

CHELTENHAM BOROUGH HOMES

ANNUAL REPORT ON GREENHOUSE GAS EMISSIONS: FINANCIAL YEAR 2023/24

EXECUTIVE SUMMARY

This is a report on the carbon emissions that Cheltenham Borough Homes is responsible for in the financial year 2023/2024.

The emissions are broken down into scopes, which categorise emissions into 3 areas:

- Scope 1: Direct emissions from sources owned/controlled by CBH
- Scope 2: Indirect emissions from purchased electricity
- Scope 3: Indirect emissions from sources not owned or controlled by CBH

Scope 1

- Have reduced by 11.94% on the 2019/20 baseline, which is a reduction of 53.53 tCO₂e.
- Have reduced based on the previous year (23/24: 394.71tCO₂e vs. 22/23:406.77tCO₂e). Notable changes within scope 1 emissions compared to the previous year's report are reductions in the gas usage in communal heating systems and less diesel used within our fleet. Emissions from energy use in our offices rose by 2.16 tCO₂e, due to the large increase of energy use at the Depot.
- As the emissions we report on within scope 1 are under our direct control, reduction in this area reflects a small amount of work that has been put into areas such as introducing more HVO vehicles, replacing diesel usage.

Scope 2

- Have reduced by 35.69% on the 2019/20 baseline, which is a reduction of 88.84 tCO₂e
- Have increased on the previous year (23/24: 160.06 tCO₂e vs. 22/23: 122.37 tCO₂e). Notable changes within scope 2 emissions compared to the previous year's report are the increase in emissions for communal electricity usage which have been attributed to data inaccuracies from meters in the previous year's report, and the reduction of electricity use in the offices. The totals from these meters are based on estimates and are therefore open to change at any point where a more accurate read is taken to reflect the true nature of the energy consumption.
- The emissions reported on in scope 2 are directly controlled by us, and whilst there has been a rise this year compared to last year, we have reduced well on the baseline. Continued reduction in this area will rely on the greening of the electricity grid, but also internal behavioural changes will see less power usage.

Scope 3

- Have increased by 22.42% on the 2019/20 baseline, which is an increase of 2150.62 tCO₂e.
- Have increased on the previous year (23/24: 11744.62 tCO₂e vs 22/23:7530.84 tCO₂e). Notable changes within scope 3 emissions compared to the previous year's report are the introduction of supply chain emissions, however, there has been a reduction in housing stock emissions.
- Introduction of supply chain emissions added an extra 4578.56 tCO₂e to our emissions.

- The emissions produced by the housing stock fell by 312.79 tCO₂e compared to 2022/23's figure, this can in part be attributed to major retrofit works including EWI and low-carbon heat technologies, other ongoing small-scale energy efficiency measures such as loft insulation, as well as “greening” of the grid.
- Scope 3 emissions are out of our direct control and are therefore the hardest to reduce. Actions such as employee travel surveys will help to better understand commuting behaviours, but ultimately it will be very hard to have a large influence on these emissions.

INTRODUCTION:

Table 1: Definition of Scope 1,2 and 3 emissions

Category	Description	Source
Scope 1	Direct emissions as a result of burning fossil fuels from activities owned or controlled by the organisation.	<ul style="list-style-type: none"> • Property schemes managed by CBH that have a communal supply of gas (<i>CBC owned heat networks and both CBC and CBH properties with communal areas - lounges or similar</i>) - metered gas use • Gas supply to CBH office spaces • CBH fleet vehicle fuel use
Scope 2	Indirect emissions from purchased energy (electricity) consumed by CBH operations.	<ul style="list-style-type: none"> • Metered electricity use for communal areas of properties managed by CBH on behalf of CBC and CBH owned properties • Metered electricity use for CBH organisational office spaces
Scope 3	All other quantifiable indirect emissions from sources not owned or controlled by CBH.	<ul style="list-style-type: none"> • Business travel and employee commuting • All housing stock including that is managed on behalf of CBC and CBH owned properties • Transmission and Distribution losses from all purchased electricity in Scope 2 • Un-official off-sets from communal solar PV arrays • Procurement emissions from the supply chain

The following elements have not been reported by CBH in this year's report: waste, water use,

ORGANISATIONAL BOUNDARY:

CBH operates out of offices around Cheltenham. These offices are within shared spaces and space is rented from either CBC or another landlord. CBH runs a fleet of vans as part of the maintenance team.

