



# Greenhouse Gas (GHG) Report 2023/24

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## 2.0 Executive summary

The greenhouse gas (GHG) emissions are presented for the University of Wolverhampton for scope 1 & 2 (location-based) emission sources for the last 3 reporting periods (August to July for 2023/24, 2022/23 and 2021/22).

The largest source of emissions this year remains scope 1 (6,701 tCO<sub>2</sub>e, or 79% of total), the majority of this being emissions from stationary combustion (6,396 tCO<sub>2</sub>e, or 75% of total).

Compared to the previous reporting period, overall scope 1 and 2 emissions have decreased by 1.8% (153 tCO<sub>2</sub>e). This change is a result of scope 1 emissions decreasing by 2.7%, despite scope 2 emissions increasing slightly by 1.8%.

## 3.0 Descriptive information

The organisational and operational boundary included within or excluded from the GHG reporting is described in this section, with the key information outlined in Table 1 and a summary of the activities included or excluded, with justifications, are presented in Table 2.

*Table 1. Summary of key information*

Reporting Company Name	University of Wolverhampton
Consolidation approach	Operational Control
Latest reporting period	1 <sup>st</sup> August 2023 to 31 <sup>st</sup> July 2024
Base year period	Not selected
Base year type	Not selected
Base year recalculation threshold	Not selected

### 3.1 Company information

The University of Wolverhampton is incorporated in England and Wales whose registered location is at Wulfruna Street, Wolverhampton, WV1 1LY. The principal activity of the university is to provide higher education through undergraduate and postgraduate programmes across a wide range of subjects and to also engage in research to advance knowledge and innovation.

### 3.2 Organisational and operational boundary

An operational control approach is applied to define the GHG emissions for the university. This includes university and residential hall emissions across City Campus North, City Campus South, Telford Campus, Walsall Campus and various other individual buildings. The Wolverhampton Science Park, Skylon Court and Telford SB & SE are excluded as per the Universities Carbon Management Plan.

The operational boundary defines the scope of direct and indirect emissions for operations that fall within the organisational boundary of the organisation. To delineate direct and indirect emission sources, three “scopes” are defined for GHG accounting and reporting purposes as follows:

- Scope 1 emissions are direct emissions that occur from sources that are owned or controlled by the company. For example, emissions from combustion in owned or controlled boilers, furnaces, vehicles and emissions from chemical production in owned or controlled process equipment.
- Scope 2 emissions are indirect emissions from the generation of purchased or acquired electricity, steam, heat or cooling consumed by the reporting company. Scope 2 emissions are calculated in two ways: location-based and market-based methods:
  - Location-based refers to a method to quantify scope 2 GHG emissions based on average energy generation emission factors for defined locations, including local, subnational, or national boundaries.
  - Market-based refers to a method to quantify scope 2 GHG emissions based on GHG emissions emitted by the generators from which the reporter contractually purchases electricity bundled with instruments, or unbundled instruments on their own.
- Scope 3 emissions are all indirect emissions (not included in scope 2) that occur in the value chain of the reporting company, including both upstream and downstream emissions. There are 15 categories within scope 3. For the purposes of this report, only Scope 1 and 2 are being reported and therefore no Scope 3 emissions.

### 3.3 Reporting period

The current emissions are reported for the period 1<sup>st</sup> August 2023 to 31<sup>st</sup> July 2024. This reporting period aligns with the university's financial reporting.

### 3.4 Activities included or excluded

*Table 2. A summary of the university's activities that fall within each scope as per the organisational boundary.*

Scope	Included	Excluded	Exclusion Justification
Scope 1	Company owned vehicles	Refrigerant leakage	No data availability on refrigerant leakage
Scope 2 (location-based)	Purchased electricity from both managed contracts and landlord-controlled contracts	None	Not applicable
Scope 2 (market-based)	Company owned electric vehicles	None	Not applicable

\* The scopes are defined according to the GHG Protocol, A Corporate Accounting and Reporting Standard (revised edition) and the GHG Protocol Scope 2 Guidance

## 4.0 Greenhouse gas emissions

### 4.1 GHG emissions by scope

The GHG emissions are presented in this section independent of any GHG trades such as sales, purchases, transfers, or banking of allowances. The scope 1 and 2 GHG emissions for the university are summarised in Table 3. A further breakdown of GHG emissions is provided in Table 4 and these emissions are normalised against key university metrics in Table 5.

