

READING BOROUGH COUNCIL: GREENHOUSE GAS (GHG) EMISSIONS REPORT 2021 - 22

EXECUTIVE SUMMARY

Reading Borough Council (RBC) is committed to reducing greenhouse gas emissions (GHGs) across its estate and operations. The means to do so are set out in the Council's corporate Carbon Plan 2020-2025, which was approved in November 2020. The Carbon Plan sets out actions to meet an ambitious carbon emissions reduction target of 85% by 2025, *en route* to becoming a 'net zero' organisation by 2030.

The Council's corporate carbon footprint

This year (2021/22) the Council is able to report a 71.3% decrease in gross corporate emissions compared to the baseline year of 2008/09. This represents a further decrease in emissions from the 69.8% reported in 2020/21 and the first time the Council has exceeded the important milestone of 70%.

To achieve the target set in the Carbon Plan, a notional average annual reduction in emissions of c.3.7% against the baseline is required. In 2021/22 the Council's emissions reduced by 1.5% against the baseline. Although this is below the notional reduction needed for a single year, it was an unusual year in that the previous year (2020/21) saw very significant reductions (i.e. a 6.3% cut on the 2008/09 baseline, and a 17.3% cut year-on-year) arising from Covid pandemic restrictions. As such it was always anticipated that there would be a 'bounce back' in 2021/22 emissions from this artificially low level. In this context, the fact that emissions continue to decline (by 3.9% per annum on average over the last 2 years) is to be welcomed, and we remain 'on track' to meet the target of an 85% cut by 2025.

The Council's 'wider influence' emissions

In addition to measuring our corporate GHG emissions as summarised above, we also measure and report on the gross emissions within the Council's 'wider influence', taking account of factors outside our direct control but within the scope of our influence. The assets in the 'wider influence' category include schools, leisure centres (see below), Reading Buses and the Smallmead waste recycling facility.

By this measure, emissions saw a 33.6% reduction in 2020/21 (with pandemic restrictions being a major factor in the decrease) but rose by 27% in 2021/22 (as pandemic restrictions lifted). As a result, by 2021/22 the Council's 'wider influence' carbon footprint had reduced by 42.1% compared to the 2008/09 baseline. This compares to a 54.4% reduction in 2020/21. It can be seen therefore that the post-covid 'bounce-back' effect is more evident in the 'wider footprint' calculation than in the corporate carbon footprint calculation.

Treatment of emissions from leisure facilities

It is important to note that this year's report includes a change in the reporting of emissions from 3 leisure centres to reflect changes in their management under the contract with GLL which took effect from 1st July 2021. At this point Meadway, Palmer Park and South Reading Leisure Centre moved from direct RBC management to the operational control of GLL. As a result, under the GHG reporting protocols, emissions from these assets are no longer accounted for in the 'corporate' category but move to the 'wider influence' category, joining the Rivermead centre in that category which was already managed by GLL. Had the emissions from these leisure assets still been part of the corporate carbon footprint calculation, the reduction seen between 2020/21 and 2021/22 would have been smaller, but would still have been a reduction (a 70.5% cut on the 2008/09 baseline as opposed to 71.3%).

To further aid understanding of this impact, an exercise was conducted to retroactively normalise emissions data for RBC Corporate and 'wider influence' Leisure Centres, removing the 3 assets from the corporate footprint calculation for the last 3 years. The results are presented below in Table 1 and demonstrate that both categories saw a post-covid 'bounce back', but still ended up with lower emissions in 2021/22 than in 2019/20. Corporate emissions reduced year-on-year for two years, but at very differing rates. Leisure centres saw a year-on-year increase between 2020/21 and 2021/22, but were still substantially lower in 2021/22 than in 2019/20.

Table 1: Comparison of normalised RBC Corporate and Leisure Centre emissions, accounting for recategorization of 3 assets from corporate to 'wider influence'.

	YOY 20/21 vs 19/20 (1 year impact with Covid restrictions in place)	YOY 21/22 vs 20/21 (1 year impact with restrictions lifted)	YOY 21/22 vs 19/20 (2-year trend)
Corrected RBC Emissions %	-13.8%	-1.5%	-15.1%
Corrected Leisure Emissions %	-56.1%	44.0%	-36.8%

The change in reporting of leisure emissions does not, of course, mean that the Council has lost sight of or shed responsibility for emissions from the leisure estate: on the contrary, we continue to track and report transparently on leisure emissions via the 'wider footprint' measure as above; we continue to work with GLL to reduce emissions from the new and existing leisure centres via energy efficient design; and we have provided an additional £976,000 investment in heat pumps and solar panels, over and above the initial investment in the leisure centre programme, to further reduce emissions. We can expect, therefore, to see the impact of these new investments reflected in next year's 'wider influence' footprint calculation.

Financial implications of carbon reduction efforts

The financial cost of energy provides a further incentive to reduce its use, particularly in the light of the current high prices and the volatility of wholesale markets. In this regard, it is estimated that the cumulative costs avoided by the Council from reduced energy consumption since 2008/09 are c.£17.4m (excluding standing charges and other contract charges) compared to if no action had been taken. In 2021/22 alone these avoided costs were estimated at £2.3m.

1. Introduction

1.1 Policy context

Prior to the Government's adoption of the national 'net zero by 2050' carbon reduction target, Reading Borough Council had declared a climate emergency at its meeting in February 2019, committing to the more ambitious aim of a net zero carbon Reading by 2030. In November 2020, the Council subsequently endorsed the new Reading Climate Emergency Strategy 2020-25 (prepared by the Reading Climate Change Partnership) based on the 'net zero by 2030' ambition, and adopted a new corporate Carbon Plan for the period 2020-25, including a more ambitious target to reduce the Council's own emissions by 85% by 2025 *en route* to net zero by 2030.

