

READING BOROUGH COUNCIL: GREENHOUSE GAS (GHG) EMISSIONS REPORT 2020/21

EXECUTIVE SUMMARY

Reading Borough Council (RBC) is committed to reducing greenhouse gas emissions (GHG) across its estate and operations. The means to do so are set out in the Council's corporate Carbon Plan.

The Council's 'Carbon Plan 2020-2025' was approved in November 2020, and 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.

This year (2020/21) the Council saw a 69.8% decrease in gross corporate emissions compared to the 2008/09 baseline figure (up from 63.5% in 2019/20). This equates to a year-on-year decrease of 17.3% in absolute gross corporate emissions against 2019/20 levels.

In order to achieve the target set in the Carbon Plan, an average annual reduction in emissions of 4.3% against the baseline would be required. In 2020/21 the Council's emissions reduced by 6.3% against the baseline.

In addition to measuring our corporate GHG emissions as summarised in the figures above, we also measure and report on the gross emissions of the Council's 'wider influence', taking account of other factors outside our direct control but within the scope of our influence. By this measure, emissions also decreased in 2020/21, showing a 54.4% decrease compared to the 2008/09 baseline.

While both year-on-year performance and progress towards achieving the 2025 Carbon Plan target have been positive this year, it should be noted that a significant impact has been felt from the Covid-19 pandemic, with the start of the first UK lockdown coinciding with the start of the 2020/21 reporting year. The year saw the closure of offices, public-facing buildings and other non-essential facilities during the pandemic, all of which were likely to be a significant factor in the emissions reductions witnessed in 2020/21. There is therefore a risk that emissions will 'bounce back' in the 2021/22 reporting year as many of these facilities have re-opened.

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.£15m (excluding standing charges and other contract charges) compared to if no action had been taken. In 2019/20 alone these avoided costs were estimated at £2.1m.

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 as appendices to Scope 3, where RBC can influence, rather than control, the operations.

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 (1 leisure centre, 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 2020/21 (1st April 2020 to 31st March 2021) 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 of 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 can be found in Annex 2. The official annual reported emissions are uncorrected.

2.5 Reading Borough Council Greenhouse Gas emissions 2020/21

Reading Borough Council’s absolute (gross) corporate GHG emissions for 2020/21 were 5,972 tCO₂, down 69.8% compared to the 2008/09 baseline. This represented a year-on-year reduction of 17.3% against 2019/20 (7,219 tCO₂) emissions, a very significant reduction for a single year illustrating in part the impact of the pandemic which saw offices 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 348 tCO₂, this gives a net corporate carbon emissions figure of 5,624 tCO₂, 17.9% below 2019/20 emissions

The ‘wider influence’ GHG emissions of the organisation, including schools and managed services, were 17,919 tCO₂ for 2020/21, down 54.4% against the 2008/09 baseline though, again, it should be noted that the year was atypical due to the pandemic and public transport emissions, in particular were significantly reduced, and there have also been some changes to the calculation of the baseline for this figure as explained below. This figure represented a year-on-year reduction of 33.6%

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

against 2019/20 emissions. Carbon emissions from schools were 5,275 tCO₂ (gross) for 2020/21, down 2.6 % compared to 2019/20 figures.

The figures for 2020/21 are illustrated in Table 1 below, compared against 2008/09 baseline data. A full breakdown of the data can be found in Annex 3.

Table 1: Reading Borough Council GHG Emissions 2020/21, compared to 2008/09 figures