*Table 3. GHG emissions (tCO<sub>2</sub>e) summarised by scope*

Emission sources	2021/22	2022/23	2023/24
Scope 1	7,419.7	6,885.8	6,700.9
Scope 2 (location-based)	1,359.8	1,780.2	1,811.8
<b>Total emissions for scopes 1 and 2 (location-based)</b>	<b>8,779.5</b>	<b>8,666.0</b>	<b>8,512.7</b>

*Table 4. GHG emissions disaggregated by source types (tCO<sub>2</sub>e)*

Emission sources	2021/22	2022/2023	2023/24
Direct emissions from stationary combustion	7,031.1	6,526.7	6,395.6
Direct emissions from mobile combustion	388.6	359.1	305.3
Direct Emissions from Process Sources	0.0	0.0	0.0
Direct Emissions from Fugitive Sources	0.0	0.0	0.0
Direct Emissions from Agricultural Sources	0.0	0.0	0.0
<b>Scope 1 Total</b>	<b>7,419.7</b>	<b>6,885.8</b>	<b>6,700.9</b>
Purchased electricity (location-based)	1,359.8	1,780.2	1,811.8
<b>Scope 2 (location-based) Total</b>	<b>1,359.8</b>	<b>1,780.2</b>	<b>1,811.8</b>
<b>Total emissions for scopes 1 and 2 (location-based)</b>	<b>8,779.5*</b>	<b>8,666.0*</b>	<b>8,512.7</b>

**NOTE:** Figures have been rounded to the nearest tonne.

\*Figures have been amended due to additional figures provided for previous year.

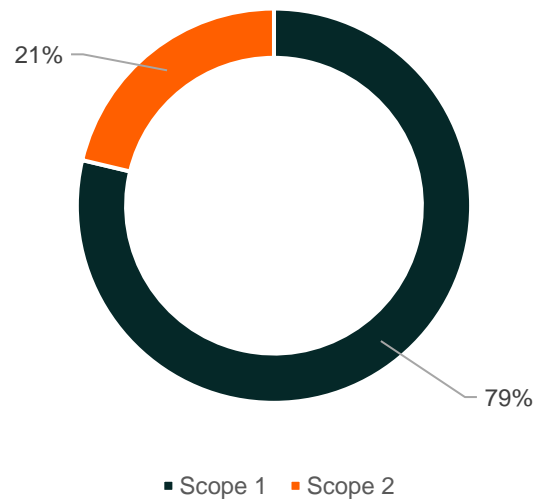


Figure 1. 2023/24 GHG emissions by scope as per the GHG Protocol

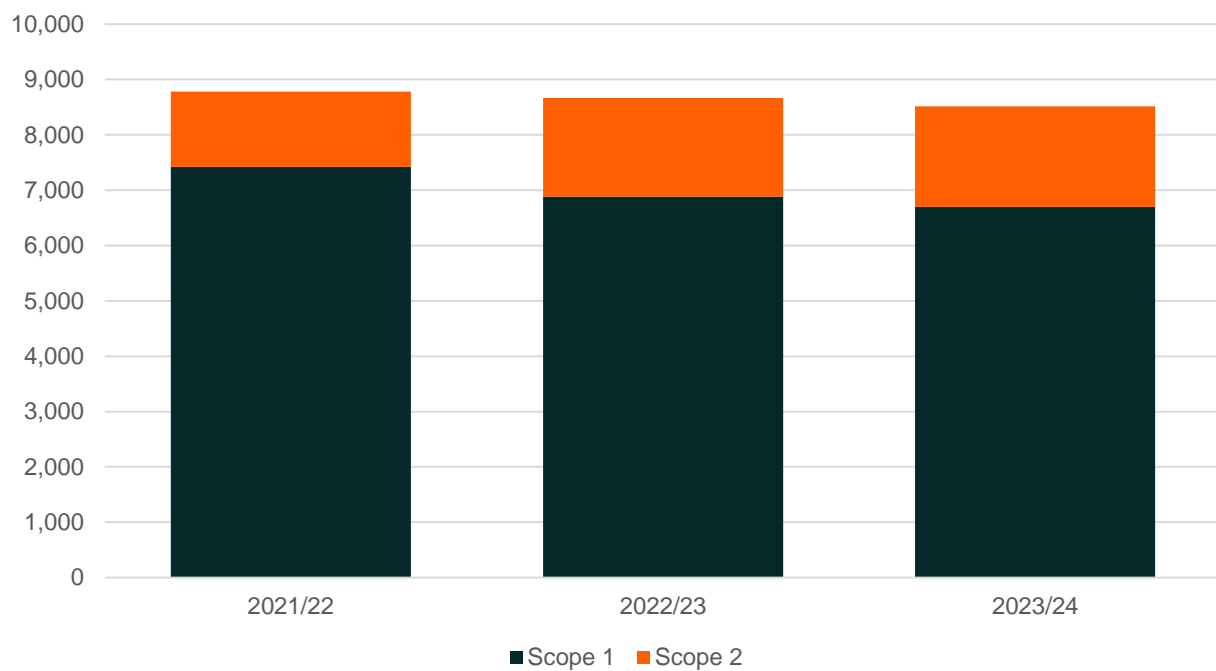


Figure 2. 2019/20, 2021/22 & 2022/23 GHG emissions by scope as per the GHG protocol