The vision for the Reading Climate Emergency Strategy is '*for a Reading which is working rapidly towards (i) Net zero carbon dioxide emissions in the Reading area by 2030 (ii) Being better prepared to deal with the impacts of a changing climate.*' This sets the context for Reading Borough Council's efforts to reduce its own corporate emissions.

1.2 Leading by Example

While the Council's emissions represent only a small proportion of the total emissions for the Borough (less than 1.5%), the Council recognises the importance of demonstrating leadership by example in terms of delivering deep and meaningful reductions in its own emissions.

The Council has a long history of carbon reduction initiatives adopted since it signed the Nottingham Declaration on Climate Change in March 2006. In 2007 RBC worked with the Carbon Trust to produce Reading's first Local Authority Carbon Management Plan (LACM). Since 2008 the authority has managed a rolling investment programme in energy efficiency and renewable energy technologies to achieve carbon reduction. The 2015-20 Carbon Plan set a target of achieving a 50% reduction in corporate emissions by 2020, a target which was achieved three years early. The 2020-25 Carbon Plan therefore represents just the latest in a series of actions to reduce corporate emissions.

1.3 The Carbon Plan 2020-25

Reading Borough Council's 'Carbon Plan 2020-25', was approved in November 2020, confirming the organisation's target to reduce carbon emissions by 85% against the 2008/9 baseline. In addition a further three targets were also included: 1) a renewable energy target to generate 50% of total energy consumed from renewable sources by 2025. 2) A fossil fuel target to reduce fossil fuel consumption by 50% by 2025 and, 3) A target to reduce water consumption by 5% p.a.

2 Reading Borough Council Greenhouse Gas (GHG) Emissions

2.1 The Organisation

Reading Borough Council is a unitary local authority. RBC is now comprised of three directorates; Directorate of Economic Growth & Neighbourhood Services (DEGNS); Directorate of Resources; and Directorate for Adult Care & Health Services (DACHS).

Brighter Futures for Children, which is a not-for-profit company, manages the services which look after the children of Reading, and is responsible for its own carbon emissions reporting. Carbon management for the Council is managed in the Sustainability Team, within the Directorate of Economic Growth & Neighbourhood Services.

2.2 How we measure the Council's emissions: scope

RBC produces two main measures of emissions (i) the RBC corporate GHG emissions measure or 'corporate carbon footprint', comprising activities under its direct operational control and (ii) the 'wider influence' GHG emissions measure which also includes activities outside of its direct control but within its 'wider influence'.

As of the 2020/21 reporting year, all schools (including community, voluntary aided, diocese, Academy and Free Schools) and managed services (including Rivermead Leisure centre, Reading Buses and Smallmead Materials Recycling Facility (MRF) are reported under 'Scope 3', where RBC can influence, rather than control, the operations. From 2021/22 three other leisure centres are also now treated as managed services following the transfer of operational control from RBC to Greenwich Leisure Ltd (GLL).

The Council measures its GHG emissions in line with accepted protocols for doing so and a list of activities which are used to calculate the Council's carbon footprint is as follows. A detailed breakdown of the activities that are reported, and within which scope, can be found in Annex 1.

Scope 1 (Direct emissions)

- Fossil fuels - natural gas and burning oil consumption
- Transport fleet
- Fugitive emissions from air conditioning units only (excluding emissions from domestic fridges and freezers)
- Self-supplied renewably generated electricity or heat

Scope 2 (Indirect Emissions)

- Purchased electricity

Scope 3 RBC Corporate (Other Indirect Emissions)

- Electricity losses from transmission and distribution
- Managed assets - business travel

Scope 3 Non-Corporate (Other Indirect Emissions)

- Schools (Community, Voluntary Aided, Diocese, Academy and Free Schools)
- Outsourced services (4 leisure centres, 1 bus company, 1 waste MRF)

Outside Scopes

- None this year

Renewable electricity

- Renewably generated electricity from systems owned by RBC, but supplying electricity to other parties

The Council's headline corporate carbon footprint measure is calculated by adding Scope 1 and 2 plus an element of Scope 3 which is considered 'corporate'. This is the measure on which the Carbon Plan target of an 85% reduction by 2025 is based. By contrast, we calculate the 'wider influence' carbon footprint by adding together everything in Scopes 1, 2 and 3.

We also calculate net emissions for both measures taking into account renewable energy generation exported to the grid or sold to others, although the reporting protocols recommend reporting based on gross emissions. As such, net figures are included for illustrative purposes only, and do not affect the headline measures of our 'corporate carbon footprint' or 'wider influence' footprint which are based on gross figures.

2.3 Baseline Year and reporting

The Council has been reporting its carbon footprint since 2005/06. Since this time, the reporting systems have changed several times and data collection has improved. The Council's baseline year for the purposes of the current Carbon Plan is 2008/09.

Since 2013/14, the Council is no longer required to annually report carbon emissions for the Carbon Reduction Commitment Energy Efficiency Scheme. However, we continue to report on emissions annually in the interests of transparency and public accountability.

The emissions factors used for calculation of the GHG footprint for 2021/22 (1st April 2021 to 31st March 2022) are those published by DEFRA, based on a 1-year average factor for each year¹.