YEAR	Baseline 2008/09	2020/21	% change
	tCO ₂	tCO ₂	
SCOPE 1 - Corporate			
	6,594	3,476	-47.3%
SCOPE 2 - Corporate			
	11,850	2,206	-81.4%
SCOPE 3			
CORPORATE	1,318	290.4	-78.0%
SCHOOLS	7,203*	5,275	-26.8%
LEISURE CENTRES	1,209	222	-81.6%
BUS SERVICES	10,538	6,037	-42.7%
WASTE MRF	598*	414	-30.8%
GROSS 'CORPORATE' EMISSIONS (Scope 1, Scope 2, and Scope 3 'CORPORATE')	19,761	5,972	-69.8%
GROSS 'WIDER FOOTPRINT' EMISSIONS - Scope 1, Scope 2 and all of Scope 3	39,310	17,919	-54.4%
ELECTRICITY EXPORTED/SOLD TO GRID/OTHERS	0	348	n/a
NET EMISSIONS - Scope 1, 2, 3 - CORPORATE	19,761	5,624	-71.5%
NET EMISSIONS - ALL	39,310	17,571	-55.3%

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

Table 2 presents the same data for 2020/21 but compares it with the previous year, 2019/20, to illustrate some of the changes seen in the final 'normal' year before the pandemic had a significant impact and the following year when lockdowns started to take effect.

Table 2: Reading Borough Council GHG Emissions 2020/21, compared to 2019/20 figures

YEAR	2019/20	2020/21	% change
	tCO ₂	tCO ₂	
SCOPE 1 - Corporate			
	4,010	3,476	-13.3%
SCOPE 2 - Corporate			
	2,801	2,206	-21.2%
SCOPE 3			
CORPORATE	408	290	-28.9%
SCHOOLS	5,427.5	5,274.6	-2.8%
LEISURE CENTRES	734*	222	-69.8%
BUS SERVICES	12,889*	6,037*	-53.2%
WASTE MRF	701*	414	-40.9%
GROSS 'CORPORATE' EMISSIONS (Scope 1, Scope 2, and Scope 3 'CORPORATE')	7,219	5,972	-17.3%
GROSS 'WIDER FOOTPRINT' EMISSIONS (Scope 1, Scope 2 and all of Scope 3)	26,970*	17,919	-33.6%
ELECTRICITY EXPORTED/SOLD TO GRID/OTHERS	371	348	-6.2%
NET EMISSIONS - Scope 1, 2, 3 - CORPORATE	6,848	5,624	-17.9%
NET EMISSIONS - ALL	26,599*	17,571	-33.9%

**The Council's annual greenhouse gas reports in previous years used a single 'Managed Services' category to cover 'wider influence' emissions from leisure centres and bus services. As the 2020/21 year represents the start of a new Carbon Plan period, the opportunity has been taken to revise the breakdown of these emissions as explained in section 2.2. Two other changes have been made from reporting in previous years: inclusion of Smallmead MRF, and inclusion of the carbon impact of fuel use by Reading Buses (in addition to non-fuel emissions). Both new elements have required a revision of historic baselines to allow a like-for-like comparison when considering performance against baseline and previous years. As such, while the data on absolute emissions in the 'wider influence' calculations presented in this report for baseline and 2019/20 emissions will be higher than that presented in previous reports, the increases represent a statistical change rather than a 'real' increase in emissions. As a result of these adjustments, the 'wider influence' footprint calculation is, however, now more representative of the broader impact of the Council's activities, while the headline RBC corporate carbon footprint calculations on which our targets are based remain unaffected.*

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 Defra/DECCs guide 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 Reading Borough Council, for 2020/21 was

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

The employee intensity ratio for Reading Borough Council as a whole for 2019/20 was

$$\text{tCO}_2\text{e per FTE} = \frac{6,811}{1,471.7} = 4.63 \text{ tCO}_2\text{e/FTE}$$

This shows that the intensity measurement for RBC (emissions per employee) reduced by 19.9% in 2020/21 though, as with the main GHG calculations, the impact of the pandemic 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.

2020/21 saw gross annual CO₂ emission of 5,972 tonnes from RBC's operations, which is below not only the 2020/21 target of 7,107 tonnes, but also the 2021/22 target of 6,394 tonnes (see table 3). We had anticipated achieving a 64% reduction compared to the baseline year 2008/09 at this point, when in fact we can now report a 69.8% reduction. Whilst this represents a good 'head start' on progress against Carbon Plan targets over the five years of the Carbon Plan, as has been noted above, 2020/21 was an atypical year due to pandemic restrictions, and

emissions may well increase in the 2021/22 reporting year as operations have resumed to post-pandemic levels. This underlines the importance of continued action on emissions and the fact that there is no room for complacency.

