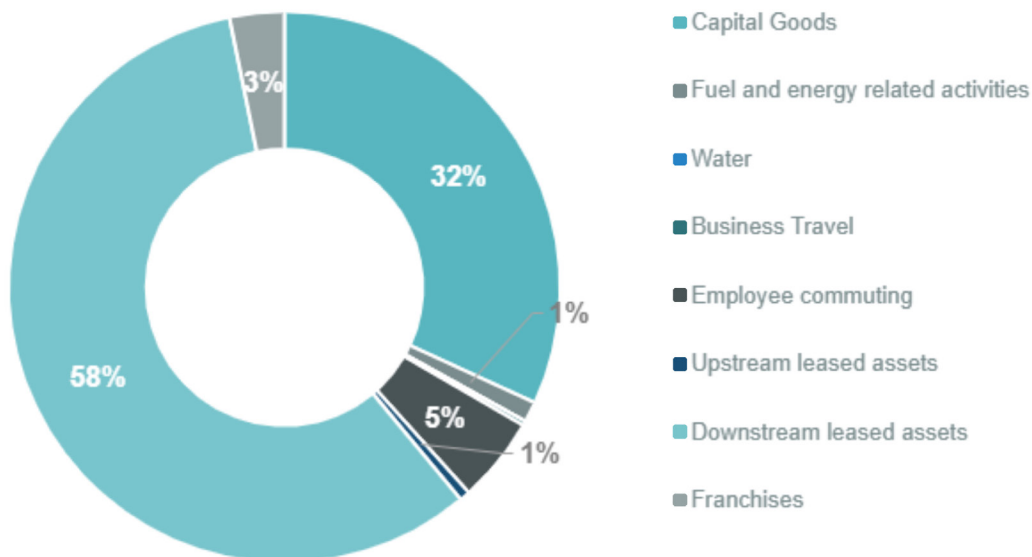


FIGURE 5 - SCOPE 3 EMISSIONS BREAKDOWN

Capital goods

Emissions have been calculated utilising the methodology established in 2020/2021, based on benchmark embodied carbon factors against completed units within the accounting period retained by the Council. Several schemes were completed this year, which reflects the increase in emissions. These are expected to follow a similar trend to the current programme of housing delivery which can be found here: <https://www.enfield.gov.uk/services/housing/housing-schemes>

Fuel and energy related activities

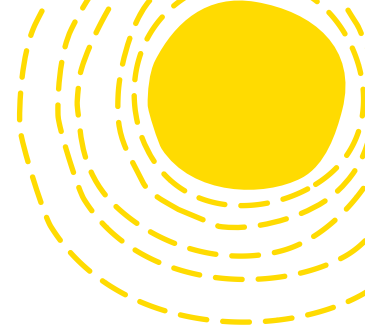
Transmissions and distribution related emissions are directly related to electricity consumption and reflect reduction in Scope 2 electricity consumption from the street lighting retrofit programme and energy reductions from buildings.

Business travel

Business travel mileage by car increased slightly from last year and remains below the base year. Further work is required to gather better data which will enable insights and opportunities for policies that may target emissions decrease in this area.

Employee commuting & work from home emissions

This methodology provides an estimation of commuting and home working emissions, now utilising the new carbon factors for home working. This reflects the Council's 'Smart Working Policy' with a large proportion of Council employees classed as 'flexible workers'. It is identified as a priority to undertake more accurate surveying to understand commuting to improve accounting and identify opportunity for behaviour change and incentive schemes.



Upstream leased assets – Temporary accommodation

Temporary accommodation is served by the corporate contract has been reported. These are sites where influence over energy use is limited due to the sites being leased out. Opportunities to better capture emissions associated with temporary accommodation is an area that needs to be explored alongside council housing, as gathering this type of data comes with challenges and considerations. Emissions remain essentially unchanged.

Downstream leased assets

The emissions data for council housing is normally estimated using the Parity Projects tool, which estimates emissions based on RdSAP data, gathered through the EPC process. Emissions data is not live and utilise SAP 10.2 carbon factors. This provides a good estimate of scale of the emissions from this category, and highlights this area need to be a continued area of attention for the council.

