Reading Borough Council
Working better with you

READING BOROUGH COUNCIL: GREENHOUSE GAS (GHG) REPORT 2022 - 23

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 by Policy Committee 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 (2022/23) the Council's carbon footprint (gross corporate emissions) reduced by a further 2.6%, with a total reduction of 73.9% against the 2008/09 baseline. This equates to a year-on-year decrease of 9.3% in absolute gross corporate emissions compared to 2021/22 levels. In order to achieve the 2025 target set in the Carbon Plan, a further 11.1% reduction in the carbon footprint is therefore required.

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. This is explained further in section 2.6.

In the Annual GHG report for 2020/21, it was noted that a significant impact had 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 a significant factor in the emissions reductions witnessed in 2020/21. It was noted in the 2021/22 report that there was an emissions 'bounce-back' effect, as many facilities re-opened and energy use returned to levels reflective of longer operational hours. Whilst the corporate emissions have shown a continued reduction of a further 2.6% against the 2008/09 baseline, this 'bounce-back' effect has continued to some extent within 2022/23, with a slight increase in electricity use across a number of facilities due to a higher intensity of use.

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.£22.2m (excluding standing charges and other contract charges) compared to if no action had been taken. In 2022/23 alone these avoided costs were estimated at £4.7m.

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 1.3%), 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 the following 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. Progress against these targets is reported in section 2.8.

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 (DoR); and Directorate for Adult Social Care & Health (DASCH). 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 which sits within DEGNS.

2.2 How we measure the Council's emissions: scope

The headline measure against which progress towards our Carbon Plan targets is measured is the Council's corporate GHG emissions, or 'corporate carbon footprint', comprising activities

under its direct operational control (see section 2.5). We also measure and report on the Council's 'wider influence' GHG emissions which includes activities outside of its direct control but within its 'wider influence' (see section 2.6).

As of the 2021/22 reporting year, all schools (including community, voluntary aided, diocese, Academy and Free Schools) and managed services (including GLL managed leisure centres, Reading Transport and Smallmead Materials Recycling Facility (MRF)) are included within our 'wider influence' measure, 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 (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' emissions 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 2022/23 (1st April 2022 to 31st March 2023) are those published by DEFRA, based on a 1-year average factor for each year.

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 2022/23

Reading Borough Council's absolute (gross) corporate GHG emissions for 2022/23 were 5,149 tCO_2, a reduction of 73.94% compared to the 2008/09 baseline. This represented a year-on-year reduction of 9% against 2021/22 (5,675 tCO_2) emissions.

When renewably generated electricity, exported to the grid, or sold to third parties is netted off against this gross figure, to the sum of 289 tCO_2, this gives a net corporate carbon emissions figure of 4,859 tCO_2, 9.6% below 2021/22 emissions. This is the first time that our net corporate GHG emissions have fallen below 5,000 tonnes and represents a significant milestone.

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/DESNZ 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 the latest reporting year 2022/23 was:

$$tCO_2e \text{ per FTE} = \frac{4{,}864}{1{,}555.63} = 3.13\ tCO_2e/FTE$$

This comapres to the employee intensity ratio for Reading Borough Council as a whole for the previosu reporting year 2021/22 which was:

$$tCO_2e \text{ per FTE} = \frac{5{,}681.7}{1{,}530.4} = 3.71\ tCO_2e/FTE$$

This shows that the intensity measurement for RBC (emissions per employee) reduced by 15.6% in 2022/23, a further sign of increased efficiency in carbon terms.