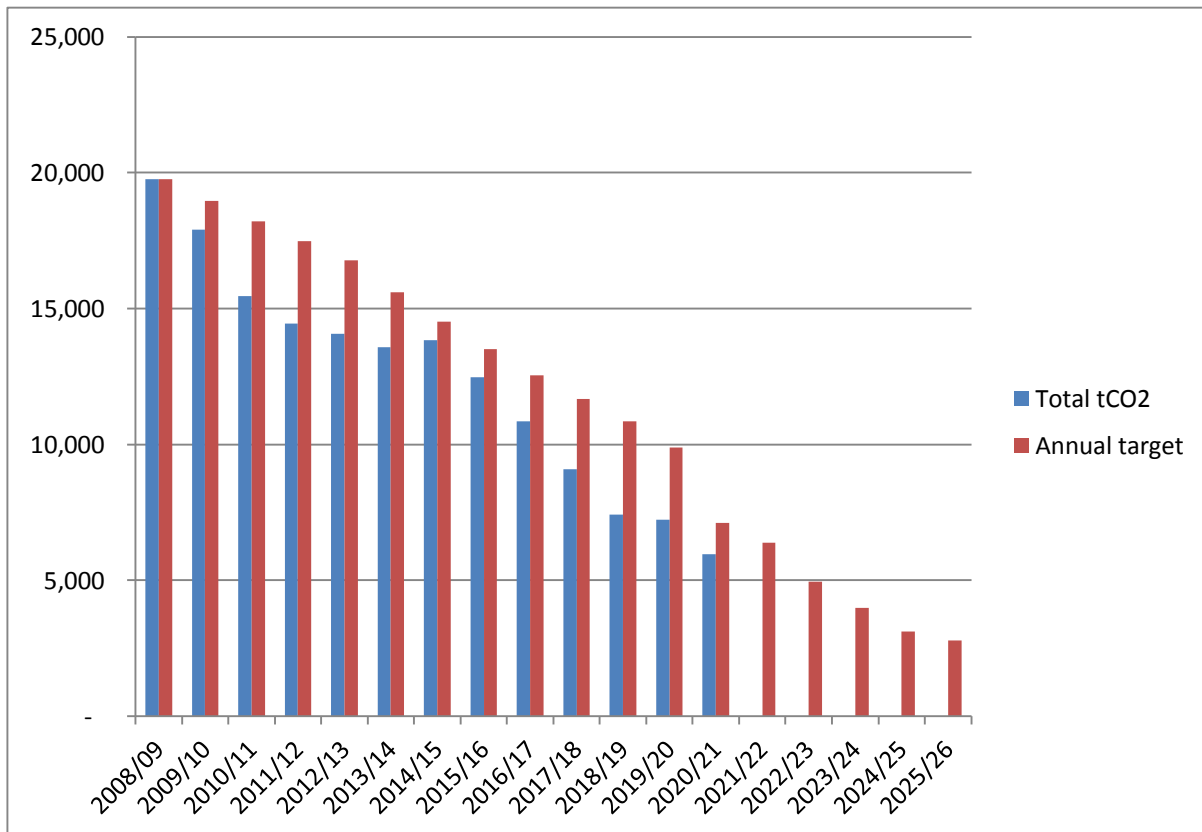
The Council produced the equivalent of 7.4% of its total energy consumed in buildings from renewable sources in 2020/21. This represents 16.7% of its electricity consumption. While this is some way short of the ambitious Carbon Plan target of 50% of our energy needs to be met from renewables by 2025, 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 used 485,628 litres of fuel/oil in 2020/21. The target is to reduce this to half of this level by 2025 through removal of heating oil and electrification of vehicles.

