PROGRESS AGAINST CARBON EMISSIONS TARGETS 2022-2023
Approved September 2023

In July 2019 the University declared a Climate Emergency. Shortly after in September 2020, the University Executive Board approved a new Sustainability Strategy 2020-2030 which reviewed the University's carbon journey since a 2008/09 baseline year and set out the University's aim to achieve net zero emissions by 2030 against a new baseline year of 2018/19. During this new baseline year, the University's total emissions were 21,931 tCO_2e.

As set out in the Strategy, the University aims to reduce its direct and indirect carbon emissions by 50% and as a last resort will offset the remaining emissions in credible sector-specific offsetting and carbon sequestration schemes. The following report discusses the University's performance against our overarching carbon emissions targets with year-on-year comparisons.

Direct Emissions (Scopes 1&2)

The University's direct carbon footprint includes both Scope 1 and Scope 2 emissions. Scope 1 emissions include emissions from:

- Gas burned in university boilers.
- Fuel used in university fleet vehicles.
- Fugitive emissions from any leaks in university air conditioning and refrigeration units
- Any other fuels burned on-site.

Scope 2 emissions include emissions from:

- Purchased electricity.

Of these emissions categories, emissions from gas and emissions from electricity are the most material and are therefore prioritised for measuring, monitoring, and reporting.

The University measures and reports on its direct carbon footprint in three ways:

1. Absolute carbon emissions

The University's direct carbon footprint decreased by 13% between 2021/22 and 2022/23, with a decrease of 25% from the 2018/19 baseline year.

2018/19	2021/22	2022/23
3230 tCO_2e	2754 tCO_2e	2409 tCO_2e

Table to show direct carbon emissions across FYs 2018/19, 2021/22, and 2022/23

Between 2021/22 and 2022/23, the University reduced emissions from gas by 364 tCO_2e. This is largely due to the review of the University's Heating and Comfort Policy, which broadly requires that space heating be kept to 19C (+-1C) across the estate, a reduction from 21 degrees.

This year-on-year decrease is significant and represents the effectiveness of the newly revised policy, however it is important to also consider this emission saving in the context of the Covid-19 pandemic which resulted in exceptionally high gas consumption due to ventilation requirements across 2021/22.

As set out in the Energy and Water Management Strategy, to achieve net zero by 2030 combined emissions from gas and electricity consumption will need to reduce by an average of 8.4% per annum (pa). In terms of emissions from gas (baseline figure of 1,782 tCO_2e), this translates to an average reduction of 149 tCO_2e pa between 2018/19 and 2030. In terms of emissions from electricity (baseline figure of 1,398 tCO_2e), this translates to an average reduction of 117 tCO_2e pa between 2018/19 and 2030.

Whilst the University has exceeded the 8.4% reduction target for emissions from gas between 2021/22-2022/23, the University has not achieved the required overall reduction of 33.6% from the baseline year. Actual emissions from gas performance are compared with performance targets in the chart below:

PROGRESS AGAINST CARBON EMISSIONS TARGETS 2022-2023
Approved September 2023

Annual Comparisons of Actual Gas Emissions (tCO2e) against Target Gas Emissions
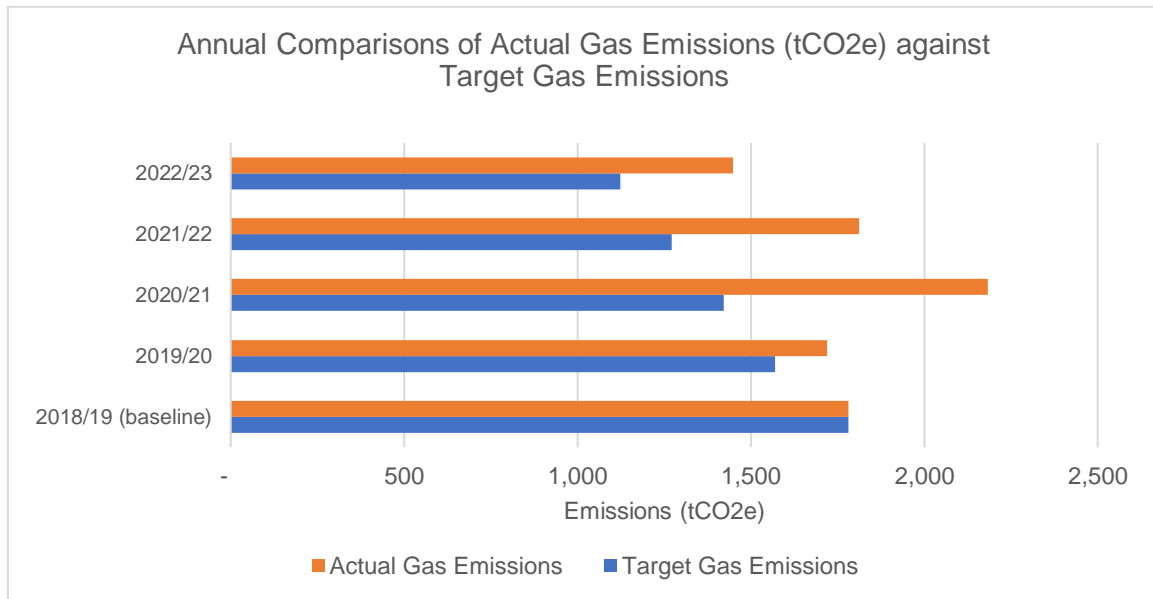
Whilst less progress has been made towards achieving emissions from gas reduction targets, emissions from electricity have reduced considerably since the 2018/19 baseline. Across 2019/20, 2020/21 and 2021/22, the University exceeded its emissions from electricity reduction targets, achieving an average 12% reduction pa across this period. This year, the University has met but not exceeded its emissions from electricity reduction target. Performance is shown in the chart below:

Annual Comparisons of Actual Electricity Emissions (tCO2e) against Target Electricity Emissions
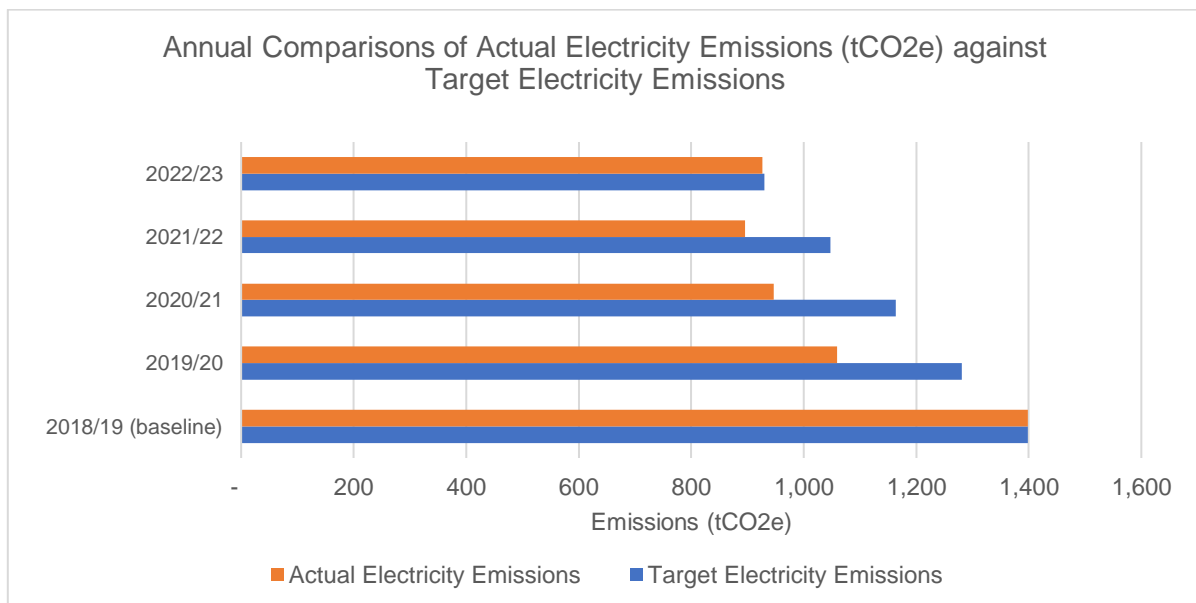
As can be seen in the chart, emissions from electricity have remained steady since 2020/21 indicating that unless emissions from electricity reduce across 2023/24, the University may miss its 2023/24 emissions reduction target.

It should be noted that between 2021/22 and 2022/23, the University oversaw a small increase in emissions from electricity consumption of 31.4 tCO2e. This increase took place despite a decrease in electricity consumption of 155 MWh and is due to an increase in the DEFRA emissions factor for UK electricity generation. This is out of keeping with previous years, during which the University oversaw emissions reductions from the decarbonisation of electricity generation in the UK. The University supports decarbonisation of electricity generation through the purchase and generation of renewable energy.