2.6 Reading Borough Council 'wider influence' emissions 2022/23

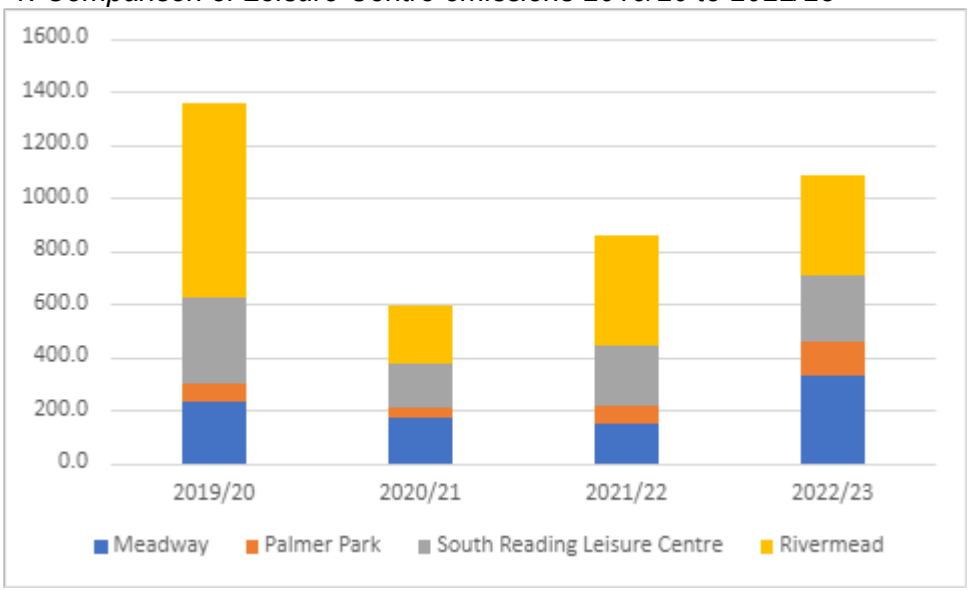
Work is underway to develop a more comprehensive understanding of the Council's full 'Scope 3' emissions and we envisage including a more robust measure of these in their entirety in the next iteration of our Carbon Plan for the period 2025-30. In the interim, in addition to measuring our corporate GHG emissions as summarised above in 2.5, we also measure and report on the gross emissions from some significant elements of our Scope 3 emissions. We refer to these emissions as the Council's 'wider influence' emissions, taking account of sources of emissions which are outside our direct control but within the scope of our influence.

By this measure, the 'wider influence' GHG emissions of the organisation, including schools and managed services, were 36,992.9 tCO_2 for 2022/23, down 5.9% against the 2008/09 baseline. Although this figure represented a year-on-year increase of 63% against equivalent figure for 2021/22 emissions, it should be treated with caution as it is heavily influenced by pandemic effects, as explained below. It is important to note, however, that the success of Reading Buses and its growth over time have a significant influence on the 'wider emissions' emissions measure as a whole, to the extent that, if emissions from Reading Transport's fuel use are removed from the equation, emissions by this measure decreased by 1% compared to the previous year, and by 58.9% against the 2008/09 baseline.

The assets in the 'wider influence' category include leisure centres, Reading Transport, schools and the Smallmead Materials Recycling Facility. Recent trends in consumption show a clear impact from Covid-19 measures and care must therefore be taken with recent year-on-year comparisons. Notably leisure centres significantly reduced consumption of both electricity and gas during restricted operations and lockdowns, and Reading Buses operated a reduced service resulting in significantly less fuel and mileage. These trends have very clearly reversed in 2022/23, with a return to more typical service delivery, and therefore increases in emissions overall, but with significant evidence of more carbon efficient operations at the same time, as summarised below.

- **Leisure sites:** Greenwich Leisure Ltd has now managed the four leisure centres in Reading since July 2021, with the newly extended Palmer Park facility opening in December 2022. The emissions from these leisure facilities are reported in the Council's 'wider influence' emissions dataset, and represent a significant source of emissions within Reading. As such, to ensure continued improvements within its scope of influence, RBC has invested heavily in energy efficiency, decarbonisation and renewable energy generation within the leisure facilities, all of which will support the reduction of the carbon emissions from the operations. A further opening up and increased use of the leisure facilities post-Covid, combined with the opening of the larger and greatly improved facilities at Palmer Park Sports Stadium, can be seen in 2022/23, with a 26% year-on-year increase on carbon emissions compared to 2021/22. However, when comparing against the last pre-Covid year, 2019/20, which is a more meaningful comparison, the carbon emissions from the leisure facilities as a whole are now 20% lower (see figure 1). In other words, we have greatly enhanced and expanded the leisure centre offer in Reading but reduced emissions from it at the same time.

Figure 1: Comparison of Leisure Centre emissions 2019/20 to 2022/23



- **Reading Transport Ltd:** Reading Transport carbon emissions have significantly increased in 2022/23 (by 130%) compared to 2021/22. The emissions from operations within the company's buildings decreased by 6% over the same period, but fuel use for the fleet increased by 137% as services continued to recover after the record lows arising from pandemic restrictions and reductions in demand. However, whilst the consumption of fuel

inevitably went up as a result of this recovery, the mileage of the fleet also increased but by a greater extent, so the carbon efficiency of the fleet improved by 2.3%. In fact, the carbon emissions per km in 2022/23 is the most efficient since this measure was first calculated in 2016/17, and for the first time was under 1kg CO_2e per km. So, whilst the overall emissions reported for Reading Transport have increased, the public transport services it provides have both expanded and become more carbon more efficient, as well as offering wider social and environmental benefits, not least the emissions avoided from passengers who might otherwise use private transport.