2.4 Weather Correction

A considerable contribution to the GHG emissions of the Council is from space heating. With changing heat demand depending on the weather each year there can be increased or decreased fuel demand, which has an impact on the emissions. Weather correction calculations can be undertaken to adjust for this bias. Weather corrected figures, according to which the Council's corporate carbon footprint has fallen by 71.8% since 2008/09, can be found in Annex 2. The official annual reported emissions are, however, uncorrected as described in 2.5.

2.5 Reading Borough Council Greenhouse Gas emissions 2020/21

Reading Borough Council's absolute (gross) corporate GHG emissions for 2021/22 were 5,675.3 tCO₂, down 71.3% compared to the 2008/09 baseline. This represented a year-on-year reduction of 5% against 2020/21 (5,972.1 tCO₂) emissions, a respectable reduction given that the 2020/21 year was anticipated to represent a hard-to-match low resulting from the impact of the Covid 19 pandemic, which saw offices, services and public-facing buildings closed for extended periods. When renewably generated electricity, exported to the grid, or sold to third parties is netted off against this gross figure, to the sum of 300 tCO₂, this gives a net corporate carbon emissions figure of 5,375 tCO₂, 72.8% below the 2008/09 baseline and 4.4% below the 2020/21 figure.

¹ <https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2020>

The 'wider influence' GHG emissions of the organisation, including schools and managed services, were 22,758.4 tCO₂ for 2021/22, down 42.1% against the 2008/09 baseline. This figure represented a year-on-year increase of 27% against equivalent 2020/21 emissions, which had fallen by 33% in the previous year. Emissions from schools were 4,923.7 tCO₂ (gross) for 2021/22, down 7% compared to 2020/21.

The figures for 2021/22 are illustrated in Table 2 below, compared against 2008/09 baseline data. A full breakdown of the data can be found in Annex 3.

Table 2: Reading Borough Council GHG Emissions 2021/22, compared to 2008/09 figures

YEAR	Baseline 2008/09	2021/22	% change
	tCO ₂	tCO ₂	
SCOPE 1 - Corporate			
	6,594	3,382	-48.7%
SCOPE 2 - Corporate			
	11,850	2,000	-83.1%
SCOPE 3			
CORPORATE	1,318	294	-77.7%
SCHOOLS	7,203*	4,924	-31.6%
LEISURE CENTRES	1,209	727	-39.9%
BUS SERVICES	10,538	11,026	+4.6%
WASTE MRF	598*	407	-32%
GROSS 'CORPORATE' EMISSIONS (Scope 1, Scope 2, and Scope 3 'CORPORATE')	19,761	5,675	-71.3%
GROSS 'WIDER FOOTPRINT' EMISSIONS - Scope 1, Scope 2 and all of Scope 3	39,310	22,758	-42.1%
ELECTRICITY EXPORTED/SOLD TO GRID/OTHERS	0	348	n/a
NET EMISSIONS - Scope 1, 2, 3 - CORPORATE	19,761	5,375	-72.8%
NET EMISSIONS - ALL	39,310	22,458	-42.9%

*Baseline data for schools and waste MRF have been set at 2009/10 and 2010/11 respectively, due to unreliable data in prior years.

2.6 Intensity Measurement

In emissions reporting, 'intensity measurement' calculates an organisation's GHG emissions against a specific relevant activity. There are a number of factors that determine and influence the level of GHG emissions of an organisation, such as size of buildings, number of employees (activity ratios), financial turnover of the business (financial ratio) etc.

For Reading Borough Council, the intensity ratio is measured by number of Full Time Equivalent (FTE) staff working for the Council. The recommended methodology by the Government guidance is to measure this using direct emissions (Scope 1 and 2) only which occur as a direct result of staff activities.

The employee intensity ratio for the Council for 2021/22 was:

$$\text{tCO}_2\text{e per FTE} = \frac{5,381.4}{1,598.1} = 3.34 \text{ tCO}_2\text{e/FTE}$$

The employee intensity ratio for the Council for the previous year 2020/21 was:

$$\text{tCO}_2\text{e per FTE} = \frac{5,681.7}{1,530.4} = 3.71 \text{ tCO}_2\text{e/FTE}$$

This shows that the intensity measurement for RBC (emissions per employee) reduced by 9% in 2021/22 though, as with the main GHG calculations, the impact of the pandemic on the previous year would have been a significant factor in this.

2.7 Progress against Carbon Plan targets

Reading’s Carbon Plan 2020-2025 sets out actions and projects which have been translated into a set of target emissions for each year of the 5-year plan. 2021/22 saw gross annual CO₂ emission of 5,675 tonnes from RBC’s operations, which is below the 2021/22 target of 6,394 tonnes. We had anticipated achieving a 68% reduction compared to the baseline year 2008/09 at this point, when in fact we can now report a 71.3% reduction. This maintains our good ‘head start’ on progress against Carbon Plan targets over the five years of the Carbon Plan, building on the large reduction in 2020/21, which was an atypical year due to the impact of pandemic restrictions in suppressing emissions. Nonetheless it is of vital importance that action on emissions be continued, as there is no room for complacency.

