

Greenhouse Gas Emissions Inventory and Annual Streamlined Energy & Carbon Report

Academic Year 2023 - 2024



The emissions outlined in this report cover the 23/24 academic year - reporting period 1st August 2023 to 31st July 2024. The years from 2019/20 are also included for comparative purposes.

INFORMATION ON EMISSIONS

The tables below refer to emissions independent of any GHG trades such as sales, purchases, transfers, or banking of allowances

Alongside the required Scope 1 and Scope 2 emissions outlined within this report, Gloucestershire College has selected to report the following Scope 3 emissions in this report:

Fuel from Transport – Grey Fleet

Consumption - Waste

Consumption – Water

The energy **consumption (kWh and fuel consumption)** used to calculate scope 1 and 2 emissions set out below is **4,047,433** in 2023/24. This is a mix of self-generated and purchased, and is comprised as follows:

	2023/24	2022/23	2021/22	2020/21
Emissions scope 1 – natural gas (kWh)	971,002	2,139,920	2,883,017	3,057,334
Emissions scope 1- fleet vehicles (fuel)	10,503	9530	7904	4446
Emissions scope 2 – electricity (kWh)	3,065,928	2,541,860	2,303,147	2,416,209
<i>Of which Grid electricity</i>	<i>2,326,102</i>	<i>2,022,702</i>	<i>2,221,361</i>	<i>2,416,209</i>
<i>Of which self-generated electricity</i>	<i>739,826</i>	<i>519,158</i>	<i>81,786</i>	<i>0</i>
<i>Self-generated exported to grid*</i>	<i>186,219</i>	<i>358,971</i>	<i>59,829</i>	<i>0</i>
Total used to calculate GC emissions	4,047,433	4,691,310	5,194,068	5,477,989

The levels of **TCO2e** that this equates to are set out in further detail below:

Type	Emission Group	Emission category	tCO2e (Location based)				tCO2e (Market based)			
			23/24	22/23	21/22	20/21	23/24	22/23	21/22	20/21
1	Gas	Natural Gas	178	391	528	562	178	391	528	562
	Own fleet transport	Diesel mini vans	26	24	20	11	26	24	20	11
2	Electricity	Grid electricity	482	387	468	579	0	0	0	0
	Total	Gross tCO2e	686	802	1016	1152	204	415	548	573
Offsets	Self generated renewable electricity (exported to grid)		-39	-69	-13	0				
	Market based renewable energy certificates		-92	-74	-90	-109				
	Total	Net tCO2e	555	659	913	1043	204	415	548	573

Emission Type	Emission group	2023/24	2022/23	2021/22	2020/21
3	Waste	62	41	33	43
	Water	3	5	5	8
	Grey Fleet	49	48	47	31
Total		115	94	84	81

The levels of TCO2e for all emissions can also be viewed by intensity ratios to give more context as to the emissions based on the size of the organisation. Further information on our chosen methodology for this is set out in the methodologies section.

TCO2e for all scopes by intensity ratio is as follows:

Emission Type	Measure	2023/24	2022/23	2021/22	2020/21
All Scopes	Annual TCo2	670	753	997	1124
	Intensity Ratio (Staff Headcount)	0.8	0.9	1.2	1.5
	Intensity Ratio (Staff FTE)	1.1	1.2	1.5	2.0

METHODOLOGIES AND EMISSION FACTORS

This report and methodologies used within have been produced in line with the 2020 Government Environmental Reporting Guidelines and GHG reporting protocols.

Emissions calculations are based on the UK Government conversion factors for the relevant year(s) as provided by the Department for Business, Energy and Industrial Strategy.

INTENSITY RATIOS

The college has chosen to use TCO2e per staff member as the intensity ratio in the report to align with the recommended ratio for the sector. This is displayed as both headcount and FTE.

MEASURES TAKEN TO IMPROVE ENERGY EFFICIENCY

The below provides as summary of key points relating to the measures that Gloucestershire College has taken to improve energy efficiency to date:

With support from the Public Sector Decarbonisation Scheme, and linked to the college's GCZero strategy to reduce carbon, we completed the installation of ground source heat pumps, thermal stores, solar PV and battery storage in April 2023 at our Gloucester and Cheltenham campuses. The system has been in operation since this time, and the controls and equipment has been adjusted to maximise carbon savings and improve energy efficiency

Alongside our major works, we have taken other steps to improve energy efficiency and promote sustainability. These include:

- Energy**
- ✓ Moved to thin client for PCs – less electricity usage
 - ✓ All lights now LED lighting
 - ✓ Gas and Electricity contracts record half hourly metering to allow close monitoring of usage via on line portal
 - ✓ Access control enabled on all most lifts which reduces excessive use by non-essential users. This reduces energy and maintenance costs
 - ✓ All new lighting installations have proximity and absence sensors installed

	<ul style="list-style-type: none"> ✓ BMS controls and on/off timers set to reduce the running speed of the heating and extraction systems in Glos. ✓ Automated total campus heating and cooling policies in place and published to all staff ✓ BMS systems control and close monitoring of site M&E
Waste	<ul style="list-style-type: none"> ✓ All sites use large compactors for general waste, separate waste collection for food, metal and construction curriculum materials all waste is identified for recycling off site and any items not recyclable is sent to an energy from waste process so achieving zero or very low waste to landfill ✓ Reduced number of on site bins for more sustainable recycling and less use of plastic bags ✓ Print defaults to Black and White ✓ Print credits reduced and usage monitoring being undertaken ✓ Priority for unwanted furniture reuse customers identified
Water	<ul style="list-style-type: none"> ✓ Taps have run time controls in place and some automated on/off taps being trialled ✓ Short/long flush boxes installed as standard ✓ Toilets refurbishment progressing from waterless to water based to reduce urinal oil cartridges
Catering	<ul style="list-style-type: none"> ✓ Reduced single use plastics in catering service. ✓ Reusable coffee cups ✓ Paper straws ✓ Wooden knives, forks and spoons ✓ Non-meat options available
Travel	<ul style="list-style-type: none"> ✓ National subsidised bus travel schemes maximised ✓ Travel claims – additional premium where take extra passenger ✓ Payment for parking on site to encourage other forms of transport ✓ Wide use of Microsoft Teams and virtual meetings to reduce travel to other sites ✓ Where appropriate working from home used to reduce travel ✓ Reduction of college minibus and vehicle fleet and EV cars included in fleet
Procurement Strategy	<ul style="list-style-type: none"> ✓ Consider full life costs (source to end-of-life) when making purchasing decisions – aimed at reducing negative impacts on CO₂ emissions, waste management and water consumption. ✓ Avoid of use hazardous substances and strong cleaning chemicals ✓ Encourage suppliers to commit to improving environmental performance. ✓ Ensure sustainability is embedded within the design and construction process for building or refurbishments. ✓ Consideration of packaging costs and removal ✓ Change soap to more sustainable product ✓ Change toilet paper product and dispenser to enable use of more sustainable product
Learner Engagement	<ul style="list-style-type: none"> ✓ Industry relevant sustainable practices and technological advancements are embedded into curriculum, taking learners beyond the qualification in their chosen subject area ✓ Sustainability is a theme of the college community plan and learners have the opportunities to participate in social actions projects driven by sustainability