## 4.2 Intensity ratio

Three intensity ratios are reported for the university using location-based emissions and presented in Table 5; tonnes of CO<sub>2</sub>e per staff member, per student and per thousand square meters. These ratios

provide relative emission performance over time and comparison with other organisations. The unit values that were used in the calculation of the intensity ratios are displayed in Table 6 for reference.

Table 5. Intensity ratios for the current year and the previous two.

Calculation method	Intensity ratio description	2021/22	2022/23	2023/24
Location-based	tCO <sub>2</sub> e per staff member	3.991	3.466	3.869
Location-based	tCO <sub>2</sub> e per student	0.351	0.349	0.465
Location-based	tCO <sub>2</sub> e per thousand square meters	52.318	51.642	44.675

Table 6. Unit values used in the intensity ratio calculation

Unit type	2021/22	2022/23	2023/24
Staff member	2,200	2,500	2,200
Student	25,000	24,825	18,680
Thousand square meters	167.81	167.81	191.55

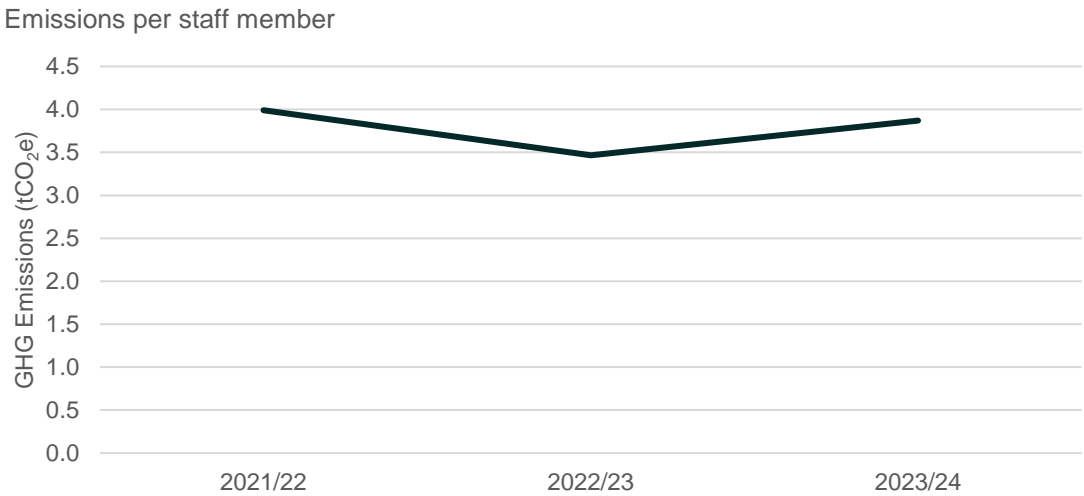


Figure 3. 2021/22, 22/23 & 23/24 intensity ratio metric per staff member

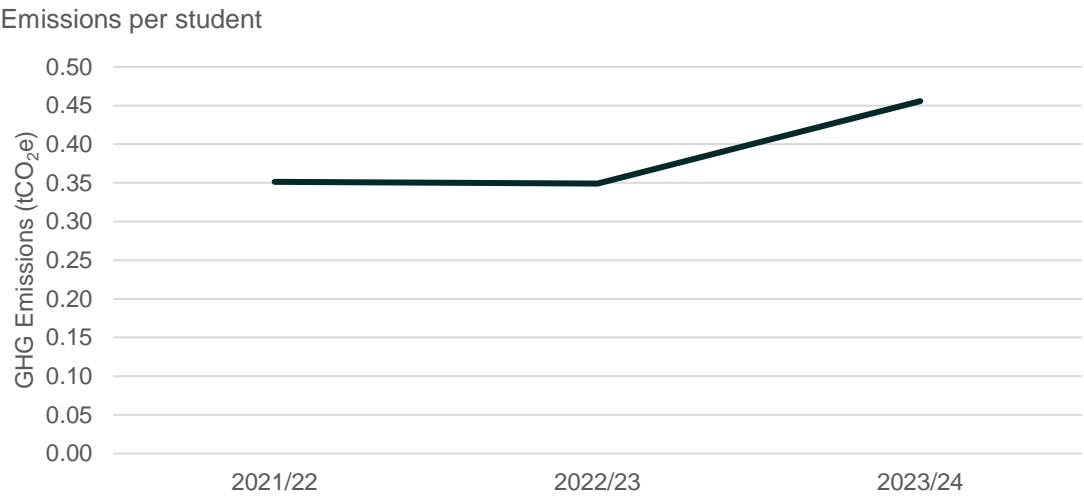


Figure 4. 2021/22, 22/23 & 23/24 intensity ratio metric per student

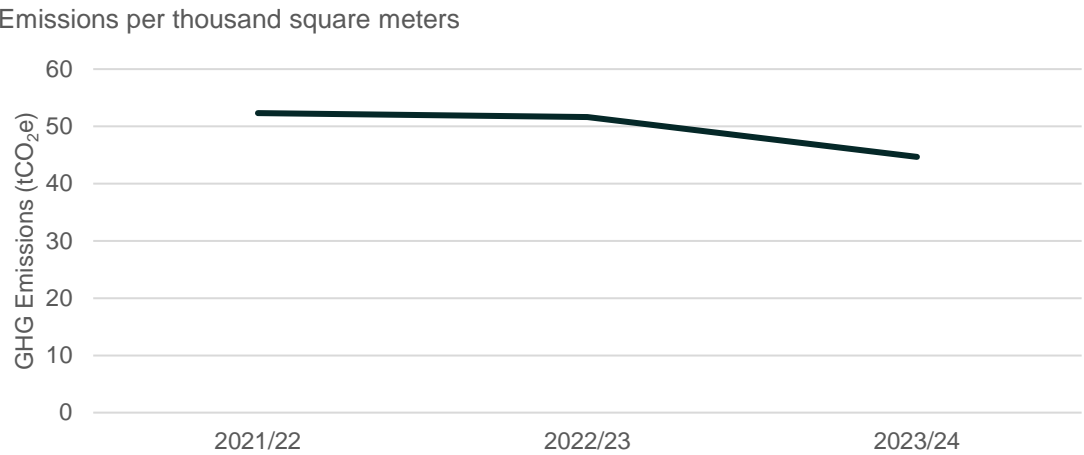


Figure 5. 2021/22, 22/23 & 23/24 intensity ratio metric per thousand square meter floor area



## 5.0 Analysis

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Scope 1 emissions has reduced by 184.9 tCO<sub>2</sub>e during the 2023/24 reporting period compared to the previous reporting period (2022/23), whilst scope 2 has had a slight increase in emissions by 31.6 tCO<sub>2</sub>e. The total scope 1 and 2 emissions have overall decreased by 153.3 tCO<sub>2</sub>e (1.8%) and total emissions have decreased over the last three reporting periods (Table 3).

Within scope 1 emissions, stationary combustion has decreased by 131.1 tCO<sub>2</sub>e and emissions from mobile combustion has decreased by 53.8 tCO<sub>2</sub>e compared to the previous reporting period (Table 4).