Figure 1: RBC corporate GHG emissions performance against target

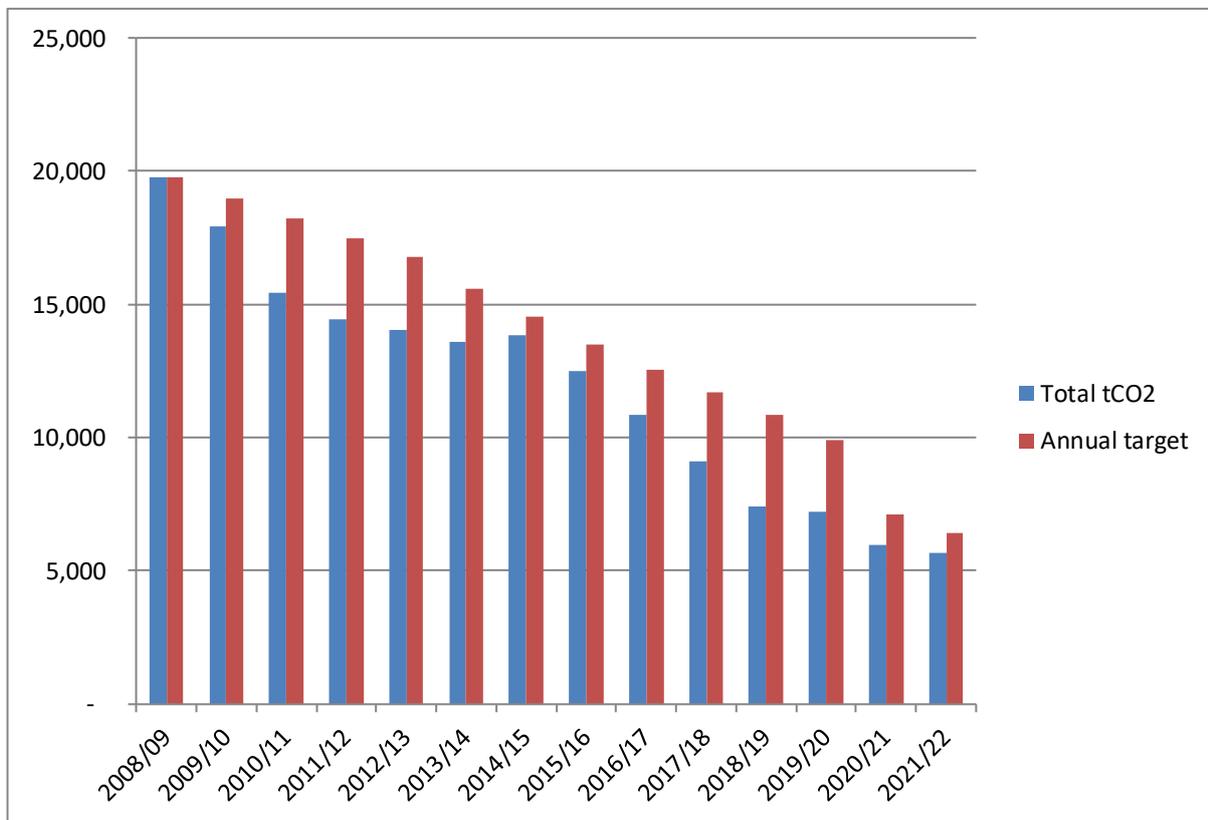


Table 3: notional targets to achieve 85% reduction in RBC emissions by 2025

Business year	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26
Net CO ₂ emissions tonnes eq. /p.a.	7,107	6,394	4,957	3,977	3,105	2,787

The Council produced the equivalent of 6.2% of its total energy consumed in buildings from renewable sources in 2021/22. This represents 13.8% of its electricity consumption. While this is some way short of the ambitious Carbon Plan target of 50% of our energy needs to be met from renewables by 2025, as energy and fossil fuel use continues to come down, and as capital investment in renewables comes on stream, the gap should begin to close.

The council also used 483,751 litres of fuel/oil in 2021/22. The target is to reduce this to half of this level by 2025 through removal of heating oil and electrification of vehicles.

2.8 Renewable/low carbon energy

Reading Borough Council owns over 500 solar PV arrays, and has shareholdings in a community renewable energy generation scheme in the borough operated by Reading Community Energy Society. In total these generated 1,541,218 kWh of electricity in 2021/22, of which over 585,800 kWh was deemed to have been exported to the National Grid. Twenty-three systems generated and self-supplied 189,147 kWh to RBC sites, whilst the remaining arrays generated and supplied 449,635 kWh to schools, housing tenants and other parties in 2021/21. The renewably generated electricity leads to 300 tCO₂ carbon emissions savings, which can be ‘netted off’ against the RBC gross emissions (excluding those ‘self-supplied’). Some schools own their own PV arrays, self-supplying and generating electricity on site. In 2021/22 these systems generated an estimated 53,400 kWh.

3. Risks and Opportunities

Future climate change presents a number of significant risks for Reading. These risks present themselves in terms of a number of key societal and natural impacts caused by, for example, urban heat island effects and surface water flooding. These risks underline the need for the Council to continue to give a high priority to climate action, not least as there could be significant cost and service pressures arising directly or indirectly from climate impacts.

In addition to this, as the policy landscape develops, and as the war in Ukraine has demonstrated, there are significant additional risks to inaction relating to the volatility and costs associated with fossil fuel use and extraction. The Council, whilst an early adopter of net zero carbon commitments, is now in the majority among councils across the UK that have embarked on highly ambitious decarbonisation plans. Failure to do so would expose the borough to the high risks associated with fossil fuel dependency.

Set against this wider risk are the opportunities associated with being an early mover in decarbonisation. The financial and reputational benefits of reducing the costs and risk associated with inaction now far outweigh the costs of action. The development of a low carbon skill base will assist in an economic recovery following the pandemic. And the economic opportunities associated with a low carbon economy are significant.