- **Schools:** gathering accurate data for emissions from schools remains a challenge, particularly for Academy schools, so confidence in the following data is lower than for other categories. Based on best available data, however, carbon emissions from schools were 4,997.8 tCO_2 (gross) for 2022/23, up 1.5% compared to 2021/22 emissions. Gas use has increased in schools over this period, possibly because many schools have continued to ventilate buildings more than before the pandemic for health reasons. By contract, electricity consumption has reduced over the same period, reflecting lighting upgrades, more efficient equipment, and the recent major programme of solar PV installations and energy efficiency improvements delivered with help from the Government's Public Sector Decarbonisation Scheme (PSDS).

- **Smallmead Materials Recycling Facility:** the data shows a 40% reduction in emissions from Smallmead compared to the baseline year, which in this case is 2010/11 due to the unreliability of data prior to this year. In a separate exercise outside the scope of this report, research conducted earlier this year by re3, the waste partnership between Reading, Bracknell Forest and Wokingham Councils, sought to quantify the reductions in emissions arising from adoption of more sustainable waste management practices. This data shows that emissions from Reading's municipal waste were cut by 66.8% between 2015/16 and 2022/23, largely as a result of achieving significant reductions in waste going to landfill, with reductions in waste volumes overall also being a significant factor.

2.7 Statistical summary of RBC GHG emissions

The figures for 2022/23 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 2022/23, compared to 2008/09 (with the headline measure of corporate GHG emissions highlighted)

YEAR	**Baseline 2008/09**	**2022/23**	**% change**
	tCO_2	tCO_2	
SCOPE 1 – Corporate			
	6,594	**3,029**	**-54%**
SCOPE 2 - Corporate			
	11,850	**1,834**	**-84.5%**
SCOPE 3 (part thereof)			
CORPORATE	**1,318**	**284**	**-78%**
SCHOOLS	**7,203***	**4,997**	**-30.6%**
LEISURE CENTRES	**1,209**	**1,087**	**-10%**
BUS SERVICES	**10,538**	**25,402**	**141%**
WASTE MRF	**598***	**357**	**-40%**
GROSS 'CORPORATE' EMISSIONS (Scope 1, Scope 2, and Scope 3 'CORPORATE')	**19,761**	**5,149**	**-73.9%**
GROSS 'WIDER FOOTPRINT' EMISSIONS – Scope 1, Scope 2 and all of Scope 3	**39,310**	**36,992**	**-5.9%**

ELECTRICITY EXPORTED/SOLD TO GRID/OTHERS	**0**	**289**	**n/a**
NET EMISSIONS - Scope 1, 2, 3 - CORPORATE	**19,761**	**4,859**	**-75.4%**
NET EMISSIONS - ALL	**39,310**	**36,704**	**-6.6%**

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

2.8 Progress against Carbon Plan targets

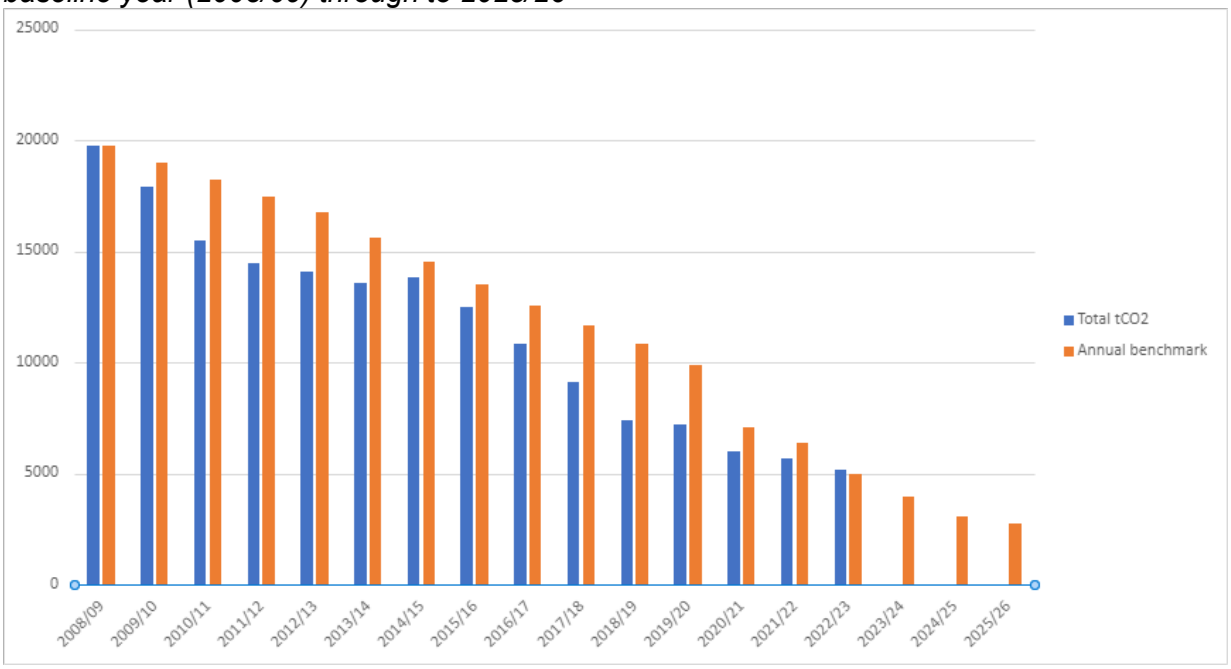
Reading Borough Council's Carbon Plan 2020-2025 sets out actions and projects which have been translated into a notional set of annual emissions reductions for each year of the 5-year plan (see table 2). These provide benchmarks for measuring progress towards the interim target of an 85% reduction in corporate emissions by 2025, *en route* to the ultimate target of net zero by 2030.