Emissions from council housing fell by 15% in the previous year, most likely due to initiatives improve heating efficiency and insulation as part of Decent Homes and retrofit initiatives. This year the emissions have remained approximately constant, and well below the baseline year though due to the fluctuation in the number of houses in the portfolio it is difficult to make a direct comparison with previous years

Outsourced services- Leisure Centres

Leisure Centres are continuing to benefit like other buildings from the decarbonisation of the electricity grid. Natural gas makes up 73% of the total emissions, similar to the previous year's figure, reflecting the majority of energy is likely going towards hot water generation for heating swimming pools and use in showers. Total energy consumption and associated emissions fell by 30% in 2024/25 most likely due to upgrades to facilities and decarbonisation measures installed last year.



Enfield Borough-wide Emissions

Introduction

Borough emissions are greenhouse gas emissions (GHG) from within the Borough's geographic boundary. This is consistent with the GHG protocol for cities (<https://ghgprotocol.org/>). Scope 1 emissions which are direct emissions from sources located within the borough and Scope 2 emissions which are GHG emissions occurring because of grid-supplied electricity, heat and/or cooling from within the borough (where the generation may occur elsewhere). This includes:

- Stationary emissions from buildings, such as fuel for heating and hot water and electricity
- Transport emissions, primarily from fuel and electricity used on-roads, but also rail and water

Borough data follows a 2-year data lag, this is linked to the timeframes of source data released by central government. In 2022, London Councils agreed with all London boroughs to adopt the GLA's LEGGI dataset as the preferred reporting methodology for borough emissions. Enfield's baseline was set in 2019 utilising the SCATTER tool based on 2017 data, last year dual reporting was provided. Going forward only LEGGI data will be published for consistency, this includes a revised 2017 baseline per the LEGGI data set.

Waste data is currently only reported London-wide, and has not been attributed to boroughs, the London-wide data has been provided in this report but is not included within footprint calculations due to the difference in reporting boundary.

Summary

The borough-wide Scope 1 & 2 emissions remain driven by energy use in buildings, accounting for 61% of the Borough's footprint, with 39% relating to domestic buildings (Climate Action Plan 2024). The Borough's carbon emissions are largely driven by Scope 1 emissions from gas and fuel used for heating and hot water in buildings and on-road transport, together equating to approximately 79% of all borough-wide emissions, with only 21% relating to electricity consumption.

More detailed breakdown of emissions and consumption can be found in the following sections.

The Borough's combined Scopes 1 and 2 for 2024/25, based on 2022 data show

- **2% decrease** in Borough greenhouse gas emissions from last year
- **6% decrease** in Borough greenhouse gas emissions from the baseline