References

Environmental Reporting Guidelines: Including mandatory greenhouse gas emissions reporting, June 2013

The Reading Climate Emergency Strategy 2020-25

The Carbon Plan 2020-2025: Reading Borough Council - our pathway to net zero Carbon

ANNEXES

Annex 1: GHG Protocol scope and treatments of renewables

Reporting of GHG emissions for RBC, divided into 3 scopes	
Scope 1 (Direct emissions): Emissions from activities owned or controlled by your organisation that release emissions into the atmosphere. They are direct emissions.	
Fossil fuels - Natural Gas and burning oil consumption	Direct emissions from combustion of natural gas and oil
Transport Fleet	Direct emissions from combustion of diesel and petrol
Fugitive emissions from air conditioning units only (excluding emissions from domestic fridges and freezers)	Emissions released from equipment leaks
Self-supplied renewably generated electricity or heat	Direct emissions at site (zero emissions). See Figure A1 below for further detail on treatment of renewables.
Scope 2 (Energy indirect): Emissions released into the atmosphere associated with your consumption of purchased electricity, heat, steam and cooling. These are indirect emissions that are a consequence of your organisation's activities but which occur at sources you do not own.	
Purchased electricity	Electricity purchased from supplier. Emissions at source, outside RBC control.
Scope 3 (Other indirect): Emissions that are a consequence of your actions, which occur at sources which you do not own or control and which are not classed as scope 2 emissions.	
Electricity losses from transmission and distribution	Emissions as a result of losses from transmission and distribution of electricity on the national grid
Managed Assets - Business travel	Emissions as a result of travel by means not owned or controlled by RBC
Schools (Community, Voluntary Aided, Diocese, Academy and Free Schools)	Emissions from activities within schools, which are not controlled by RBC
Outsourced services (5 car parks, 4 leisure centres and bus company office)	Emissions from activities within managed services, which are not controlled by RBC
Outside Scopes:	
CO ₂ equivalent emissions from biofuels	Other GHG emissions from combustion of biofuels. Awaiting emissions factors
Renewable electricity:	
Renewably generated electricity from systems owned by RBC, but supplying electricity to other parties	Emissions avoided by generating electricity renewably at site. See Figure A1 below for further detail on treatment of renewables.

Exclusions:

Water supplied & sewerage: to date the data available for reporting emissions from water use is not sufficiently robust. Work is being undertaken to enable this for future years.

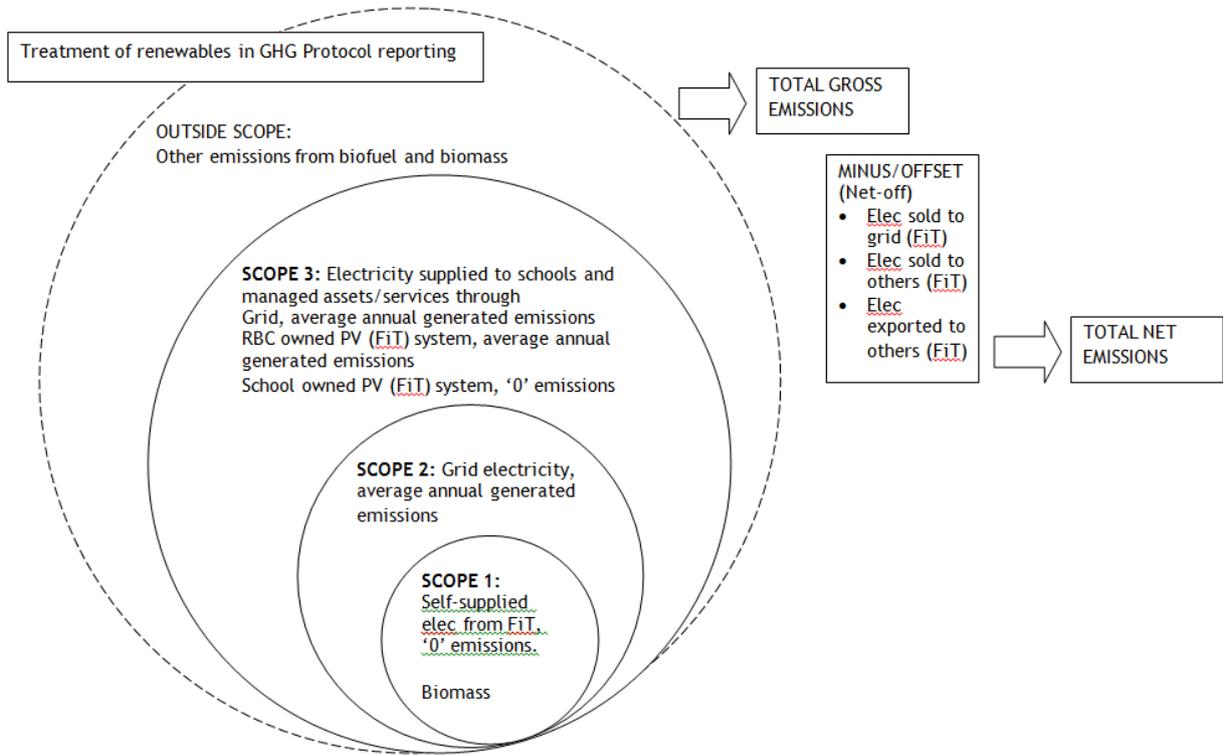


Figure A1: Treatment of renewables in GHG Protocol reporting, depending on system ownership and reporting scope