Overall progress to reduce the University's direct carbon footprint by 8.4% pa against the 2018/18 baseline is shown in the chart below:

Annual Comparisons of Actual Scopes 1 & 2 Emissions (tCO2e) against Target Scopes 1 & 2 Emissions
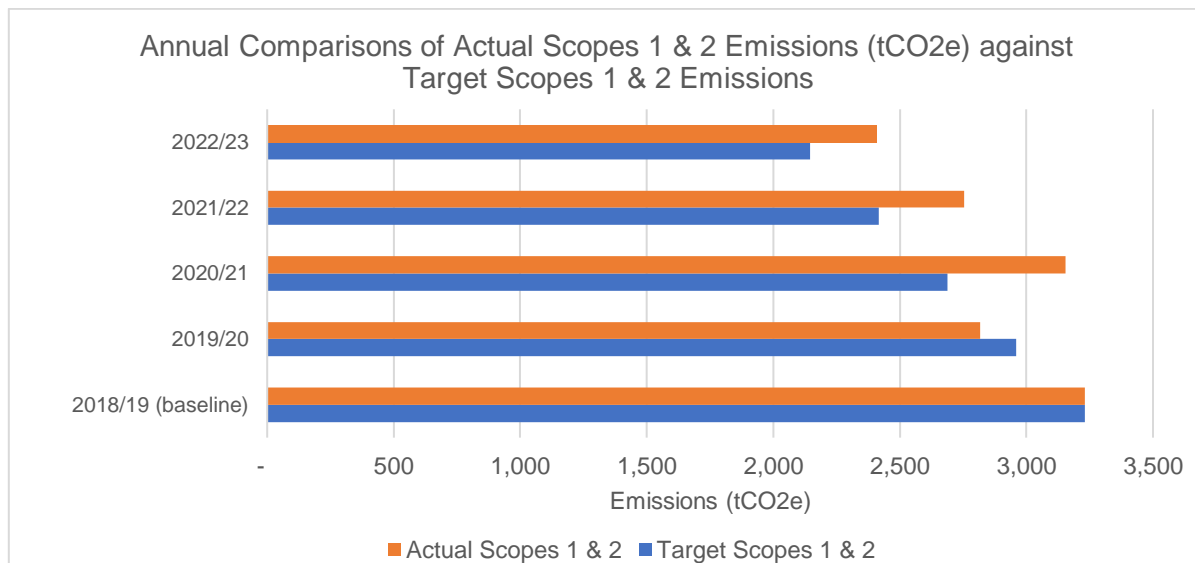
2. In relation to the number of students and staff at the University

In 2018/19, the University had a combined total of 9,304 FTE staff and students. Since then, this figure has fluctuated, experiencing a decrease during the years more affected by the Covid-19 pandemic. However, across 2022/23 the number of FTE staff and students was 9,147, representing a near-return to the baseline total.

In 2018/19, direct carbon emissions per FTE staff and student was 0.35 tCO2e/FTE. In 2022/23, this figure had dropped to 0.26 tCO2e/FTE – a 26% reduction in carbon emissions per FTE.

3. In relation to the University's estate

The size of the University's estate has increased considerably since the 2018/19 baseline year, from 81,772 m2 in 2018/19 to 87,698 m2 in 2022/23. At the same time, several energy efficiency projects have been delivered, including the expansion of the University's Building Management System, the replacement of inefficient lighting with LED alternatives, and the expansion of the University's solar PV and solar thermal estate.

In 2018/19, direct carbon emissions per m2 of the estate was 0.039 tCO2e. This figured dropped to 0.031 tCO2e/m2 in 2022/23, representing a 21% decrease in space carbon intensity and evidencing the effectiveness of the various energy efficiency projects that have taken place during this period.

Indirect Emissions (Scope 3)

The University's indirect carbon footprint consists of Scope 3 emissions. Scope 3 emissions include emissions from a wide range of activities, with the most material being:

- Purchased goods and services (procurement)
- Student travel, and
- Employee commuting

The University's indirect carbon footprint is so called because these are emissions categories that the University can influence but cannot directly control.

The University does not currently have a blanket Scope 3 emissions reduction pathway to 2030, however, several Scope 3 activities have individual interim targets. For this report, a Scope 3 emissions reduction target of 5% pa (from 2018/19) has been assumed.