Table 3: notional annual targets to achieve 85% reduction in RBC corporate carbon footprint by 2025

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

Figure 1: RBC corporate GHG emission performance against annual target from the baseline year (2008/09) through to 2025/26



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 1,583,814 kWh of

electricity in 2020/21, of which over 643,000 kWh was deemed to have been exported to the National Grid. Twenty-three systems generated and self-supplied 154,417 kWh to RBC sites, whilst the remaining arrays generated and supplied 513,631 kWh to schools, housing tenants and other parties in 2020/21. The renewably generated electricity leads to 348 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 2020/21 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, and as the policy landscape develops, 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 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.

The opportunities presented by a 'green recovery' from the pandemic enable a more concerted shift from traditional models in favour of an accelerated model of decarbonisation with improved emissions associated with travel and operational buildings emissions in particular. There is a risk, however, that home working emissions may impact on domestic emissions in the borough and the Council is taking action to understand the impact of this risk.

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, 2 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.

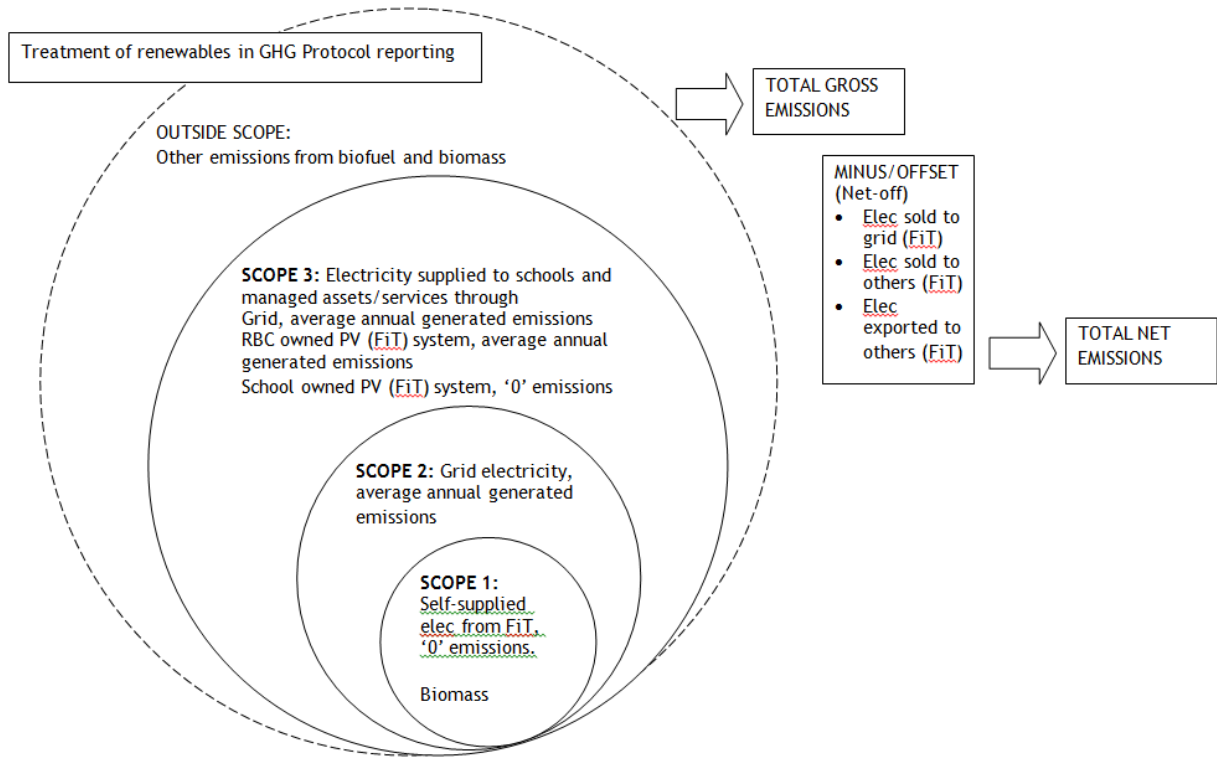


Figure A1: Treatment of renewables in GHG Protocol reporting, depending on system ownership and reporting scope