The gross annual CO_2 emissions from RBC's operations in 2022/23 was 5,149 tonnes, 9% lower than the previous year, although slightly above the 2022/23 benchmark of 4,957 tonnes. This continued reduction in emissions illustrates the organisations continued, positive progress towards the 85% reduction target, though the slackening of the rate of reduction demonstrates the growing challenge to meet these ambitious targets. It is therefore of vital importance that action on emissions be continued, as there is no room for complacency.

Table 2: projected annual benchmarks 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 2: RBC corporate GHG emissions performance against annual benchmarks from the baseline year (2008/09) through to 2025/26



The Council produced the equivalent of 8.9% of its total energy consumed in buildings from renewable sources in 2022/23. This represents 14.5% 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 further capital investment in renewables comes on stream, the gap should begin to close.

The council used 433,214 litres of fuel/oil, and 10,325 MWh of natural gas in 2022/23. The Carbon Plan includes a target to reduce this to half of this level by 2025 through removal of fossil fuel heating and electrification of vehicles. This target has now been achieved two years early – the Council's gas use is currently 61% lower than 2008/09 and oil/fuel is 55% lower than 2008/09.

2.9 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 1,501,468 kWh of electricity in 2022/23, of which over 487,000 kWh was deemed to have been exported to the National Grid. Twenty-three systems generated and self-supplied 130,973 kWh to RBC sites, whilst the remaining arrays generated and supplied 846,309 kWh to schools, housing tenants and other parties in 2022/23. The renewably generated electricity leads to 300 tCO_2 carbon emissions savings, which can be 'netted off' against the RBC gross emissions (excluding those 'self-supplied').

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 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 also represents an economic opportunity.

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 Carbon Plan implementation and reduced energy consumption since 2008/09 are c.£22.2m (excluding standing charges and other contract charges) compared to if no action had been taken. In 2022/23 alone these avoided costs were estimated at £4.7m.

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.