Across 2019/20 and 2020/21 the University exceeded its Scope 3 emissions reduction targets, achieving an average reduction of 13% pa across this period. This trend was reversed in 2021/22 due to a significant jump in emissions from procurement driven by major capital projects, namely the refurbishment of the Elizabeth Garrett Anderson building.

In this reporting year, the University has seen another significant increase in Scope 3 emissions. This is due to the expansion of the University's indirect carbon footprint to include student travel to / from students' home addresses,

and downstream leased assets. The decision to include these activities in the University's indirect carbon footprint comes in light of the publication of the Standardised Carbon Emissions Reporting Framework for Further and Higher Education (SEF) earlier this year. The aim of this framework is to standardise carbon emissions reporting across the further and higher education sector.

Whilst emissions from downstream leased assets have increased the University's indirect carbon footprint by a relatively small 38 tCO2e, inclusion of emissions from student travel to / from home addresses is responsible for an additional 9,457 tCO2e. Of this figure, 7,614 tCO2e have been produced from students travelling to / from international home addresses. The University will need to develop a credible offsetting plan for this emissions category.

In previous years, emissions from employee commuting have been reported together with emissions from student commuting. This year, these categories have been disaggregated. Since 2021/22 the University has seen a slight decrease in emissions from employee and student commuting, from 4,384 tCO2e in 2021/22, to 4,223 tCO2e in 2022/23, representing a 4% decrease.

Of the 4,223 tCO2e emitted from employee and student commuting this year, 777 tCO2e is attributable to employee commuting, and the remaining 3,446 tCO2e is from student commuting. When comparing 2022/23 emissions performance with the University's 2018/19 baseline data, the University's has overseen a 48% decrease in emissions from staff and student commuting, exceeding the emissions reduction target for this area. This is largely due to the increase in hybrid working.

The University's progress against its Scope 3 emissions reduction targets can be seen in the chart below:
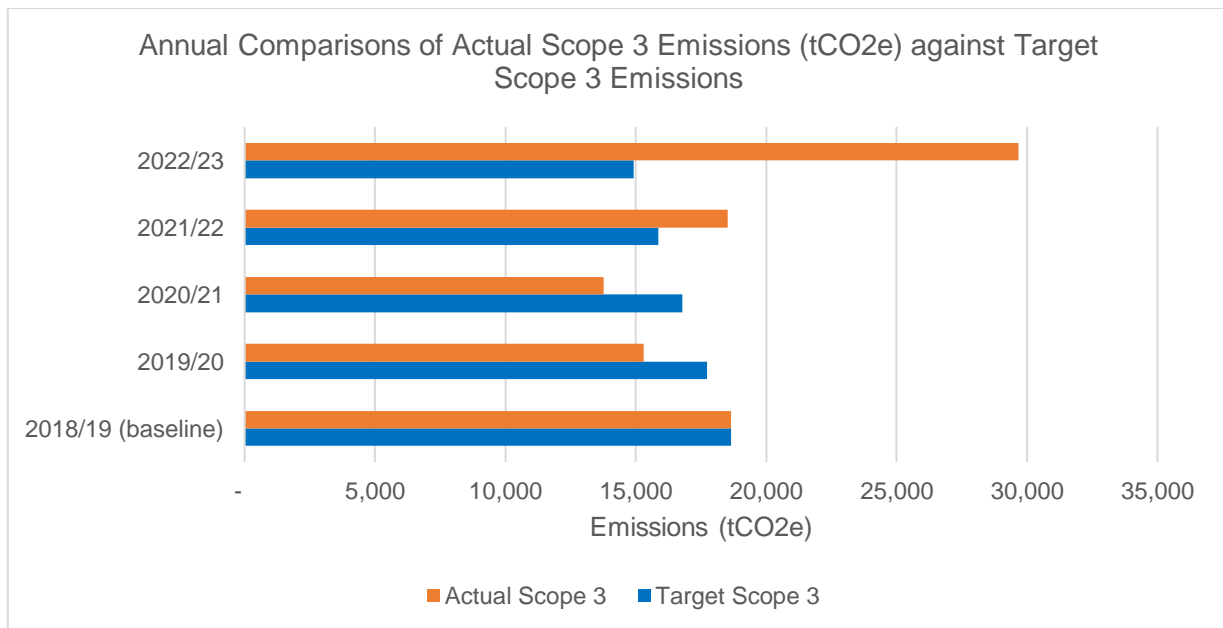
The University would benefit from reviewing its Scope 3 targets to accommodate the expansion of the reporting scope to include student travel to / from home addresses.

