# Greenhouse Gas Emissions Inventory and Annual Streamlined Energy & Carbon Report

Academic Year 2024 - 2025

Gloucestershire College


GC ZERO

The emissions outlined in this report cover the 24/25 academic year - reporting period 1st August 2024 to 31st July 2025. The years from 2020/21 onwards 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 **3,898,357** in 2024/25. This is a mix of self-generated and purchased, and is comprised as follows:

| | 2024/25 | 2023/24 | 2022/23 | 2021/22 | 2020/21 |
|---|---|---|---|---|---|
| Emissions scope 1 – natural gas (kWh) | 1,005,134 | 971,002 | 2,139,920 | 2,883,017 | 3,057,334 |
| Emissions scope 1- fleet vehicles (fuel) | 8,037 | 10,503 | 9530 | 7904 | 4446 |
| Emissions scope 2 – electricity (kWh) | 2,885,186 | 3,065,928 | 2,541,860 | 2,303,147 | 2,416,209 |
| *Of which Grid electricity* | *2,071,447* | *2,326,102* | *2,022,702* | *2,221,361* | *2,416,209* |
| *Of which self-generated electricity* | *813,739* | *739,826* | *519,158* | *81,786* | *0* |
| *Self-generated exported to grid** | *171,014* | *186,219* | *358,971* | *59,829* | *0* |
| **Total used to calculate GC emissions** | **3,898,357** | **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:

| | | | tCO2e (Location based) | | | | | tCO2e (Market based) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Emission Type | Emission sub-group | Emission Sub-category | 24/25 | 23/24 | 22/23 | 21/22 | 20/21 | 24/25 | 23/24 | 22/23 | 21/22 | 20/21 |
| | Gas | Natural Gas | 184 | 178 | 391 | 528 | 562 | 184 | 178 | 391 | 528 | 562 |
| 1 | Own Fleet | Diesel mini vans | 20 | 26 | 24 | 20 | 11 | 20 | 26 | 24 | 20 | 11 |
| 2 | Electricity | Grid electricity | 429 | 482 | 387 | 468 | 579 | 0 | 0 | 0 | 0 | 0 |
| **Total** | | **Gross tCO2e** | **633** | **686** | **801** | **1,016** | **1,152** | **204** | **204** | **415** | **548** | **573** |
| Offsets | Self generated renewable electricity (exported to grid) | | -35 | -39 | -69 | -13 | 0 | | | | | |
| | Market based renewable energy certificates | | -82 | -92 | -74 | -90 | -109 | | | | | |
| **Grand Total** | | | **516** | **555** | **659** | **913** | **1,043** | **204** | **204** | **415** | **548** | **573** |

| Emission Type | Emission group | 2024/25 | 2023/24 | 2022/23 | 2021/22 | 2020/21 |
|---|---|---|---|---|---|---|
| 3 | Waste | 73 | 62 | 41 | 33 | 43 |
| | Water | 3 | 3 | 5 | 5 | 8 |
| | Grey Fleet | 41 | 49 | 48 | 47 | 31 |
| **Total** | | **117** | **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 | 2024/25 | 2023/24 | 2022/23 | 2021/22 | 2020/21 |
|---|---|---|---|---|---|---|
| All Scopes | Annual TCo2 | 633 | 670 | 753 | 997 | 1124 |
| | Intensity Ratio (Staff Headcount) | 0.8 | 0.8 | 0.9 | 1.2 | 1.5 |
| | Intensity Ratio (Staff FTE) | 0.9 | 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

Significant measures have been taken to improve energy efficiency across Gloucestershire College as part of a structured and long-term Estates strategy.

Through DfE FECDC conditional funding we introduced LED lighting across all sites, reducing electricity consumption and maintenance requirements. This was followed in 2023 by the delivery of the GCZero project, with support through Salix funding, which saw the installation of Solar PV arrays and battery storage to maximise the use of renewable energy generated on site.

The GCZero project also allowed the college to move its primary heating provision has been decarbonised using Ground Source Heat Pumps, supported and optimised by a Building Management System to ensure efficient control and performance. Heating strategies have been reviewed and upgraded to further enhance operational efficiency.

These initiatives have delivered measurable reductions in carbon emissions, energy consumption, and associated costs.

We are currently reviewing further improvements which include an upgrade to roofing of the construction units and further GCZero project opportunities like wind turbines, all ensuring the estate continues to progress toward greater sustainability and long-term resilience.