

# Carbon Performance Update for University of Wolverhampton

For the reporting period 1 August 2022 to 31 July 2023



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## Carbon Performance University of Wolverhampton

For the reporting period 01/08/2022 to 31/07/2023

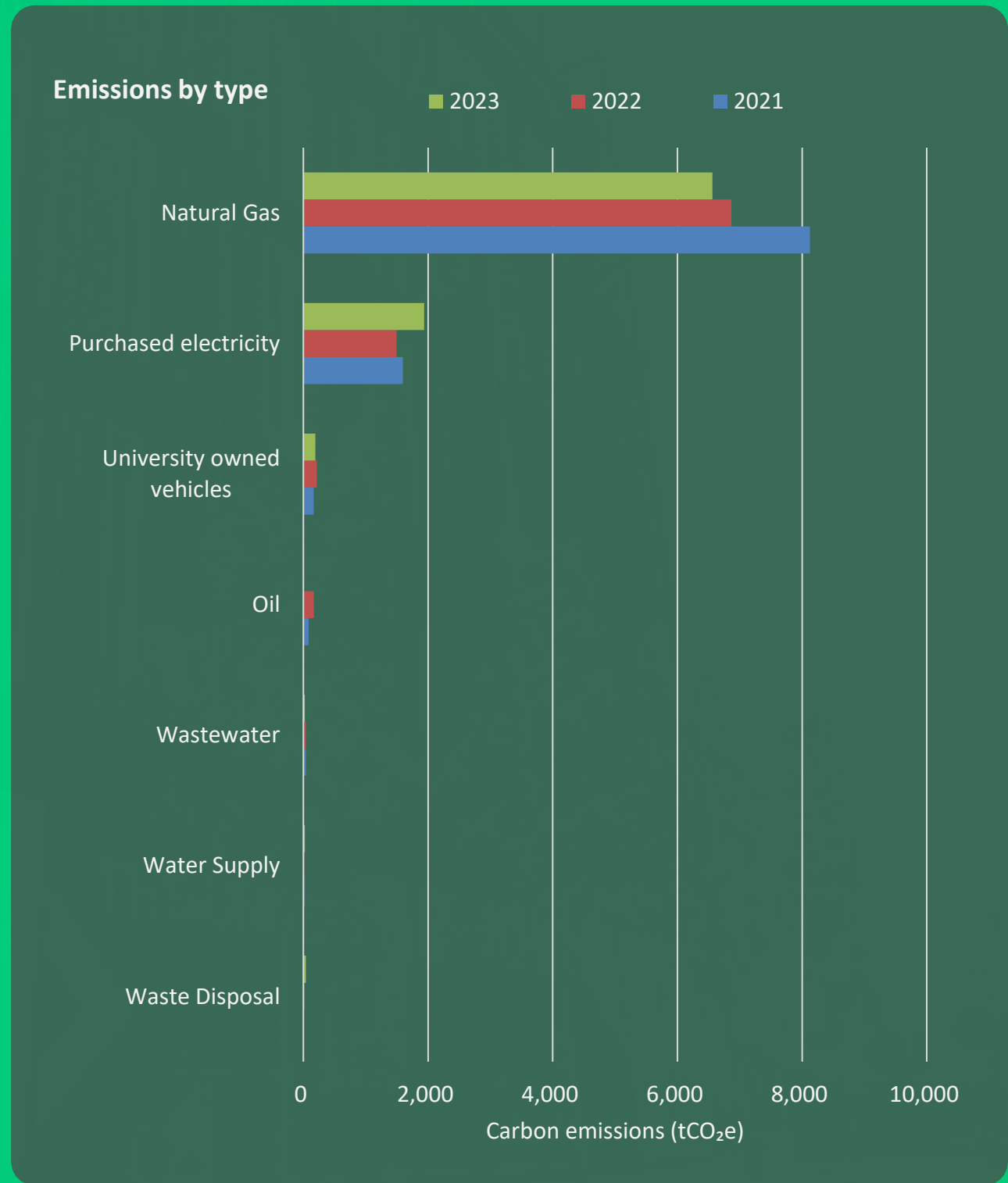
### Data Reviewed

The University of Wolverhampton has reviewed the data across the estate which has been broken down into the measured supplies in the graph opposite. This includes university buildings and student accommodation emissions across City Campus Wulfruna, City Campus Molineux, Springfield Campus, Telford Campus and Walsall Campus. The Wolverhampton Science Park and the Midlands Cyber Centre have been excluded as their emissions are reported separate