Borough emissions by category

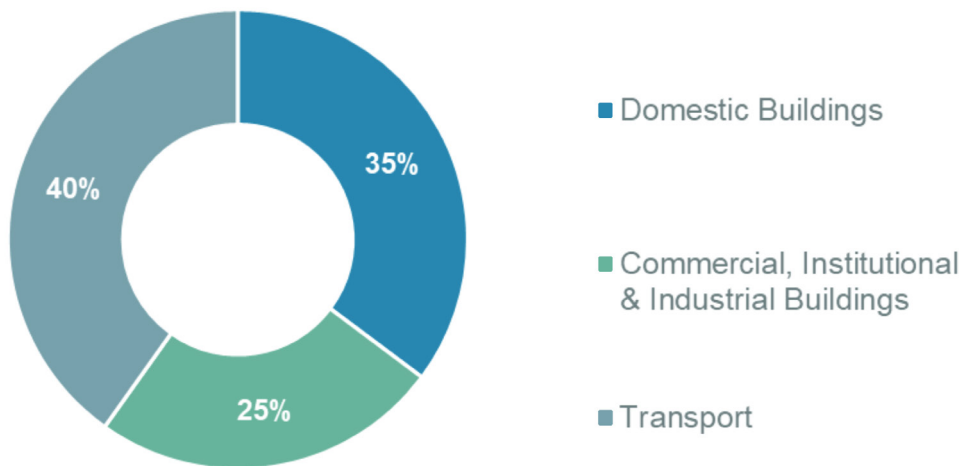


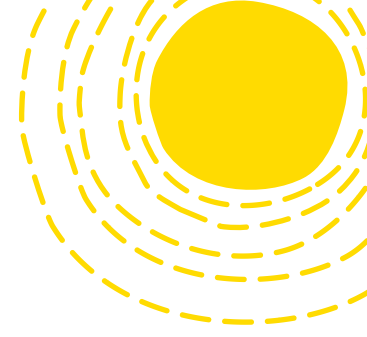
FIGURE 6 - 2024/25 BOROUGH EMISSIONS BY CATEGORY

Borough emissions by category (ktCO ₂ e)								
	Reporting Year [Data Year]	2019/20 [2017]	2023/24 [2021]	2024/25 [2022]	% year	% BL year	BL	% of total
Scope 1 & 2	Domestic Buildings	438	395	350	-11%	-20%	▼	35%
Scope 1 & 2	Commercial, Institutional & Industrial Buildings	253	225	245	9%	-3%	▼	25%
Scope 1	Transport	370	391	399	2%	8%	▲	40%
Total Scope 1 & 2		1061	1011	994	-2%	-6%	▼	

TABLE 5 – BOROUGH EMISSIONS BY CATEGORY

The trajectory since setting a baseline from 2017 data (2019/20 reporting year) has generally been a slight downward trend for buildings, primarily driven by reduction in electricity related emissions, which can largely be attributed to the decarbonisation of the grid. Transport emissions have remained consistent or risen slightly, with 2020 being an anomaly year due to Covid-19. This trend has broadly been repeated in the 2022 data, though whereas domestic building emissions continued to fall, commercial building emissions rose slightly, as did transport emissions.

In this reporting year, electricity (Scope 2) makes up 21% of the emissions, with the bulk of the emissions (79%) being Scope 1 – predominantly natural gas and vehicle fuel.