Annex 2: Full breakdown 2021/22 GHG data vs baseline

GHG PROTOCOL REPORTING							
YEAR	REPORTING UNITS	BASELINE: 2008/09			2021/22		
		kWh/litres/km m3/kg	conversion factor	tCO2	kWh/litres/km/m3/kg	conversion factor	tCO2
SCOPE 1							
GAS	kWh	26,624,860	0.1836	4,888	11,617,587.0	0.2	2,127.9
OIL	litres	329,462	0.2468	81	4,800.0	2.5	12.2
FLEET - DIESEL	litres	616,794	2.5725	1,587	449,841.7	2.5	1,130.2
FLEET - PETROL	litres	16,717	2.2450	38	10,617.8	2.2	23.3
FLEET - GAS OIL	litres				18,492.0	2.8	51.0
FUGITIVE - R12	kg			-			
FUGITIVE - R22	kg			-			
FUGITIVE - R407C	kg			-			
FUGITIVE - R134A	kg			-			
FUGITIVE - R410A	kg				17.9	2,088.0	37.4
FUGITIVE - R49a	kg			-			
FUGITIVE - R404a	kg			-			
CHP - GAS	kWh			-			
CHP - ELECTRICITY	kWh			-			
BIOMASS	kg			-			
ELECTRICITY FROM RENEWABLES	kWh			-			
TOTAL				6,594			3,382
SCOPE 2							
ELECTRICITY FROM GRID	kWh	24,416,596	0.4853	11,850	9,416,978	0.21233	2,000
CAR CLUB - SMALL	km	-	-	-			0.00
CAR CLUB - MEDIUM	km	-	-	-			0.00
TOTAL				11,850			2,000
SCOPE 3							
CORPORATE							
ELECTRICITY FROM GRID T&D	kWh	24,416,596	0.0391	954	9,416,978.0	0.02	176.9
BUSINESS MILEAGE - average fuel unknown	km	1,742,835	0.2086	364		0.17	-
BUSINESS MILEAGE - average petrol	km				267,135.0	0.17	46.6
BUSINESS MILEAGE - supermini petrol	km					0.15	-
BUSINESS MILEAGE - dual purpose 4 x 4	km						-
BUSINESS MILEAGE - MPV petrol	km					0.19	-
BUSINESS MILEAGE - luxury	km						-
BUSINESS MILEAGE - MPV diesel	km					0.18	-
BUSINESS MILEAGE - executive petrol	km					0.22	-
BUSINESS MILEAGE - executive diesel	km					0.17	-
BUSINESS MILEAGE - lower medium petrol	km					0.17	-
BUSINESS MILEAGE - small petrol	km				156,256.0	0.15	23.4
BUSINESS MILEAGE - med petrol	km				128,898.8	0.19	24.2
BUSINESS MILEAGE - large petrol	km				4,208.4	0.28	1.2
BUSINESS MILEAGE - small diesel	km				78,450.7	0.14	10.8
BUSINESS MILEAGE - med diesel	km				37,399.5	0.16	6.2
BUSINESS MILEAGE - large diesel	km				22,791.5	0.21	4.7
BUSINESS MILEAGE - Small electric	km				801.5	-	-
BUSINESS MILEAGE - Medium Electric	km				1,668.9	-	-
BUSINESS MILEAGE - Large Electric	km				4,971.3	-	-
BUSINESS CYCLE	km						
BUSINESS MOTORCYCLE	km						
WATER SUPPLIED	m3			-			
WATER SEWERAGE	m3			-			
TOTAL				1,318			293.9
SCHOOLS*							
GAS	kWh	18,387,800	0.1836	3,376	16,866,610.79	0.18	3,089.29
OIL	litres	3,130,463	0.2468	773	35,465.00	2.54	90.09
ELECTRICITY FROM GRID	kWh	6,224,888	0.4521	2,814	7,503,748.06	0.21	1,593.27
ELECTRICITY FROM GRID T&D	kWh	6,224,888	0.0386	240	7,503,748.06	0.02	141.00
ELECTRICITY FROM RBC FIT	kWh		0.4521	-		0.21	-
ELECTRICITY FROM RENEWABLES	kWh			-		-	-
WATER SUPPLIED	m3			-		-	-
WATER SEWERAGE	m3			-		-	-
FUGITIVE - R410A	kg				4.80	2,088.00	10.02
FUGITIVE - R32	kg						
FUGITIVE - R407C	kg					1,774.00	-
TOTAL				7,203			4,924
LEISURE CENTRES							
GAS	kWh	2,722,149	0.1836	500	2,401,196	0.18	440
ELECTRICITY FROM GRID	kWh	1,353,406	0.4853	657	1,241,494	0.21	264
ELECTRICITY FROM GRID T&D	kWh	1,353,406	0.0391	53	1,241,494	0.02	23
ELECTRICITY FROM RBC FIT	kWh		0.0391	-	37,703	0.21	8
ELECTRICITY FROM RENEWABLES	kWh		0.4853	-		-	-
TOTAL	kWh			1,209			727
READING BUSES							
GAS	kWh	914,874	0.1836	168	1,129,870	0.18	207
ELECTRICITY FROM GRID	kWh	1,049,393	0.4853	509	1,464,363	0.21	311
ELECTRICITY FROM GRID T&D	kWh	1,049,393	0.0391	41	1,464,363	0.02	28
ELECTRICITY FROM RBC FIT	kWh		0.0391	-	10,291	0.21	2
ELECTRICITY FROM RENEWABLES	kWh		0.4853	-		-	-
FLEET - DIESEL	litres	3,817,389	2.6	9,820	2,686,750	2.51	6,750
FLEET - CNG	litres				1,470	2,538.48	3,730
TOTAL				10,538			11,026
WASTE MRF SMALL MEAD*							
ELECTRICITY FROM GRID	kWh	1,140,310	0.4853	553	1,760,270	0.21233	374
ELECTRICITY FROM GRID T&D	kWh	1,140,310	0.0391	45	1,760,270	0.01879	33
ELECTRICITY FROM RENEWABLES	kWh			-		0	0
TOTAL				598			407
OUTSIDE SCOPE							
FLEET - DIESEL - BIOFUEL MIX	litres						
FLEET - PETROL - BIOFUEL MIX	litres						
CNG	litres						
BIOMASS							
TOTAL							
GROSS EMISSIONS - CORPORATE							
GROSS EMISSIONS - ALL	Tonnes			19,761			5,675
GROSS EMISSIONS - ALL	Tonnes			39,310			22,758
GROSS EMISSIONS - CORPORATE - weather corrected	Tonnes			19,606			5,526
GROSS EMISSIONS - ALL - weather corrected	Tonnes			39,030			22,440
ELECTRICITY EXPORTED/SOLD TO GRID/OTHERS	kWh				1,298,673	0.23112	300
NET EMISSIONS - CORPORATE	Tonnes			19,761			5,375
NET EMISSIONS - ALL	Tonnes			39,310			22,458
NET EMISSIONS - CORPORATE - weather corrected	Tonnes			19,606			5,226
NET EMISSIONS - ALL - weather corrected	Tonnes			39,030			22,140

