Greenhouse Gas (GHG) Report 2023/24

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1.0 Contents

2.0 Executive summary

The greenhouse gas (GHG) emissions are presented for the University of Wolverhampton for scope 1 & 2 (location-based & market-based) and scope 3 emission sources for the reporting period (August to July for 2023/24).

The largest source of emissions this year is scope 3 (9,241.4 tCO_2e, or 52% of total location-based emissions), the majority of this being emissions from Category 1 Purchased Goods and Services (4,149.5 tCO_2e, or 23% of total). Scope 1 covers the next majority of the total emissions (6700.9 tCO_2e or 38%) where the use of the natural gas covers most of this accounting for 36% of the total location-based emissions.

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	1st August 2023 to 31st 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, Wolverhampton Science Park and various other individual buildings.

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 1st August 2023 to 31st 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 Company owned electric vehicles	None	Not applicable
Scope 2 (market-based)		None	Not applicable
Scope 3 emissions (upstream)			
Category 1: Purchased goods and services	• Accommodation services • Information services • Computer programming, consultancy and related services • Advertising and market research services • Accounting, bookkeeping and auditing services; tax consulting services	Taxes • Insurance excesses, charges, premiums and prepayments • Rental, lease and hire fees, including office space • Charges or fines • Cost of sub-contractors	Spend on taxes, insurance excesses, etc., is not directly related to a tangible good or service that has an associated carbon footprint. Spend associated with the cost of hire or rental of equipment is dictated by market forces, therefore is not an accurate representation of the carbon footprint.

Category 2: Capital goods	• Computer programming, consultancy and related services • Computer, electronic and optical products • Specialised construction works	None	Not applicable
Category 3: Fuel- and energy-related activities (not included in scope 1 or scope 2)	• Upstream emissions of purchased fuels • Upstream emissions of purchased electricity • Transmission & distribution losses • Generation of purchased electricity that is sold to end users	None	Not applicable
Category 4: Upstream transportation and distribution	None	All	Not a focus for the University currently
Category 5: Waste generated in operations	General Waste	None	Not applicable
Category 6: Business travel	Employee-owned vehicles, rail travel, flights globally and hotel stays. Well-to-tank emissions are included	None	Not applicable
Category 7: Employee commuting	None	All	Not a focus for the University currently
Category 8: Upstream leased assets	None	Refrigerant leakage (0.5% of scope 3 total)	The emissions associated with upstream leased assets are already included within scope 1 and 2. Fugitive emissions are estimated and relate to refrigerant leakage. These are excluded due to lack of information, expected immateriality and limited influence.
Other	Not applicable	Not applicable	Not applicable
Scope 3 emissions (downstream)			
Category 9: Downstream transportation and distribution	Not applicable	Not applicable	The company do not manufacture and sell any products that require transportation or distribution
Category 10: Processing of sold products	Not applicable	Not applicable	The company do not manufacture any products that require downstream processing
Category 11: Use of sold products	Not applicable	Not applicable	This category is not deemed relevant to the organisation. The emissions associated with

			the use of data centres are included within category 1, purchased goods and services or scope 1 or 2 emissions.
Category 12: End-of-life treatment of sold products	Not applicable	Not applicable	The organisation does not manufacture any products that require end of life treatment
Category 13: Downstream leased assets	Science Park, Telford SB & SE	Not applicable	Not applicable
Category 14: Franchises	Not applicable	Not applicable	The organisation does not have any franchises.
Category 15: Investments	Not applicable	Not applicable	The company does not have emissions associated with any investments not already included in the scope 1 & 2 emissions.
Other	Not applicable	Not applicable	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_2e) summarised by scope

Emission sources	2023/24
Scope 1	6,700.9
Scope 2 (location-based)	1.811.8
Scope 2 (market-based)	0.0
Scope 3	9,241.4
Total scopes 1, 2 and 3 (location-based)	**17,754.1**
Total scopes 1, 2 and 3 (market-based)	**15,942.3**

Table 4. GHG emissions disaggregated by source types (tCO_2e)