Borough emissions by Scope

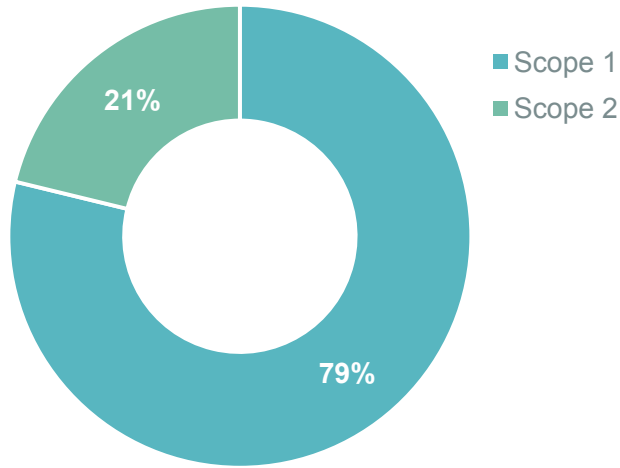


FIGURE 7 - 2024/25 BOROUGH EMISSIONS BY SCOPE

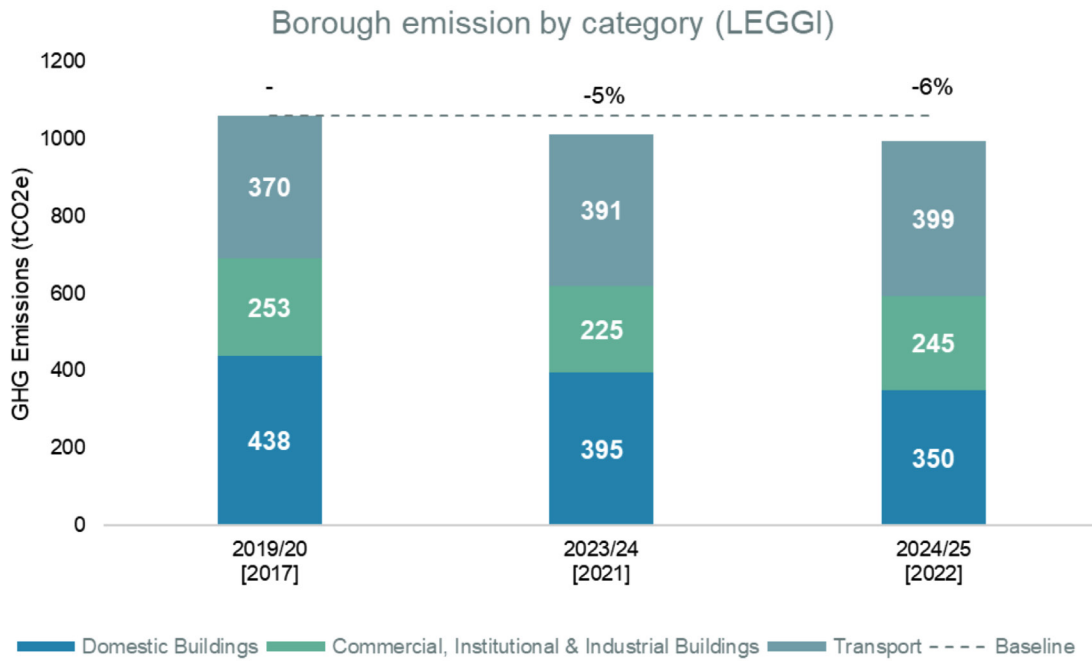
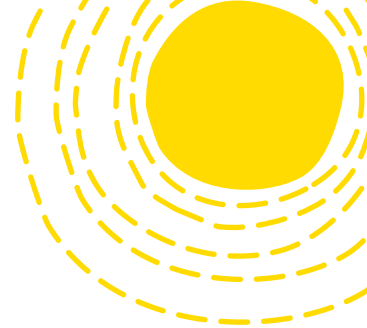


FIGURE 8 – BOROUGH EMISSION BY CATEGORY (SCOPE 1 & 2 - LEGGI)



Emissions in detail

This section reviews a breakdown of emissions including the underlying consumption data and looks at patterns to inform priorities. Due to the data lag, the impact of policies and measures implemented over the last 3 years will not be reflected in the reporting. Monitoring will continue to ensure reductions in emissions relating to buildings, transport and waste continue in line with climate action commitments.

Borough emissions by Scope (ktCO ₂ e)								
-	Reporting Year [Data Year]	2019/20 [2017]	2023/24 [2021]	2024/25 [2022]	% year	% BL year	BL	% of total
Scope 1	Domestic Buildings	303	292	252	-14%	-17%	▼	25%
	Commercial, Institutional and Industrial Buildings	118	121	140	16%	19%	▲	14%
	Transport & NRMM	358	382	390	2%	9%	▲	39%
Scope 1		779	795	783	-2%	1%	▲	79%
Scope 2	Domestic Buildings	135	103	98	-5%	-28%	▼	10%
	Commercial, Institutional and Industrial Buildings	135	104	104	0%	-23%	▼	11%
	Transport & NRMM	12	9	9	-5%	-29%	▼	1%
Scope 2		282	216	211	-2%	-25%	▼	21%
Total Scope 1&2		1061	1011	994	-2%	-6%	▼	

TABLE 6 - BOROUGH EMISSIONS BY SCOPE

Domestic Buildings

Domestic building emissions make up 35% of borough carbon emissions, the majority of this is from natural gas with 25% of all borough emissions being due to natural gas use in homes. This huge challenge relates to priority areas in our climate action response, identifying and promoting alternative heat sources such as heat networks and heat pumps.

Commercial, Institutional and Industrial Buildings

Energy from the commercial, institutional and industrial building sector is a significant, and increasing proportion of borough emissions (25%), explained by the high volume of industrial development in the borough. The balance of energy used for natural gas and electricity consumption is closer, likely due to lower heating demands and a higher proportion of electrically heated buildings and use of air conditioning. Decarbonising heating systems is still a challenge and priority for this building sector. There remains significant consumption of oil in these building types, which requires further investigation to understand and identify opportunities to phase out.