Data Tables

PROGRESS AGAINST CARBON EMISSIONS TARGETS 2022-2023
Approved September 2023

The tables in this section show year-on-year progress against carbon reduction targets across all Scopes using a RAG rating system. To monitor progress in the context of organisational growth, the University also calculates carbon emissions per full-time equivalent staff and student numbers (FTE), and gross internal area of the estate (GIA).

	Baseline 2018-19	2019-20	2020-21	2021-22	2022-23
FTE	9304	8,863	8,466	8,705	9,147
GIA (m2)	81,172	81,172	81,904	93,575	87,698

Emissions performance against set targets is then assessed using the following RAG rating system:

Progress	RAG Rating
Target exceeded	GREEN★
Target met	GREEN
Monitoring required	AMBER
Target not met	RED

All RAG ratings are assessed using the baseline year of 2018/19 to ensure anomalous year-on-year changes are eliminated from analysis.

Direct Emissions (Scopes 1&2)

Scope 1&2 combined emissions (tCO2e)

	Baseline 2018-19	2019-20	2020-21	2021-22	2022-23	Commentary	Key
Annual	3,230	2,817	3,154	2,754	2,409	Decreased by 12.5% from 2021-22; reduction of 25% against baseline, with an average 6.25% reduction pa	RED
Per FTE	0.35	0.32	0.37	0.31	0.26	Reduction from baseline of 26%, with an average 6.5% reduction pa	RED
Per GIA	0.040	0.035	0.039	0.029	0.027	Reduction from baseline of 32.5%, with an average 8% reduction pa	AMBER

Purchased electricity emissions (tCO2e)

	Baseline 2018-19	2019-20	2020-21	2021-22	2022-23	Commentary	Key
Annual	1,398	1,059	947	895	927	Increased by 3.5% from 2021-22; significant reduction of 34% against baseline, with an average 8.5% reduction pa	GREEN
Per FTE	0.1503	0.12	0.11	0.1	0.10	Reduction from baseline of 33%, with an average 8.25% reduction pa	GREEN
Per GIA	0.0172	0.01	0.01	0.01	0.011	Reduction from baseline of 36%, with an average 9% reduction pa	GREEN

Gas emissions (tCO2e)

	Baseline 2018-19	2019-20	2020-21	2021-22	2022-23	Commentary	Key
Annual	1,782	1,719	2,183	1,813	1,449	Decreased by 25% from 2021-22; reduction of 18.7% against baseline, with an average 4.7% reduction pa	RED
Per FTE	0.1915	0.19	0.26	0.21	0.16	Reduction from baseline of 16%, with an average 4% reduction pa	RED
Per GIA	0.0220	0.021	0.027	0.019	0.017	Reduction from baseline of 23%, with an average 5.75% reduction pa	RED

Fleet emissions (tCO2e)

	Baseline 2018-19	2019-20	2020-21	2021-22	2022-23	Commentary	Key

						Commentary	Key
Annual	**42**	30.00	12	22	**24**	Increased by 9% from 2021-22; significant reduction of 43% against baseline, with an average 10.75% reduction pa	**GREEN**

F Gas emissions (tCO2e)

	Baseline 2018-19	2019-20	2020-21	2021-22	2022-23	Commentary	Key
Annual	**0**	1	3	12	**3**	Decreased by 75% compared with 2021-22 (significant F-gas leak reported in 2021-22); higher than baseline figure	**RED**

Indirect Emissions (Scope 3)

Scope 3 combined emissions (tCO2e)

	Baseline 2018-19	2019-20	2020-21	2021-22	2022-23	Commentary	Key
Annual	**18,701**	15,322	13,781	18,537	**29,672**	Increased by 64% from 2021-22; increase of 63% against baseline, with an average 15.75% increase pa. Please note that Scope 3 reporting has expanded to include student travel to/from home addresses between 2021-22 and 2022-23.	**RED**
Per FTE	**2.01**	1.73	1.63	2.13	**3.24**	Increase from baseline of 66%, with an average 16.5% increase pa. Please note that Scope 3 reporting has expanded to include student travel to/from home addresses between 2021-22 and 2022-23.	**RED**

Procurement emissions (tCO2e)