Annex 3: Historic data from Reporting for Carbon Plan 2015-20

YEAR	REPORTING UNITS	BASELINE: 2008/09			2014/15			2015/16			2016/17			2017/18		
		kWh/litres/km/m ³ /kg	conversion factor	tCO ₂	kWh/litres/km/m ³ /kg	conversion factor	tCO ₂	kWh/litres/km/m ³ /kg	conversion factor	tCO ₂	kWh/litres/km/m ³ /kg	conversion factor	tCO ₂	kWh/litres/km/m ³ /kg	conversion factor	tCO ₂
SCOPE 1																
GAS	kWh	#####	0.1836	4,888	17,244,563	0.18437	3,190	17,930,037	0.18445	3,307	16,507,378	0.184	3,037	16,830,923	0.2	3,100
OIL	litres	323,462	0.2468	81	15,702	2.53737	40	13,851	2.53215	35	18,700	2.53215	47	19,181	2.5	49
FLEET - DIESEL	litres	616,794	2.5725	1,587	526,743	2.6024	1,371	474,783	2.5839	1,227	416,684	2.61163	1,088	466,509	2.6	1,213
FLEET - PETROL	litres	16,717	2.2450	38	12,538	2.1914	27	11,577	2.1944	25	44,998	2.19697	99	11,034	2.2	24
FUGITIVE - R12	kg			-			-		0				-	23,714	3.0	
FUGITIVE - R22	kg			-	0.65	1810	1	-	0	-			-			-
FUGITIVE - R401C	kg			-	10.3	1526	16	-	0	-			-	5	1,810.0	3
FUGITIVE - R134A	kg			-			-	0	1300	0			0			-
FUGITIVE - R410A	kg			-	0.31	1725	0.5	-	0	-	37	2088	76			-
FUGITIVE - R43a	kg			-			-	-	0	-			-			-
FUGITIVE - R404a	kg			-			-	4	3921.6	14.5			0			-
CHP - GAS	kWh			-	509,368	0.18437	94	-	0	-	-		-			-
CHP - ELECTRICITY	kWh			-	146,961	0	-	-	0	-	-		-			-
BIOMASS				-			-	-	0	-	61	0	-			-
ELECTRICITY FROM RENEWABLES	kWh			-	77,214	0	-	179,520	0	-	196,925	0	-	18	-	-
TOTAL				6,594			4,740			4,609			4,348			4,395
SCOPE 2																
ELECTRICITY FROM GRID	kWh	24,416,596	0.4853	11,850	16,751,671	0.49426	8,280	15,256,177	0.46219	7,051	14,015,798	0.41205	5,775			4,134
CAR CLUB - SMALL	km	-	-	-	13,491	0.16061	2	12,843	0.15859	2	4,879	0.16027	1			0.7
CAR CLUB - MEDIUM	km	-	-	-	5,755	0.20088	1	5,000	0.19931	1	1,945	0.20033	0.4			0.3
TOTAL				11,850			8,283			7,054			5,776			4,135
SCOPE 3																
<i>CORPORATE</i>																
ELECTRICITY FROM GRID T&D	kWh	24,416,596	0.0391	954	16,751,671	0.0432	724.01	15,256,177	0.0382	582	14,015,798	0.03727	522	11,758,772	0.0329	387
BUSINESS MILEAGE - average fuel unknown	km	1,742,835	0.2086	364	1,320,563	0.1834	250.15	1,284,393	0.1864	239	1,067,231	0.1856	198	923,957	0.1824	169
BUSINESS MILEAGE - average petrol											2,585	0.19184	0.5			0.1857
BUSINESS MILEAGE - supermini petrol											932	0.16285	0.2			0.1587
BUSINESS MILEAGE - dual purpose 4 x 4																0.252
BUSINESS MILEAGE - luxury																0.3369
BUSINESS MILEAGE - MPV petrol											225	0.20761	0.0			0.2022
BUSINESS MILEAGE - MPV diesel											80	0.18365	0.0			0.1855
BUSINESS MILEAGE - executive petrol											93	0.24707	0.0			0.2411
BUSINESS MILEAGE - executive diesel											398	0.19118	0.1			0.1852
BUSINESS MILEAGE - lower medium petrol											554	0.19027	0.1			0.1848
BUSINESS MILEAGE - small petrol														25,274		0.1565
BUSINESS MILEAGE - med petrol														26,608		0.1949
BUSINESS MILEAGE - large petrol														782		0.2854
BUSINESS MILEAGE - small diesel														298		0.1455
BUSINESS MILEAGE - med diesel														2,574		0.1738
BUSINESS MILEAGE - large diesel														182		0.2183
BUSINESS CYCLE	km				12,992		-	-		-	13,626		-	7,754		0.17
BUSINESS MOTORCYCLE	km				1,734	0.1196	0.21	-		-			-			0.22
WATER SUPPLIED	m ³			-			-	-		-			-			-
WATER SEWERAGE	m ³			-			-	-		-			-			-