Annex 2: Full breakdown 2020/21 GHG data vs baseline

YEAR	REPORTING UNITS	BASELINE: 2008/09		2020/21			
		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	12,054,110.0	0.2	2,216.4
OIL	litres	329,462	0.2468	81	18,561.0	2.5	47.2
FLEET - DIESEL	litres	616,794	2.5725	1,587	435,665.3	2.5	1,109.2
FLEET - PETROL	litres	16,717	2.2450	38	10,353.0	2.2	22.4
FLEET - GAS OIL	litres				21,049.1	2.8	58.0
FUGITIVE - R12	kg						
FUGITIVE - R22	kg						
FUGITIVE - R407C	kg				9.3	1,774.0	16.4
FUGITIVE - R134A	kg						
FUGITIVE - R410A	kg				2.8	2,088.0	5.8
FUGITIVE - R49a	kg						
FUGITIVE - R404a	kg						
CHP - GAS	kWh						
CHP - ELECTRICITY	kWh						
BIOMASS	kg						
ELECTRICITY FROM RENEWABLES	kWh				154,417.0		
TOTAL				6,594			3,476
SCOPE 2							
ELECTRICITY FROM GRID	kWh	24,416,596	0.4853	11,850	9,463,044	0.23314	2,206
CAR CLUB - SMALL	km					0	0.00
CAR CLUB - MEDIUM	km					0	0.0000
TOTAL				11,850			2,206
SCOPE 3							
CORPORATE							
ELECTRICITY FROM GRID T&D	kWh	24,416,596	0.0391	954	9,463,044.0	0.02	189.7
BUSINESS MILEAGE - average fuel unknown	km	1,742,835	0.2086	364	394.5	0.17	0.1
BUSINESS MILEAGE - average petrol	km				250,085.6	0.17	43.6
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					0.23	-
BUSINESS MILEAGE - executive diesel	km					0.17	-
BUSINESS MILEAGE - lower medium petrol	km					0.17	-
BUSINESS MILEAGE - small petrol	km				108,530.9	0.15	16.1
BUSINESS MILEAGE - med petrol	km				103,633.7	0.19	19.3
BUSINESS MILEAGE - large petrol	km				3,128.6	0.28	0.9
BUSINESS MILEAGE - small diesel	km				19,988.1	0.14	2.7
BUSINESS MILEAGE - med diesel	km				86,098.3	0.17	14.3
BUSINESS MILEAGE - large diesel	km				17,606.2	0.20	3.6
BUSINESS CYCLE	km						
BUSINESS MOTORCYCLE	km						
WATER SUPPLIED	m3						
WATER SEWERAGE	m3						
TOTAL				1,318			290.4
SCHOOLS*							
GAS	kWh	18,387,800	0.1836	3,376	17,331,695.09	0.18	3,186.78
OIL	litres	3,130,463	0.2468	773	88,192.00	2.54	224.04
ELECTRICITY FROM GRID	kWh	6,224,888	0.4521	2,814	7,273,687.17	0.23	1,695.79
ELECTRICITY FROM GRID T&D	kWh	6,224,888	0.0386	240	7,273,687.17	0.02	145.84
ELECTRICITY FROM RBC FIT	kWh		0.4521	-	98,858.47	0.23	23.05
ELECTRICITY FROM RENEWABLES	kWh				53,398.40		
WATER SUPPLIED	m3						
WATER SEWERAGE	m3						
FUGITIVE - R410A	kg				10.61	2,088.00	22.15
FUGITIVE - R32	kg				3.20		
FUGITIVE - R407C	kg					1,774.00	
TOTAL				7,203			5,275
LEISURE CENTRES							
GAS	kWh	2,722,149	0.1836	500	680,752	0.18	125
ELECTRICITY FROM GRID	kWh	1,353,406	0.4853	657	381,917	0.23	89
ELECTRICITY FROM GRID T&D	kWh	1,353,406	0.0391	53	381,917	0.02	8
ELECTRICITY FROM RBC FIT	kWh		0.0391	-	20,162	0.23	5
ELECTRICITY FROM RENEWABLES	kWh		0.4853	-			
TOTAL	kWh			1,209			222
READING BUSES							
GAS	kWh	914,874	0.1836	168	1,334,455	0.18	245
ELECTRICITY FROM GRID	kWh	1,049,393	0.4853	509	1,307,373	0.23	305
ELECTRICITY FROM GRID T&D	kWh	1,049,393	0.0391	41	1,307,373	0.02	26
ELECTRICITY FROM RBC FIT	kWh		0.0391	-	16,668	0.23	4
ELECTRICITY FROM RENEWABLES	kWh		0.4853	-			
FLEET - DIESEL	litres	3,817,389	2.6	9,820	1,335,486	2.55	3,400
FLEET - CNG	litres				813	2,533.00	2,061
TOTAL				10,538			6,037
WASTE MRF SMALL MEAD*							
ELECTRICITY FROM GRID	kWh	1,140,310	0.4853	553	1,633,650	0.23314	381
ELECTRICITY FROM GRID T&D	kWh	1,140,310	0.0391	45	1,633,650	0.02005	33
ELECTRICITY FROM RENEWABLES	kWh						0
TOTAL				598			414
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			5,972
GROSS EMISSIONS - CORPORATE - weather corrected	Tonnes			39,310			17,919
GROSS EMISSIONS - ALL - weather corrected	Tonnes			19,606			5,794
GROSS EMISSIONS - ALL - weather corrected	Tonnes			39,030			17,456
NET EMISSIONS - CORPORATE							
ELECTRICITY EXPORTED/SOLD TO GRID/OTHERS	kWh				1,375,999	0.25319	348
NET EMISSIONS - CORPORATE	Tonnes			19,761			5,624
NET EMISSIONS - ALL	Tonnes			39,310			17,571
NET EMISSIONS - CORPORATE - weather corrected	Tonnes			19,606			5,446
NET EMISSIONS - ALL - weather corrected	Tonnes			39,030			17,107

