

# CHELTENHAM BOROUGH HOMES

## ANNUAL REPORT ON GREENHOUSE GAS EMISSIONS: FINANCIAL YEAR 2022/23

### INTRODUCTION:

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

Category	Description	Source
<b>Scope 1</b>	Direct emissions from sources owned or controlled by CBH, such as emissions from company-owned vehicles and fuel combustion in heating systems.	<ul style="list-style-type: none"> <li>Property schemes managed by CBH that have a communal supply of gas (<b>CBC owned properties only</b>) - metered gas use</li> <li>Gas supply to CBH office spaces</li> <li>CBH fleet vehicle fuel use</li> </ul>
<b>Scope 2</b>	Indirect emissions from purchased electricity, heat, or cooling consumed by CBH operations and facilities.	<ul style="list-style-type: none"> <li>Metered electricity use for communal areas of properties managed by CBH on behalf of CBC and CBH owned properties</li> <li>Metered electricity use for CBH organisational office spaces</li> </ul>
<b>Scope 3</b>	Indirect emissions from sources not owned or controlled by CBH, including emissions from business travel, employee commuting.	<ul style="list-style-type: none"> <li>Business travel and staff commuting</li> <li>All housing stock including that managed on behalf of CBC and CBH owned properties</li> <li>Transmission and Distribution losses from all purchased electricity in Scope 2</li> <li>Un-official off-sets from communal solar PV arrays</li> </ul>

The following elements have not been reported by CBH in this year's report: waste, water use, purchasing of goods and services/procurement

### 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.<sup>1</sup> 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	2022/23 tCO <sub>2</sub> e	2021/22 tCO <sub>2</sub> e	2019/20 tCO <sub>2</sub> e	% change on baseline	CBH Report 2019/20 tCO <sub>2</sub> e
CBC properties: Communal heating (gas)	283.64	334.87	331.80	-14.51	361.34
CBH Offices (Gas)	19.55	24.71	24.67	-20.72	39.97
Vehicles (biodiesel)	0.04	0	0	-	-
Vehicles (diesel)	103.38	96.56	91.78	12.65	96.65
Vehicles (petrol)	0.15	0.57	0	-	-
<b>Scope 1 Total</b>	<b>406.77</b>	<b>456.71</b>	<b>448.24</b>	<b>-9.25</b>	<b>497.96</b>

The total of all the scope one emissions for 2022/23 shows a 9.25% reduction on the 2019/20 baseline. The gas purchased for heating is natural gas, and the biodiesel is Hydro-treated vegetable oil. Notable changes in emissions within scope one can be seen in:

- Reduction in communal gas heating within CBC sheltered scheme properties - This may be due to more accurate data collection and the use of actual reads from gas meters.
- Reduction in all gas heating levels may also be due to the need to heat less due to the variation in heating season temperatures and the need to heat less in some year over others. Analysis of the degree day data<sup>2</sup> does indicate a slight reduction in average quarterly degree days in an annual comparison 2021/22 to 2022/23.
- Increase in use of fleet diesel - The addition of 4 vans to the fleet for increased business usage, all of which run on biodiesel (HVO), has added an extra set of emissions that have not been accounted for in previous years - albeit minimal. The increase in diesel is likely to be due to higher mileages/usage and will be reviewed if it continues to rise.

### SCOPE 2

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

Scope 2	2022/23 tCO <sub>2</sub> e	2021/22 tCO <sub>2</sub> e	2019/20 tCO <sub>2</sub> e	% change on baseline	CBH Report 2019/20 tCO <sub>2</sub> e
All housing stock (Communal usage - electricity)	107.08	163.08	221.15	-52.22	263.42
CBH Offices (electricity)	11.06	18.95	27.76	-60.14	33.06
<b>Scope 2 Total</b>	<b>118.15</b>	<b>182.04</b>	<b>248.90</b>	<b>-52.53</b>	<b>296.48</b>

The total of all scope 2 emissions for 2022/23 shows a reduction of 52.53% on the 2019/20 baseline. The changes in emissions within scope 2 to note are:

- Use of electricity at CBH managed properties communal supplies
  - The reduction can be partially accounted for by the 'Greening of the Grid' where the energy being supplied for electricity use is less carbon intensive than previous years. There has been a percentage reduction of 11.2% for the 2023 GHG reporting conversion figure<sup>3</sup> used for electricity when compared to the figure for reporting electricity in the 2020 GHG conversion factors<sup>4</sup>.

- additional reduction is being investigated but could be, in part, due to estimated billing and hence not a true reduction used for electricity when compared to the figure for reporting electricity in the 2020 GHG conversion factors.
- additional reduction is being investigated but could be, in part, due to estimated billing and hence not a true reduction
- Use of electricity within CBH offices - The reduction here of 60.14% 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.