### Analysis

Overall greenhouse gas emissions in 2022/23 have reduced slightly this year by 52.1 tCO<sub>2</sub>e (1%). Scope 1 emissions reduced by 497.2 tCO<sub>2</sub>e (-7%) due to no oil use this year (-168.2 tCO<sub>2</sub>e, -100%), lower natural gas usage (-302.6 tCO<sub>2</sub>e, -4.4%) and reduced transportation in owned vehicles (-26.4 tCO<sub>2</sub>e, -12.1%). Despite these scope 1 reductions, much of this has been negated by an increase in scope 2 emissions of 441.4 tCO<sub>2</sub>e (+30%). Scope 2 emissions have increased due to greater electricity energy usage (+1,620,381 kWh or +20%) as the Combined Heat and Power (CHP) plant was down for maintenance for long periods. Scope 2 emissions have also increased because of an increase in average UK emissions per kWh of electricity by 7%.

Although the year-on-year reduction is modest this year, over 3 years the emissions have reduced by 1,259.5 tCO<sub>2</sub>e (-13%), from a total of 10,040 tCO<sub>2</sub>e in 2020/21. The reduction in gross emissions is also reflected in the intensity ratios based on floor area and staff numbers, although emissions per student have increased (table 3).



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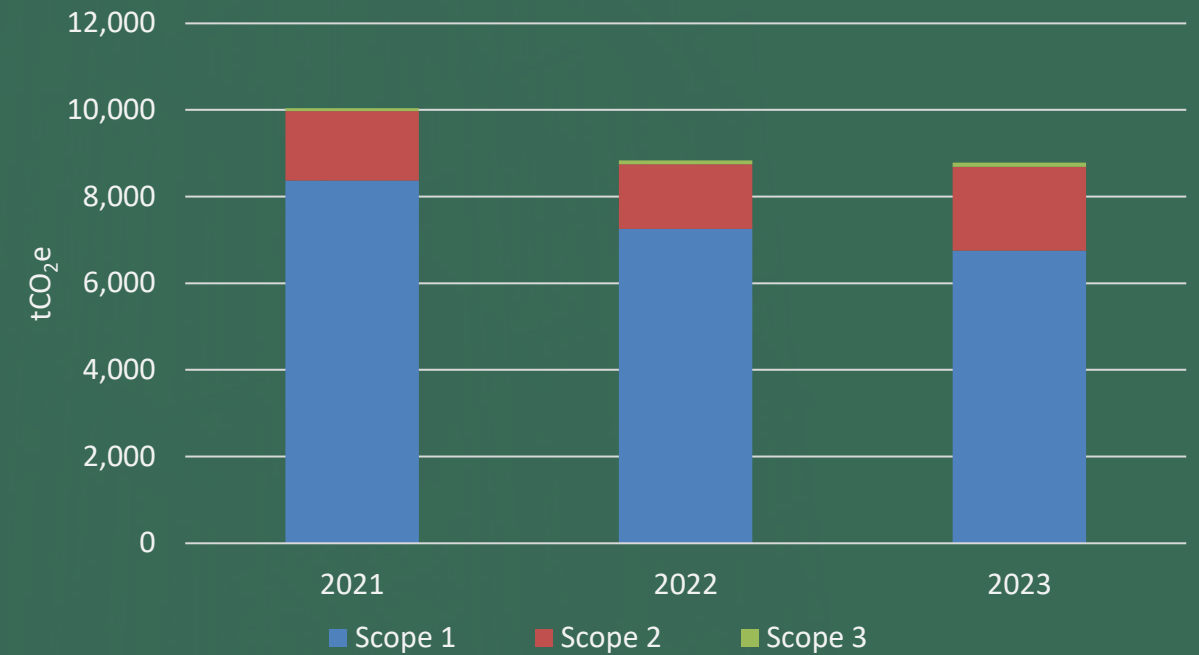
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### Scopes

GHG emissions are divided into three scopes to reflect the source of the emissions. Scope 1 are the direct emissions from assets owned or controlled by the university, which includes natural gas, oil and company owned vehicles (77% of total reported in 2022/23). Scope 2 are indirect emissions from purchased electricity (22% of total reported in 2022/23) and scope 3 are further indirect emissions that occur within the upstream and downstream value chain. Currently, scope 3 includes emissions associated with waste disposal, water supply and wastewater treatment.