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	44,398	2.19637	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				
FUGITIVE - R410A	kg				0.31	1725	0.5	-	0		37	2088	76			
FUGITIVE - R43a	kg							-	0				-			
FUGITIVE - R404a	kg							4	3321.6			14.5				
CHP - GAS	kWh			-	503,368	0.18437	94	-	0				-			
CHP - ELECTRICITY	kWh			-	146,361	0	-	-	0				-			
BIOMASS				-				-	0				-			
ELECTRICITY FROM RENEWABLES	kWh			-	77,214	0	-	179,520	0		196,925	0	-	18	-	
TOTAL				6,534			4,740			4,603			4,348			4,395
SCOPE 2																
ELECTRICITY FROM GRID	kWh	24,416,536	0.4853	11,850	16,751,671	0.43426	8,280	15,256,177	0.46219	7,051	14,015,798	0.41205	5,775			4,134
CAR CLUB - SMALL	km	-	-	-	13,431	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	24,416,536	0.0331	854	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															0.3363	-
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	4
BUSINESS MILEAGE - med petrol														26,608	0.1943	5
BUSINESS MILEAGE - large petrol														782	0.2854	0
BUSINESS MILEAGE - small diesel														298	0.1455	0
BUSINESS MILEAGE - med diesel														2,574	0.1738	0
BUSINESS MILEAGE - large diesel														182	0.2183	0
BUSINESS CYCLE	km				12,392		-	-			13,626		-	7,754	0.17	0
BUSINESS MOTORCYCLE	km				1,734	0.1196	0.21	-					-		0.22	0
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	16,391,168	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	133,338	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	1,036
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	2.6163	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