### SCOPE 3

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

Scope 3	2022/23 tCO2e	2021/22 tCO2e	2019/20 tCO2e	% change on baseline	CBH Report 2019/20 tCO2e
Milage (CBH business)	10.44	17.94	17.94	-41.81	17.94
Rail travel (CBH business)	0.02	1.12	1.12	-98.47	1.12
All housing stock (electricity/T&D)	9.14	14.43	16.81	-45.60	22.36
CBH offices (electricity/T&D)	0.93	1.68	2.11	-55.92	3.58
All housing stock	8,086.52	9,455.63	9,400.74	-13.98	9255.39
Solar PV off-set from communal supplies	-24.15	-19.21	-19.21	25.71	-19.21
Employee commuting	174.61	174.61	174.61	0	174.61
<b>Scope 3 Total</b>	<b>8,257.51</b>	<b>9,646.08</b>	<b>9,594.00</b>	<b>-13.93</b>	<b>9,601.02</b>

The total of all scope 3 emissions for 2022/23 -

- Housing Stock - The approach for calculating the emissions from the housing stock has changed in 2022-23. Previously it was obtained directly from SAP 2012 carbon emissions figures, but the emissions conversion factors used in SAP 2012 are fixed and do not reflect the changing emissions relating to the “greening of the grid”. From 2022-23 onwards emissions will be calculated using the SAP 2012 (or SAP 10.2 when this is released) software for energy consumption but with the current government (annual) emissions factors. The government emissions factor for electricity has dropped by over 50% due to the greening of the grid (since the SAP 2012 figures were set) hence the significant (13.98%) decrease in the overall emissions for the housing stock. It is expected that this can be split into CBC and CBH stock moving forward. Even with this reduction the housing stock makes up 94% of all CBH emissions and is thereby a central focus of works involving energy efficiency measures and retrofit that are being carried out by the organisation in trying to make Cheltenham net-zero carbon.
- Business travel claims - Mileage claims for business travel have fallen 41.81% in 2022/23 when compared to the 2019/20 baseline, this could be due to the increase of meetings and events being held via video links. It is measured via expenses claims so the extent to which claims are made (or not) needs to be investigated.
- Within Scope 3 there is the offset of energy that is produced using solar PV systems supplying energy to the communal supplies. The overall solar PV offset figure has been subtracted from the overall total. Solar PV systems supplying individual dwellings are accounted for within the SAP 2012 modelling of each property.

- Employee commuting - This is based on 2019/20 figures. A reasonable and viable annual methodology for the calculation of emissions created by employees traveling to and from work is to be developed.

## SUMMARY:

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

	2022/23 tCO <sub>2</sub> e	2021/22 tCO <sub>2</sub> e	2019/20 tCO <sub>2</sub> e	% change on baseline	CBH Report 2019/20 tCO <sub>2</sub> e
<b>Scope 1, 2 &amp; 3 total emissions</b>	<b>8,782.43</b>	<b>10,284.83</b>	<b>10,291.14</b>	<b>-14.66</b>	<b>10,395.46</b>

- The total emissions for 2022/23 for CBH shows a 15% reduction on the baseline total of 2019/20 and a 15% reduction on the previous year.
- Scope 3 continues to carry the bulk of CBH's carbon emissions, due to the energy use from the properties that CBH manages on behalf of CBC and accounts for 94% of all CBH emissions.
- It is important to note that there are some differences between the CBC report and the CBH report in terms of what sources area accounted for within the different scopes.
- The following has not been reported by CBH in this year's report:
  - Waste
  - Water use
  - Purchasing of goods and services/procurement

## FURTHER WORK:

- A reduction in overall emissions will continue because of the following changes:
  - For scope 3, work on the energy efficiency of CBH managed properties, including EWI, CWI, ASHP installation, Loft insulation etc. to reduce the energy demand of those homes therefore reducing the amount of carbon emissions.
  - For Scope 2, behavioural change in the use of electricity within offices will be the driving force behind reducing energy demand therefore carbon emissions. 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.
  - For Scope 1, upgrading the CBH vehicle fleet to having several electric vehicles would see a reduction in emissions from diesel fuel use. The maintenance team will look to move towards more electric tools where their tools currently operate using petrol. The reduction of gas use for heating of CBH office spaces will be helped by better monitoring in the future, such as having separate meters for the space that is used by CBH compared to space that is used by others (CBC for example). Reducing emissions caused by heating communal areas at CBH sheltered schemes will come from better controls being installed for heating systems, therefore allowing it to be managed better - and talking to residents of the properties that use the communal spaces and working with them to understand when/why heating is being used. Whilst we will look at low carbon heating alternatives being installed as an option, a big consideration in this will be the running costs as tenants will see these costs in their service charge.

## ENDNOTES

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<sup>1</sup> 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.

<sup>2</sup> [ET\\_7.1\\_JUN\\_23.xlsx \(live.com\)](#)

<sup>3</sup> [ghg-conversion-factors-2023-condensed-set-update.xlsx \(live.com\)](#)

<sup>4</sup> [Conversion\\_Factors\\_2020\\_-\\_Condensed\\_set\\_for\\_most\\_users\\_.xlsx \(live.com\)](#)