CBH staff work from several shared office spaces, some shared with CBC (Oakley Community Centre, The Depot, Municipal Offices) and one with the Hesters Way Neighbourhood Project and other parties. (Hesters Way Resource Centre). The percentage of responsibility for energy use based on floorspace occupied is displayed in the table below:

Table 2: Floorspace Percentage Occupied by CBH

Office Name	
Municipal Offices	1.20 %
The Depot	9.5 %

Oakley Community Centre	56.11 %
Hesters Way Resource Centre	25.11 %

CBH manages the Council's housing stock and directly owns a small number of properties. Emissions come from the generation of the energy used within these properties. Energy use in residential properties is usually separated into regulated and unregulated energy.¹ Only regulated energy use is used in CBH GHG emissions calculations.

Some data presented in these carbon figures is based on assumptions, with figures based on estimates rather than actual figures.

RESULTS:

SCOPE 1

Table 3: Breakdown of emissions by source within scope 1, compared against the 2019/20 baseline

Scope 1	2023/24 tCO ₂ e	2022/23 tCO ₂ e	2021/22 tCO ₂ e	Baseline 2019/20 tCO ₂ e	% change on baseline
CBC properties: Communal heating (gas)	272.87	283.64	334.87	331.80	-17.76
CBH Offices (Gas)	21.71	19.55	24.71	24.67	-11.99
Vehicles (biodiesel)	0.12	0.04	0	0	-
Vehicles (diesel)	99.98	103.38	96.56	91.78	+8.94
Vehicles/equipment (petrol)	0.03	0.15	0.57	0	-
Scope 1 Total	394.71	406.77	456.71	448.24	-11.94

The total of all the scope one emissions for 2023/24 shows a 11.94% reduction on the 2019/20 baseline. The gas purchased for heating is natural gas, and the biodiesel purchased for vehicles is hydro-treated vegetable oil. Notable changes in emissions within Scope 1 can be seen in:

- Reduction in communal gas heating within CBC sheltered scheme properties. No significant changes have been made to these systems but there is now more accurate data collection with more automated meter reads improving accuracy.
- Increase in biodiesel (HVO) usage on previous year can be explained by the HVO vans being accounted for during the entire year of 23/24, whereas they were only accounted for 4 months of 22/23.
- Overall emissions from CBH offices gas usage have fallen from the baseline but there is an increase of 11% in these emissions for the CBH offices in 23/24 over that from 22/23. This is due to an increase of energy use at the Depot. The new BMS system performed below standard and the workshop heaters broke, leading to a larger gas usage.
- Emissions from petrol usage has reduced as there are no longer any petrol vehicles and as petrol tools are replaced with battery powered ones.
- A Reduction in emissions for diesel is due to less diesel being used by the vans in the repairs fleet, this could possibly be due to less miles being driven therefore requiring less fuel.

SCOPE 2

Table 4: Breakdown of emissions by source within scope 2 compared against the 2019/20 baseline

Scope 2	2023/24 tCO ₂ e	2022/23 tCO ₂ e	2021/22 tCO ₂ e	Baseline 2019/20 tCO ₂ e	% change on baseline
All housing stock (Communal usage - electricity)	146.11	107.08	163.08	221.15	-34.50
CBH Offices (electricity)	13.95	15.28	18.95	27.76	-49.75
Scope 2 Total	160.06	118.15	182.04	248.90	-35.69

The total of all scope 2 emissions for 2023/24 shows a reduction of 35.69% on the 2019/20 baseline. The changes in emissions within scope 2 to note are:

- Continued reduction against the baseline however is partly attributed to greening of the grid over time, and production of electricity being less carbon intensive than previous years.
- Emissions from the housing stock communal usage of electricity has declined based on the 19/20 baseline. However, there was an increase on the 22/23 emissions, attributed to meter data inaccuracies for the annual reporting period. In future years, this will be avoided as there is a programme in place for installing smart meters to gather more accurate readings.
- Emissions from the use of electricity within CBH offices
 - The reduction here of 49.75%, when compared to the baseline, is attributed to a number of factors:
 - the reduction in office space; in 19/20 CBH had additional office space in the town centre (all energy use at this site was electrical)
 - the introduction of solar PV at one shared office (HWRC)
 - the introduction of hybrid working - where people now have the option to work from home, less energy is being used within offices.
 - it is also possible that there is a small reduction due to behavioural change, as people become more aware of the environmental impacts of using energy i.e., not leaving lights on etc.
- The 22/23 CBH offices electricity figure was erroneously reported as 11.06 In this report, the correct figure of 15.28 is used. This error was caused by an incorrect transfer of data to last year's report.

SCOPE 3

Table 5: Breakdown of emissions by source within scope 3, compared against the 2019/20 baseline

Scope 3	2023/24 tCO ₂ e	2022/23 tCO ₂ e	2021/22 tCO ₂ e	Baseline 2019/20 tCO ₂ e	% change on baseline
Milage (CBH business)	10.38	10.44	17.94	17.94	-41.81
Rail travel (CBH business)	0.06	0.02	1.12	1.12	-98.47
All housing stock (communal electricity/T&D)	13.74	9.14	14.43	16.81	-45.60
CBH offices (electricity/T&D)	1.21	0.93	1.68	2.11	-55.92
All housing stock	7,046.98	7,359.77	9,455.63	9,400.74	-25.04
Solar PV off-set from communal supplies	-20.73	-24.15	-19.21	-19.21	+8
Supply chain (purchased goods & services)	4578.56				
Employee commuting	114.42	174.61	174.61	174.61	-34.47
Scope 3 Total	11,744.62	7,530.84	9,646.08	9,594.00	+22.42

The total of all scope 3 emissions for 2023/24 -

- Emissions from the housing stock have fallen, and continue to fall, the figure for 23/24 is 7,046.98tCO₂e which is a reduction of 25.04% on the 19/20 baseline, and a reduction of 4.25% on 22/23 housing stock emissions. This reduction is despite an increase in stock amount from 4638 to 4672, and an increase in accountancy; for example, St Georges Place was accounted for separately to the rest of the housing stock in 22/23's report as it is PRS and not part of the core social housing stock, whereas in this year's report it has been decided to include it in the overall number. The overall reduction is also partly due to a change in the calculation approach - the 22/23 housing stock emissions figure was erroneously reported as 8,086.52. In this report, the correct figure of 7,359.77 is used. The error occurred because the net rather than the gross conversion figure was used in error against natural gas energy use.

- The reduction in the housing stock emissions can be attributed to major retrofit works that took place from autumn of 2022 and finished in the summer of 2023. These included installations of EWI systems to 34 Wimpey No-Fines properties, improvements at 25 properties in Cumming Court including the installation of a shared ground-loop ground source heat pump system and cavity wall insulation. Further work that has contributed to the reduction is the retrofit of EWI and loft insulation, as well as double glazing at 30 Cornish properties.
- Within scope 3 there is the offset of energy that is provided using solar PV systems supplying energy to the communal supplies. The overall solar PV offset figure has been subtracted from the overall total. The offset for 23/24 is less than it was in 22/23, this is impacted by the variability in the weather - there were fewer hours of sunshine in 2022 compared with 2023. It is worth noting that this figure has increased on the baseline, which is positive as it means a higher offset.
- The emissions produced by procurement of goods & services is a new addition to our reporting for 23/24 adding 4578.56 tCO₂e to the emissions total. This figure has been calculated using a tool provided by Newport City Council (as being used for CBC calculations), which converts total spend to carbon emissions based on individual categorized emission factors. It is worth noting that Newport City Council does not have its own housing stock, therefore the tool is tailored more towards private businesses. It is however important that we begin to account for this large set of emissions, and we will look to streamline the process in future reporting. The main contributors to these emissions are construction works and services to buildings. Accounting for this set of emissions will allow us to begin making our supply chain more sustainable, starting with identifying our highest emitting contractors and working closely with them. It should be noted that our Scope 3 supply chain emissions figures may also be accounted for within contractors' own carbon footprint, however it is important that CBH understand the impact of our activities and purchases.
- Travel emissions for employee commuting have in previous years been based on the distance between employee home postcodes and the office. This year however, an employee survey was conducted consisting of questions about methods of travel, including different vehicle sizes and fuel types. The emissions for employee commuting in 2023/24 have decreased by 34.47% compared to the baseline figure. This decrease can be largely attributed to the fact that the baseline figure was pre-COVID 19, and the vast majority of staff would have been travelling to the office every day. Since the pandemic, staff work from home a considerable amount more and thus we have seen a drop in employee travel. Note: the employee commuting emissions figures were not recalculated after the baseline year until 23/24.