Emission sources	2023/24
Direct emissions from stationary combustion	6,395.6
Direct emissions from mobile combustion	305.3
Direct Emissions from Process Sources	0.0
Direct Emissions from Fugitive Sources	0.0
Direct Emissions from Agricultural Sources	0.0
Scope 1 Total	**6,700.9**
Purchased electricity (location-based)	1,811.8
Purchased electricity (market-based)	0.0
Scope 2 (location-based) Total	**1,811.8**
Scope 2 (market-based) Total	**0.0**
Scope 3: Upstream emissions:	
Category 1. Purchased goods & services	4,149.5
Category 2. Capital goods	1,053.3
Category 3. Fuel- & energy-related activities	1,652.9
Category 4. Upstream transportation & distribution	N/A
Category 5. Waste generated in operations	26.7
Category 6. Business travel	1,094.4
Category 7. Employee commuting (excluded homeworking)	N/A
Category 8: Upstream leased assets	N/A
Scope 3: Downstream emissions:	
Category 9: Downstream transportation & distribution	N/A
Category 10: Processing of sold products	N/A
Category 11: Use of sold products	N/A
Category 12: End-of-life treatment of sold products	N/A
Category 13: Downstream leased assets	1,264.7
Category 14: Franchises	N/A
Category 15: Investments	N/A
Scope 3 Total	**9,241.4**
Total scope 1, 2 & 3 emissions (location-based)	**17,754.1**
Total scope 1, 2 & 3 emissions (market-based)	**15,942.3**

NOTE: Figures may not sum due to rounding.

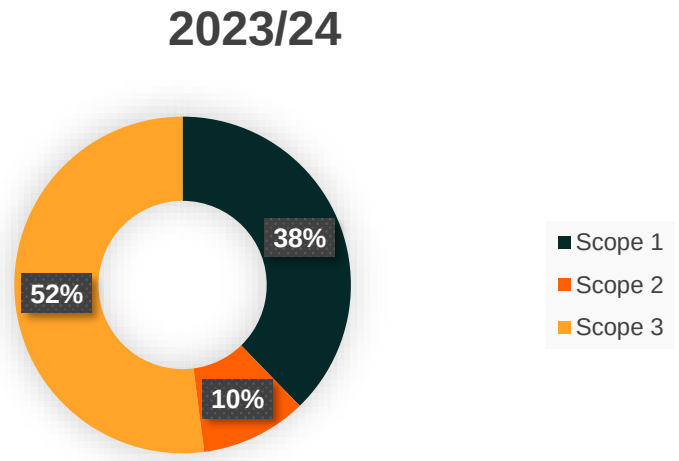

Figure 1. 2023/24 GHG emissions by scope as per the GHG Protocol

4.2 Intensity ratio

Three intensity ratios are reported for the university using both location-based and market-based emissions and presented in Table 5; tonnes of CO_2e 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	2023/24
Location-based	tCO_2e per staff member	8.070
Location-based	tCO_2e per student	0.950
Location-based	tCO_2e per thousand square meters	93.174
Market-based	tCO_2e per staff member	7.246
Market-based	tCO_2e per student	0.853
Market-based	tCO_2e per thousand square meters	83.665

Table 6. Unit values used in the intensity ratio calculation

Unit type	2023/24
Staff member	2,200
Student	18,680
Thousand square meters	191.55

5.0 Description of methodologies

5.1 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. The scope 3 emissions are further divided into the 15 categories defined by the GHG Protocol. A description of the methodologies, allocation methods, and assumptions used to calculate scope 3 emissions is included within the supporting documentation.

Scope 2 emissions are calculated using both a location-based and market-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).

Table 7. Summary of methodologies used in scope 3 calculations

Scope 3 category	GHG quantification method
1. Purchased goods and services	Spend-based method
2. Capital goods	Spend-based method
3. Fuel- and energy-related activities	Average-data method
4. Upstream transportation and distribution	*Not measured*
5. Waste generated in operations	Average-data method
6. Business travel	Distance-based method
7. Employee commuting	*Not measured*
8. Upstream leased assets	*Not measured*
9. Downstream transportation & distribution	*Not measured*
10. Processing of sold products	*Not measured*
11. Use of sold products	*Not measured*

12. End-of-life treatment of sold products	*Not measured*
13. Downstream leased assets	Invoices
14. Franchises	*Not measured*
15. Investments	*Not measured*