While the full scope 3 value chain emissions has not been fully calculated currently (it can be around 80% of an organisation's emissions), the emissions reported reflect the areas that the University has most control over reducing and is therefore the priority for action. For example, this will include heat decarbonisation strategies for reducing scope 1 emissions associated with natural gas.

Annual emissions by scope for the Years Ending 2021, 2022 and 2023 (tCO<sub>2</sub>e)



Emission source	2020/21	2021/22	2022/23
<b>Scope 1</b>			
Gas	8,124.8	6,865.2	6,562.6
Oil	83.4	168.2	N/A
University owned vehicles	164.7	217.9	191.5
<b>Scope 1 Total</b>	<b>8,372.9</b>	<b>7,251.3</b>	<b>6,754.0</b>
<b>Scope 2</b>			
Purchased electricity (location-based)	1,597.5	1,495.5	1,937.0
<b>Scope 2 Total</b>	<b>1,597.5</b>	<b>1,495.5</b>	<b>1,937.0</b>
<b>Scope 3</b>			
Category 1: Purchased goods & services:			
Water supply	23.6	24.2	23.3
Category 5: Waste generated in operations:			
Wastewater	41.0	41.9	25.2
Waste disposal	5.3	20.0	41.3
<b>Scope 3 Total</b>	<b>206.0</b>	<b>62.0</b>	<b>66.5</b>
<b>Total gross emissions</b>	<b>10,040.3</b>	<b>8,832.9</b>	<b>8,780.8</b>

**Carbon Performance  
University of Wolverhampton**

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Energy and compliance specialists speak about kWh, scopes, tCO<sub>2</sub>e but what does all this mean?

When comparing the University versus its peers and using industry benchmarks (for electricity and heating only), we can see that the University is 16% lower per 1000 m<sup>2</sup> of space.

This may still not explain the number of emissions but if we consider estates of this type and that the University is 16% lower then this is a good sign that changes are being made compared with others.

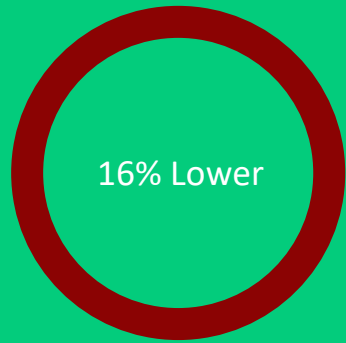
Let's think about trees. How many trees would we need to plant to remove the emissions consumed by the University from the atmosphere? One calculation suggests 1 tree will absorb 109kg of CO<sub>2</sub> over a 20-year growing cycle<sup>1</sup>, meaning 80,577 trees would need to be planted, reforesting an area the size of 128.9 km<sup>2</sup>.

With a Net Zero target set for 2030 then planting trees is not the only answer. The University is committed to looking at alternative opportunities to mobilise faster and remove the emissions from other sources.

# 1. Benchmark

The UoW is 16% lower per 1000 m<sup>2</sup> of floorspace compared with industry benchmarks.

Ref: CIBSE TM46



# 2. Trees

To remove 8,780.8 tCO<sub>2</sub>e from the atmosphere would mean planting 80,577 trees and take 20 years<sup>1</sup>



# 3. Net Zero Target

The University has committed to be Carbon Neutral by 2030 in its Vision 2030 and has signed up to the UN Universities Race to Net Zero by 2050



<sup>1</sup>Based on an average of 109kg CO<sub>2</sub> absorbed over a 20-year growth cycle

Source: <https://www.thetreeapp.org/business/checkout/trees/one-off-planting>