SUMMARY:

Table 6: Total emissions from 2022/23 compared to previous years, compared against the 2019/20 baseline.

	2023/24 tCO ₂ e	2022/23 tCO ₂ e	2021/22 tCO ₂ e	Baseline 2019/20 tCO ₂ e	% change on baseline
Scope 1, 2 & 3 total emissions	12,299.39	8,059.57	10,284.83	10,291.14	+19.51

- The total emissions for 2023/24 for CBH show a 19.51% increase on the baseline total of 2019/20. The increase in emissions is due to accounting for a new set of emissions in the supply chain (purchased goods and services), which make up 37.2% of all CBH's 23/24 emissions. Without this additional accounting, emissions have fallen slightly.
- The bulk of CBH's emissions lies in the housing stock, which makes up 57.3% of overall emissions.
- The majority of the supply chain emissions (approx. 75%) relate to building, maintaining, and improving homes.
- There are some differences in what has been reported in the CBC and CBH Carbon Footprint report. The following has not been reported by CBH in this year's report (Scope 3):
 - Waste
 - Water use

NEXT STEPS:

Future emissions reductions can be targeted by:

- Scope 1
 - upgrading the CBH vehicle fleet to use electric vehicles continues to be investigated, this would see a reduction in emissions from diesel fuel use. However, this would require large-scale infrastructure upgrades to include charge points both at the offices and at the repairs fleets' homes and currently costs for EVs have made this prohibitive.
 - reducing gas use for heating of CBH office spaces will be helped by better monitoring and sub-metering. CBC is working to progress this at CBH's biggest site usage, The Depot on Swindon Road. This will also allow better identification of office-based emissions.
 - reducing emissions from communal heating systems. A new GSHP (ground source heat pump) heating system has been installed at Cumming Court and other sites are being reviewed to consider the options. Incoming future legislation may also modify the way in which communal heating systems are operated.
- Scope 2
 - encouraging behavioural change in the use of electricity within offices will be the driving force behind reducing energy demand therefore carbon emissions.
 - in addition, as the grid continues to become greener, and investment in green energy rather than brown energy grows, emissions across all of scope 2 will fall in future years.
- Scope 3
 - working to improve the energy efficiency of CBH managed properties, as well as installing low carbon heating, will reduce the energy demand, and hence resulting carbon emissions, of homes.
 - engaging proactively with the supply chain and working to develop a sustainable procurement strategy.

ENDNOTES

¹ Regulated energy is energy consumption by controlled building services, such as space heating (affected by the energy performance/insulation), hot water systems and lighting. This is the energy use that is reported on in EPCs and which landlords have significant control over, i.e., via the amount of heat required within the house (due to its fabric/construction) and the way that heat is generated (via a boiler or similar). Only regulated energy use is used in CBH GHG emissions calculations, and this is based on modelling via RdSAP (not measured energy consumed).

Unregulated energy includes energy use via appliances and other equipment that is not controlled or regulated. This is energy used by residents for the equipment in their homes. Reductions can be made by using more efficient appliances or behavioural change. Unregulated energy is not included in CBH GHG emissions reporting.