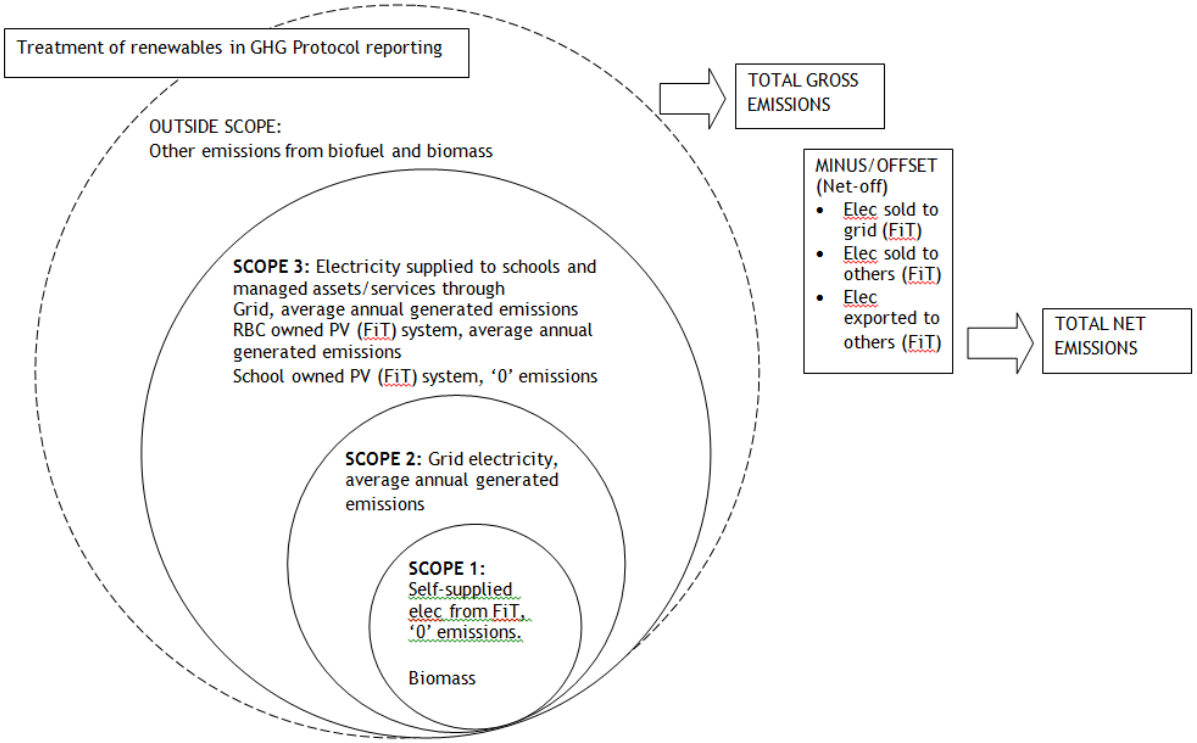


Figure A1: Treatment of renewables in GHG Protocol reporting, depending on system ownership and reporting scope