YEAR	REPORTING UNITS	BASELINE: 2008/09			2014/15			2015/16			2016/17			2017/18		
		kWh/litres/km/m ³ /kg	conversion factor	tCO ₂	kWh/litres/km/m ³ /kg	conversion factor	tCO ₂	kWh/litres/km/m ³ /kg	conversion factor	tCO ₂	kWh/litres/km/m ³ /kg	conversion factor	tCO ₂	kWh/litres/km/m ³ /kg	conversion factor	tCO ₂
SCOPE 3																
<i>SCHOOLS</i>																
GAS	kWh	12,243,654	0.1836	2,248	17,814,444	0.1850	3,295	17,306,100	0.1845	3,192	17,015,787	0.184	3,131	16,331,168	0.18	3,031
OIL	litres	4,375,859	0.2468	1,080	120,654	2.5380	306	100,637	2.5322	255	128,863	2.53232	326	127,077	2.53	322
ELECTRICITY FROM GRID	kWh	3,599,802	0.4853	1,747	8,121,358	0.4943	4,014	7,939,271	0.4622	3,669	7,576,362	0.41205	3,122	7,860,976	0.35	2,764
ELECTRICITY FROM GRID T&D	kWh	3,599,802	0.0391	141	8,121,358	0.0432	351	7,939,271	0.0382	303	7,576,362	0.03727	282	7,860,976	0.03	258
ELECTRICITY FROM RBC FIT	kWh		0.4853	-	77,970	0.4943	39	145,993	0.4622	67	160,795	0.41205	66	139,338	0.35	49
ELECTRICITY FROM RENEWABLES	kWh		-	-	20,431	0.0000	-	19,383	0.0000	-	19,383	0	-	21,373	-	-
WATER SUPPLIED	m ³		-	-		-	-		-	-		-	-		-	-
WATER SEWERAGE	m ³		-	-		-	-		-	-		-	-		-	-
FUGITIVE - R410A	kg		-	-		-	-		-	8	2088	16	11	2,088	24	
<i>MANAGED ASSET SERVICES</i>																
GAS	kWh	6,108,386	0.1836	1,121	4,847,143	0.1850	897	4,952,281	0.1845	913	4,082,951	0.184	751	3,420,805	0.18	630
OIL	litres		-	-		-	-		-	-		-	-		-	-
ELECTRICITY FROM GRID	kWh	3,822,312	0.4853	1,855	3,838,088	0.4943	1,897	3,405,270	0.4622	1,574	3,220,481	0.41205	1,327	3,116,522	0.35	1,096
ELECTRICITY FROM GRID T&D	kWh	3,822,312	0.0391	149	3,838,088	0.0432	166	3,405,270	0.0382	130	3,220,481	0.03727	120	3,116,522	0.03	102
ELECTRICITY FROM RBC FIT			0.4853	-	78,782	0.4943	39	83,326	0.4622	39	73,692	0.41205	30	70,733	0.35	25
ELECTRICITY FROM RENEWABLES	kWh		-	-		-	-		-	-		-	-		-	-
FLEET - DIESEL	litres	3,817,389	2.5725	9,820				3,561,684	2.5839	9,203	3,044,721	2.61163	7,952	3,155,306	2.60	8,204
FLEET - CNG	tonnes		-	-				957	2,726.05	2,610	957	2,715.83	2,599	1,105	2,814	3,110
WATER SUPPLIED	m ³		-	-		-	-		-	-		-	-		-	0
WATER SEWERAGE	m ³		-	-		-	-		-	-		-	-		-	0
TOTAL				9,659			11,978			10,964		9,894			8,866	
OUTSIDE SCOPE																
FLEET - DIESEL - BIOFUEL MIX	litres				526,743			474,783			416,684			466,509		
FLEET - PETROL - BIOFUEL MIX	litres				12,538			11,577			44,998			11,034		
CNG	litres															
BIOMASS											61			18		
TOTAL																
GROSS EMISSIONS - CORPORATE				19,761			13,997			12,485		10,846			9,095	
GROSS EMISSIONS - ALL				28,103			25,000			22,628		20,018			17,395	
GROSS EMISSIONS - CORPORATE - weather corrected				19,606			13,971			12,521		10,573			8,763	
GROSS EMISSIONS - ALL - weather corrected				27,809			24,941			22,710		19,374			16,644	
ELECTRICITY EXPORTED/SOLD TO GRID/OTHERS	kWh				346,924	0.53748	186	735,091	0.50035	368	1,356,908	0.44932	610	1,299,637	0.3844	500
NET EMISSIONS - CORPORATE				19,761			13,997			12,117		10,236			8,595	
NET EMISSIONS - ALL				28,103			24,814			22,260		19,409			16,896	
NET EMISSIONS - CORPORATE - weather corrected				19,606			13,785			12,153		9,963			8,264	
NET EMISSIONS - ALL - weather corrected				27,809			24,754			22,343		18,764			16,144	

Note: Fleet fuel data in 'Managed Services' Scope 3 are not included in total emissions figures in pre-2020/21 historical data