	Baseline 2018-19	2019-20	2020-21	2021-22	2022-23	Commentary	Key
Annual	**9,784**	10,355	8,127	13,962	**15,540**	Increased by 11% from 2021-22; increase of 59% against baseline, with an average 14.75% increase pa. Please note that capital spend has been significantly higher across 2021-22 and 2022-23 than previous years.	**RED**
Per FTE	**1.05**	1.17	0.96	1.60	**1.70**	Increase from baseline of 62%, with an average 15.5% increase pa. Please note that capital spend has been significantly higher across 2021-22 and 2022-23 than previous years.	**RED**

Student travel (home to term-time address) (tCO2e)

	Baseline 2018-19	2019-20	2020-21	2021-22	2022-23	Commentary	Key
Annual					**9,457**	First year of reporting.	**NA**
Per FTE					**1.03**		**NA**

Combined staff and student commuting emissions (tCO2e)

	Baseline 2018-19	2019-20	2020-21	2021-22	2022-23	Commentary	Key
Annual	**8,190**	4,552	5,519	4,384	**4,223**	Decreased by 4% from 2021-22; reduction of 48% against baseline, with an average 12% reduction pa.	**GREEN** ★
Per FTE	**0.88**	0.51	0.65	0.50	**0.46**	Reduction from baseline of 47%, with an average 11.6% reduction pa.	**GREEN** ★

Staff commuting and homeworking emissions (tCO2e)

	Baseline 2018-19	2019-20	2020-21	2021-22	2022-23	Commentary	Key
Annual					**850**		**NA**

					First year of reporting as standalone category. Figure arrived at by combining staff commuting emissions (776.80 tCO2e) with staff homeworking emissions (73.15 tCO2e)	
Per FTE				0.09		NA

Student commuting emissions (tCO2e)

	Baseline 2018-19	2019-20	2020-21	2021-22	2022-23	Commentary	Key
Annual					3,446	First year of reporting as standalone category.	NA
Per FTE					0.38		NA

Business travel emissions (tCO2e)

	Baseline 2018-19	2019-20	2020-21	2021-22	2022-23	Commentary	Key
Annual	530	264	28	83	232	Increased by 180% from 2021-22; reduction of 56% against baseline, with an average 14% reduction pa.	GREEN
Per FTE	0.057	0.029	0.003	0.009	0.025	Reduction from baseline of 56%, with an average 14% reduction pa.	GREEN

Electricity transmission and distribution emissions (tCO2e)

	Baseline 2018-19	2019-20	2020-21	2021-22	2022-23	Commentary	Key
Annual	119	91	84	82	80	Decreased by 2.4% from 2021-22; reduction of 32.8% against baseline, with an average 8.2% reduction pa	GREEN
Per FTE	0.013	0.010	0.010	0.009	0.009	Reduction from baseline of 30.7%, with an 7.7% reduction pa	GREEN

Downstream leased assets (tCO2e)

	Baseline 2018-19	2019-20	2020-21	2021-22	2022-23	Commentary	Key
Annual					38	First year of reporting.	NA
Per FTE					0.004		NA

Wastewater emissions (tCO2e)

	Baseline 2018-19	2019-20	2020-21	2021-22	2022-23	Commentary	Key
Annual	46.4	43	11	13	12	Decreased by 8% from 2021-22; reduction of 74% against baseline, with an average 18.5% reduction pa.	GREEN
Per FTE	0.0050	0.0048	0.0013	0.0015	0.0013	Reduction from baseline of 74%, with an average 18.5% reduction pa.	GREEN

Purchased water emissions (tCO2e)

	Baseline 2018-19	2019-20	2020-21	2021-22	2022-23	Commentary	Key
Annual	22.6	21	6	7	11	Increased by 57% from 2021-22; reduction of 51% against baseline, with an average 12.75% reduction pa	GREEN
Per FTE	0.0024	0.0023	0.0007	0.0008	0.0012	Reduction from baseline of 50%, with an average 12.5% reduction pa.	GREEN

Waste and recycling emissions (tCO2e)

	Baseline 2018-19	2019-20	2020-21	2021-22	2022-23	Commentary	Key
Annual	9.1	6	6	6	6	No change from 2021-22; reduction of 34% against baseline, with an average 8.5% reduction pa.	GREEN

PROGRESS AGAINST CARBON EMISSIONS TARGETS 2022-2023
Approved September 2023

Per FTE	0.00098	0.00008	0.00007	0.0007	0.0007	Reduction from baseline of 29%, with an average 7% reduction pa.	GREEN