Annex 2: Full breakdown 2022/23 GHG data vs baseline

GHG PROTOCOL REPORTING							
YEAR		BASELINE: 2008/09			2022/23		
	REPORTING UNITS	kWh/litres/km/m3/kg	conversion factor	tCO2	kWh/litres/km/m3/kg	conversion factor	tCO2
FLEET - PETROL	litres	16,717	2.2450	38	10,915.32	2.2	23.6
FLEET - GAS OIL	litres				1,325	2.8	3.7
FUGITIVE - R12	kg			-			
FUGUTIVE - R22	kg			-			
FUGITIVE - R407C	kg					1,774.0	-
FUGITIVE - R134A	kg						-
FUGITIVE - R410A	kg				19.5	2,088.0	40.7
FUGITIVE - R49a	kg						
FUGITIVE - R404a	kg					3,922.0	-
CHP - GAS	kWh			-			
CHP - ELECTRICITY	kWh			-			
BIOMASS	kg			-			-
ELECTRICITY FROM RENEWABLES	kWh		-	-	71,632	-	-
TOTAL				**6,594**			**3,030**
SCOPE 2							
ELECTRICITY FROM GRID	kWh	24,416,596	0.4853	11,850	9,486,441	0.19338	1,834
CAR CLUB - SMALL	km	-	-	-			0.00
CAR CLUB - MEDIUM	km	-	-	-			0.000
TOTAL				11,850			1,834
SCOPE 3							5,381
CORPORATE							
ELECTRICITY FROM GRID T&D	kWh	24,416,596	0.0391	954	9,486,441.0	0.02	167.8
BUSINESS MILEAGE - average fuel unknown	km	1,742,835	0.2086	364	1,598.0	0.17	0.3
BUSINESS MILEAGE - average petrol	km				230,217.0	0.17	39.2
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				191,735.6	0.15	28.1
BUSINESS MILEAGE - med petrol	km				126,187.1	0.18	23.3
BUSINESS MILEAGE - large petrol	km				4,744.4	0.28	1.3
BUSINESS MILEAGE - small diesel	km				104,441.6	0.14	14.6
BUSINESS MILEAGE - med diesel	km				31,726.6	0.17	5.3
BUSINESS MILEAGE - large diesel	km				23,237.3	0.21	4.9
BUSINESS MILEAGE - Small electric	km				16,547.3	-	-
BUSINESS MILEAGE - Medium Electric	km				1,984.3	-	-
BUSINESS MILEAGE - Large Electric	km				537.5	-	-
BUSINESS CYCLE	km						
BUSINESS MOTORCYCLE	km						
WATER SUPPLIED	m3			-	397125		
WATER SEWERAGE	m3			-			
TOTAL				1,318			284.9
SCHOOLS*							
GAS	kWh	18,387,800	0.1836	3,376	18,614,656.00	0.18	3,397.92
OIL	litres	3,130,463	0.2468	773	29,757.00	2.54	75.59
ELECTRICITY FROM GRID	kWh	6,224,888	0.4521	2,814	7,174,470.00	0.19	1,387.40
ELECTRICITY FROM GRID T&D	kWh	6,224,888	0.0386	240	7,174,470.00	0.02	126.92
ELECTRICITY FROM RBC FIT	kWh		0.4521	-		0.19	-
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			4,998
LEISURE CENTRES							
GAS	kWh	2,722,149	0.1836	500	4,120,491	0.18	752
ELECTRICITY FROM GRID	kWh	1,353,406	0.4853	657	1,586,958	0.19	307
ELECTRICITY FROM GRID T&D	kWh	1,353,406	0.0391	53	1,586,958	0.02	28
ELECTRICITY FROM RBC FIT	kWh		0.0391	-		0.19	-
ELECTRICITY FROM RENEWABLES	kWh		0.4853	-			
TOTAL	kWh		-	1,209			1,087
READING BUSES	litres						
GAS	kWh	914,874	0.1836	168	1,055,505	0.18	193
ELECTRICITY FROM GRID	kWh	1,049,393	0.4853	509	1,523,630	0.19	295
ELECTRICITY FROM GRID T&D	kWh	1,049,393	0.0391	41	1,523,630	0.02	27
ELECTRICITY FROM RBC FIT	kWh		0.0391	-		0.19	-
ELECTRICITY FROM RENEWABLES	kWh		0.4853	-			
FLEET - DIESEL	litres	3,817,389	2.6	9,820	6,662,388	2.56	17,041
FLEET - CNG	litres				3,090	2,539.25	7,846
TOTAL				10,538			25.402
WASTE MRF SMALL MEAD*	TOTAL						
ELECTRICITY FROM GRID	kWh	1,140,310	0.4853	553	1,691,865	0.19338	327
ELECTRICITY FROM GRID T&D	kWh	1,140,310	0.0391	45	1,691,865	0.01769	30
ELECTRICITY FROM RENEWABLES	kWh					0	0
TOTAL				598			357
OUTSIDE SCOPE							
FLEET - DIESEL - BIOFUEL MIX	litres						
FLEET - PETROL - BIOFUEL MIX	litres						
CNG	litres						
BIOMASS							
TOTAL							
GROSS EMISSIONS - CORPORATE	Tonnes			19,761			5,149
GROSS EMISSIONS - ALL	Tonnes			39,310			36,993
GROSS EMISSIONS - CORPORATE - weather corrected	Tonnes			19,606			5,062
GROSS EMISSIONS - ALL- weather corrected	Tonnes			39,030			36,704
ELECTRICITY EXPORTED/SOLD TO GRID/OTHERS	kWh				1,298,673	0.23112	300
NET EMISSIONS - CORPORATE	Tonnes			19,761			4,860
NET EMISSIONS - ALL	Tonnes			39,310			36,704
NET EMISSIONS - CORPORATE - weather corrected	Tonnes			19,606			4,762
NET EMISSIONS - ALL - weather corrected	Tonnes			39,030			36,403