Road Transport

Fossil-fuel use from road-based transport remains a significant challenge and is the largest single emissions source by fuel type at 39% of total borough emissions and is increasing year on year. This is from a combination of private vehicles and commercial vehicles. Mode shift to sustainable and active travel, in addition to electrification of vehicles will be the main priority areas to reduce this consumption. While electricity consumption for vehicles has doubled it remains less than 1% of vehicle fuel consumption.

Grid Decarbonisation

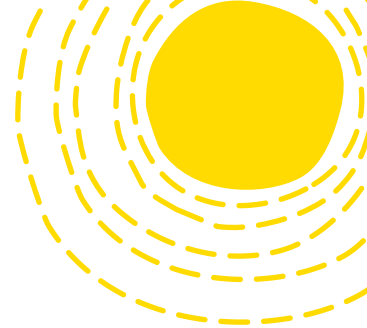
The decarbonisation of the UK electricity grid has continued to have a positive effect of reducing the carbon intensity of electricity and therefore the resultant Scope 2 emissions. In 2022 the UK grid carbon factor (greenhouse gas emissions per unit of energy) decreased a further 9%, with a total emissions factor reduction of nearly 50% from the baseline year (2017). It is worth noting here that the grid decarbonisation has begun to level off, and the emissions factor has even risen in recent years.

Borough Scope 1 & 2 Consumption (MWh)							
Scope	Reporting Year [Data Year]	2019/20 [2017]	2023/24 [2021]	2024/25 [2022]	% year	% BL year	BL
Scope 1 - Buildings	Natural Gas	2,148,879	2,087,062	1,877,261	-10%	-13%	▼
	Oil	80,453	112,986	154,057	36%	91%	▲
	Coal	7,635	4,518	16,255	260%	113%	▲
Scope 1 - Transport	Bioenergy and Waste	2,278	9,975	28,589	187%	1155%	▲
	Fossil fuel	1,432,273	1,442,841	1,504,474	4%	5%	▲
	Diesel	2,223	4,806	4,776	-1%	115%	▲
Scope 1 - Transport	Aviation	1,258	344	743	116%	-41%	▼
	Electric	43,414	45,027	36,647	-19%	-16%	▼
Scope 2 - Buildings	Electricity	977,115	922,690	907,971	-2%	-7%	▼

TABLE 7 – CONSUMPTION BY FUEL TYPE

Bioenergy and waste show a large percentage increase year on year; however, this is from a very low baseline. In absolute terms, bioenergy and waste remain a very small contributor to overall borough energy consumption and emissions. As a result, relatively small changes in consumption can appear as large percentage increases, despite having a negligible impact on the overall emissions profile.

A similar effect can be seen in other fuel types, including oil, coal and diesel, where increases are evident in the data. While these increases warrant monitoring, natural gas and road transport fuels continue to dominate Scope 1 emissions and remain the primary drivers of borough-wide emissions.



Waste

Waste is currently not able to be reported at a borough level, due to a change in dataset and the information being provided for all of London. In Enfield, local authority collected refuse waste is managed by the combined North London Waste Authority (NLWA). Waste is sorted and sent for recycling/composting, incineration, and landfill, with solid-waste disposal (landfill) contributing towards borough-wide emissions. It should be noted that emissions from waste remain a very small proportion of all emissions due to non-recyclable waste in London predominately being incinerated rather than sent to landfill. Where waste is utilised to produce energy (electricity or heat), then these emissions will be reflected in the grid carbon factor and therefore reflected in end use emissions. This is similar to where emissions from recycling are picked up in the embodied carbon of the material.

The chart below (Figure 4) shows London-wide waste data as provided by the GLA, utilising the LEGGI data set. This is showing a London-wide downward trend in waste emissions, particularly solid waste disposal for waste going to landfill.

London waste emission data (ktCO ₂ e)							
	2019/20 [2017]	2023/24 [2021]	2024/25 [2022]	% year	% BL year	BL	% of Total
Solid waste disposal	305	207	193	-7%	-37%	▼	45%
Biological treatment of waste	53	61	49	-19%	-7%	▼	11%
Wastewater treatment and discharge	189	189	190	1%	0%	▲	44%
Total London Waste Emissions	547	456	432	-5%	-21%	▼	

TABLE 8 – LONDON WASTE EMISSIONS (UNAPPORTIONED)