Regarding the intensity ratios over the last 3 years, whilst emissions have gone down each reporting year, total emissions per staff member and per student have increased, whilst the emissions per thousand square meter floor area have decreased. The changes in staff and student emission ratios are impacted by the decrease in staff and student numbers being proportionally bigger than the decrease in emissions. For emissions per square meter, total floor area has increased in conjunction with emission decreasing, therefore resulting in a notable reduction for this ratio.

## 6.0 Description of methodologies

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### 6.1 Quantification and methodology

The GHG Protocol Corporate Accounting and Reporting Standard (revised edition) and the GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard has been followed, with reference to the GHG Protocol Scope 3 Technical Guidance.

Emissions have been calculated based on various sources depending on the activity data and geographical location. Emissions associated with UK based energy use and activities are calculated using the 2023 UK Government GHG Conversion Factors for Company Reporting.

Electricity and gas consumption were based on invoice records, while fuel data and mileage figures were used to calculate energy and emissions from university vehicles. Where required, the use of estimation such as the direct comparison and pro rata techniques have been used where data was not available. Emissions associated with EV charging are excluded from this report. The consumption related from the EV chargers on one site was extrapolated for the rest of the chargers across the university. For Telford SB & SE, consumption was estimated using floor area and the CIBSE benchmark and associated emissions was then removed from the total purchased electricity for the university.

Scope 2 emissions are calculated using a location-based methodology. Location-based emissions are based on grid average emission factors for countries or regions, whereas the market-based emissions take into consideration contractual arrangements when purchasing electricity (e.g. certified renewable energy contracts).