Annex 3: Historic data

GHG PROTOCOL REPORTING													
YEAR		2019/20			2020/21			2021/22			2022/23		
	REPORTING UNITS	kWh/litres/km/m3/kg	conversion factor	tCO2	kWh/litres/km/m3/kg	conversion factor	tCO2	kWh/litres/km/m3/kg	conversion factor	tCO2	kWh/litres/km/m3/kg	conversion factor	tCO2
SCOPE 1													
GAS	kWh	13,617,789.00	0.18385	2,504	12,054,110.0	0.18387	2,216	11,617,587.0	0.18316	2,128	10,325,887.0	0.18254	1,885
OIL	litres	22,500	2.54042	57	18,561	2.54039	47	4,800	2.54014	12		2.54013	-
FLEET - DIESEL	litres	436,640.44	2.59411	1,133	435,665.29	2.54603	1,109	449,841.73	2.51233	1,130	420,973.70	2.55784	1,077
FLEET - PETROL	litres	13,310.32	2.20904	29	10,353.00	2.16802	22	10,617.80	2.19352	23	10,915.32	2.16185	24
FLEET - GAS OIL	litres	21,229	2.75821	59	21,049	2.75776	58	18,492	2.75857	51	1,325	2.75857	4
FUGITIVE - R12	kg												
FUGUTIVE - R22	kg												
FUGITIVE - R407C	kg	11.325	1774	20.1	9.26	1774	16.4		1774	0.0		1774	0.0
FUGITIVE - R134A	kg		0	0.0		1430	0.0			0.0			0.0
FUGITIVE - R410A	kg	47.13	2088	98.4	2.8	2088	5.8	17.9	2088	37.4	19.5	2088	40.7
FUGITIVE - R49a	kg												
FUGITIVE - R404a	kg	28.01	3922	109.9		3922	0.0		3922	0.0		3922	0.0
CHP - GAS	kWh												
CHP - ELECTRICITY	kWh												
BIOMASS			0	0		0	0			0			0
ELECTRICITY FROM RENEWABLES	kWh	174,847	0	0	154,417	0	0		0	0	22,575	0	0
	TOTAL			**4,009.8**			**3,475.5**			**3,381.9**			**3,029.6**
SCOPE 2													
ELECTRICITY FROM GRID	**kWh**	10,957,750	0.25560	2,801	9,463,044	0.23314	2,206	9,416,978	0.21233	2,000	9,486,441	0.19338	1,834
CAR CLUB - SMALL	**km**	554	0.15371	0.09		0.14652	0.00			0.00			0.00
CAR CLUB - MEDIUM	**km**	99	0.19228	0.019		0.1847	0.000			0.000			0.000
	TOTAL			**2,801**			**2,206**			**2,000**			**1,834**
SCOPE 3				6,811			5,682			5,381			4,864
CORPORATE													
ELECTRICITY FROM GRID T&D	**kWh**	10,957,750	0.0217	238	9,463,044	0.02005	190	9,416,978	0.01879	177	9,486,441	0.01769	168
BUSINESS MILEAGE	**km**	4,450	0.1771	1	395	0.1714	0.1		0.17148	0.0	1,598	0.17067	0.3
BUSINESS MILEAGE - average petrol	**km**	538,089	0.18084	97.3	250,086	0.1743	43.6	267,135	0.17431	46.6	230,217	0.17048	39.2
BUSINESS MILEAGE - supermini petrol			0.15538	0.0		0.15017	0.0		0.1513	0.0		0.14802	0.0
BUSINESS MILEAGE - dual purpose 4 x 4	**km**												
BUSINESS MILEAGE - MPV petrol			0.1994	0.0		0.19351	0.0		0.19479	0.0		0.19118	0.0
BUSINESS MILEAGE - luxury	**km**												
BUSINESS MILEAGE - MPV diesel			0.18101	0.0		0.17627	0.0		0.17503	0.0		0.177844	0.0
BUSINESS MILEAGE - executive petrol			0.23659	0.0		0.22699	0.0		0.22342	0.0		0.21999	0.0
BUSINESS MILEAGE - executive diesel			0.17525	0.0		0.16735	0.0		0.17399	0.0		0.174684	0.0
BUSINESS MILEAGE - lower medium petrol			0.18008	0.0		0.17343	0.0		0.17497	0.0		0.17162	0.0
BUSINESS MILEAGE - small petrol	**km**	174,419	0.15371	26.8	108,531	0.14836	16.1	156,256	0.14946	23.4	191,736	0.14652	28.1
BUSINESS MILEAGE - med petrol	**km**	125,469	0.19228	24.1	103,634	0.18659	19.3	128,899	0.18785	24.2	126,187	0.1847	23.3
BUSINESS MILEAGE - large petrol	**km**	17,400	0.28295	4.9	3,129	0.27807	0.9	4,208	0.27909	1.2	4,744	0.27639	1.3
BUSINESS MILEAGE - small diesel	**km**	43,816	0.14208	6.2	19,988	0.13721	2.7	78,451	0.13758	10.8	104,442	0.13989	14.6
BUSINESS MILEAGE - med diesel	**km**	36,627	0.17061	6.2	86,098	0.16637	14.3	37,400	0.16496	6.2	31,727	0.168	5.3
BUSINESS MILEAGE - large diesel	**km**	21,015	0.20947	4.4	17,606	0.20419	3.6	22,792	0.20721	4.7	23,237	0.20953	4.9
BUSINESS MILEAGE - Small electric	**km**					0	0.0	801	0	0.0	16,547	0	0.0
BUSINESS MILEAGE - Medium Electric	**km**				161	0	0.0	1,669	0	0.0	1,984	0	0.0
BUSINESS MILEAGE - Large Electric	**km**					0	0.0	4,971	0	0.0	538	0	0.0
WATER SUPPLIED	**m3**										397125		
WATER SEWERAGE	**m3**												
TOTAL				**408.6**			**290.4**			**293.9**			**284.9**

