

Greenhouse Gas Emissions Inventory and Annual Streamlined Energy & Carbon Report

Academic Year 2022 - 2023



The emissions outlined in this report cover the 22/23 academic year - reporting period 1st August 2022 to 31st July 2023. The 2021/22 and 2020/21 academic years 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 **3,367,446** in 2022/23. This is comprised as follows:

		2022/23	2021/22	2020/21
kWh	Emissions scope 1 and 2	4,162,622	5,088,036	5,539,715
	Market based renewable energy	-385,890	-424,881	-469,446
	Self-generated renewable energy	-418,816	-81,785	-38
	Total	3,357,916	4,581,369	5,070,231
Consumption	Emissions scope 1	9,530	7,904	4,446
	Total used to calculate emissions	3,367,446	4,589,273	5,074,677

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

Emission Type	Emission Group	Emission sub-group	Emission Sub-category	2022/23	2021/22	2020/21
1	Fuel	Gas	Natural Gas	391	528	562
	Transport	Own Fleet	Diesel mini vans	24	20	11
2	Fuel	Electricity	Grid electricity	387	468	579
			Market based renewable energy certificates	-74	-90	-109
			Self generated renewable electricity	-80	-17	0
Grand Total				647	909	1,043

Emission Type	Emission sub-group	2022/23	2021/22	2020/21
3	Waste	41	33	43
	Water	5	5	8
	Grey Fleet	48	47	31
Total		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	2022/23	2021/22	2020/21
All Scopes	Annual TCo2	741	1006	1133
	Intensity Ratio (Staff Headcount)	0.90	1.18	1.47
	Intensity Ratio (Staff FTE)	1.15	1.57	2.16

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:

A significant carbon saving project commenced in November 2021 relating to the Gloucester and Cheltenham campuses. £2.5M funds were secured via the Public Sector Decarbonisation Scheme along with capital funding from the college. The project included: Drilling boreholes to connect to electric ground source heat pumps to generate heat required by the college buildings and reduce reliance on gas. The heat pump system also includes thermal stores so high volumes of heat can be supplied when demand is high. To offset the electricity required for the heat pumps, solar panels we installed on large portions of roof space to generate electricity and this was linked with battery storage to capture any unused solar generated electricity. The batteries then being used to release stored electricity to the college when no solar electricity is being produced

To maximise efficiencies of the systems the building management systems(BMS) were upgraded and are being fine-tuned to maximise performance

The solar panels have been generating electricity since July 2022, the batteries have been storing power since December 2022. The ground source heat pumps have been operating since early 2023

What else have we done?

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 Gloucester lifts which reduces excessive use by non-essential users
- ✓ All new lighting installations have sensors installed
- ✓ 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 monitor site M&E

Waste

- ✓ All sites use compactor and recycle off site
- ✓ Reduced number of bins for more sustainable recycling
- ✓ Print defaults to Black and White
- ✓ Print credits reduced and usage monitoring being undertaken
- ✓ Priority for unwanted furniture reuse customers identified

Water

- ✓ Taps have run time controls in place
- ✓ Short/long flush boxes installed as standard
- ✓ Toilets refurbishment progressing from waterless to water based to reduce urinal oil cartridges

Catering

- ✓ Reduced single use plastics in catering service.
- ✓ Reusable coffee cups
- ✓ Paper straws
- ✓ Wooden knives and forks
- ✓ Non-meat options

Travel

- ✓ Bus travel subsidy schemes maximised
- ✓ Travel claims – additional premium where take extra passenger
- ✓ Car park enforcement
- ✓ Roll out of Teams and virtual meetings
- ✓ Reduction of college minibus and vehicle fleet and EV cars adopted

Procurement Strategy

- ✓ 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.
- ✓ 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 being delivered as liquid soap to dry packaged soap which has water added
- ✓ Change toilet paper product and dispenser to enable use of more sustainable product