SCHOOLS													
GAS	kWh	17,139,950	0.18385	3,151	17,331,695	0.18387	3,187	16,866,611	0.18316	3,089	18,614,656	0.18254	3,398
OIL	litres	64,810	2.54042	165	88,192	2.54039	224	35,465	2.54014	90	29,757	2.54013	76
ELECTRICITY FROM GRID	kWh	7,566,730	0.2556	1,934	7,273,687	0.23314	1,696	7,503,748	0.21233	1,593	7,174,470	0.19338	1,387
ELECTRICITY FROM GRID T&D	kWh	7,566,730	0.0217	164	7,273,687	0.02005	146	7,503,748	0.01879	141	7,174,470	0.01769	127
ELECTRICITY FROM RBC FIT	kWh	91,973	0.2556	24	98,858	0.23314	23		0.21233	0		0.19338	0
ELECTRICITY FROM RENEWABLES	kWh	53,398	0	0	53,398	0	0		0	0		0	0
WATER SUPPLIED	m3												
WATER SEWERAGE	m3												
FUGITIVE - R410A	kg	6.445	2088	13.5	10.61	2088	22.2	4.8	2088	10.0	4.8	2088	10.0
FUGITIVE - R32					3.2								
FUGITIVE - R407C			1774	0.0		1774	0.0		1774	0.0		1774	0.0
TOTAL				**5,427.5**			**5,274.6**			**4,923.7**			**4,997.8**
LEISURE CENTRES													
GAS	kWh	2,287,929	0.18385	421	680,752	0.18387	125	2,401,196	0.18316	440	4,120,491	0.18254	752
ELECTRICITY FROM GRID	kWh	1,128,315	0.2556	288	381,917	0.23314	89	1,241,494	0.21233	264	1,586,958	0.19338	307
ELECTRICITY FROM GRID T&D	kWh	1,128,315	0.0217	24	381,917	0.02005	8	1,241,494	0.01879	23	1,586,958	0.01769	28
ELECTRICITY FROM RBC FIT		18,986	0.2556	5	20,162	0.23314	5	37,703	0.21233	8		0.19338	-
ELECTRICITY FROM RENEWABLES	kWh												
	TOTAL			**734**			**222**			**727**			**1,087**
READING BUSES													
GAS	kWh	1,067,396	0.1771	189	1,334,455	0.18387	245	1,129,870	0.18316	207	1,055,505	0.18254	193
ELECTRICITY FROM GRID	kWh	1,623,623	0.17061	277	1,307,373	0.23314	305	1,464,363	0.21233	311	1,523,630	0.19338	295
ELECTRICITY FROM GRID T&D	kWh	1,623,623	0.20947	340	1,307,373	0.02005	26	1,464,363	0.01879	28	1,523,630	0.01769	27
ELECTRICITY FROM RBC FIT		18,740	0.17061	3	16,668	0.23314	4	10,291	0.21233	2		0.19338	-
ELECTRICITY FROM RENEWABLES	kWh												
FLEET - DIESEL	litres	2,935,195	2.6	7,614	1,335,486	2.5	3,400	2,686,750	2.5	6,750	6,662,388	2.6	17,041
FLEET - CNG	litres	1,758	2542.0	4,469	813	2533.0	2,061	1,470	2538.5	3,730	3,090	2539.3	7,846
	TOTAL			**12,889**			**6,037**			**11,026**			**25,402**
SMALL MEAD													
ELECTRICITY FROM GRID	kWh	2,526,953	0.2556	646	1,633,650	0.23314	381	1,760,270	0.21233	374	1,691,865	0.19338	327
ELECTRICITY FROM GRID T&D	kWh	2,526,953	0.0217	55	1,633,650	0.02005	33	1,760,270	0.01879	33	1,691,865	0.01769	30
ELECTRICITY FROM RENEWABLES	kWh		0	0		0	0		0	0		0	0
	TOTAL			**700.7**			**413.6**			**406.8**			**357.1**
GROSS EMISSIONS - CORPORATE				**7,219.3**			**5,972.1**			**5,675.3**			**5,149.0**
GROSS EMISSIONS - ALL				**26,970**			**17,919.3**			**22,758.4**			**36,992.9**
ELECTRICITY EXPORTED/SOLD TO GRID/OTHERS	kWh	1,338,901	0.2773	371	1,375,999	0.25319	348	1,298,673	0.23112	300	1,370,495	0.21107	289
NET EMISSIONS - CORPORATE				**6,848**			**5,624**			**5,375.2**			**4,859.7**
NET EMISSIONS - ALL				**26,599**			**17,571**			**22,458**			**36,704**

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