

Environmental Sustainability Annual Performance Review 2022-23

19th December 2023

Report by Richard Smith, Head of Environmental Sustainability (ES)

1. Executive summary

The year has once more seen mixed progress at the University. Achievements include:

- Completion and approval of the new ES Strategy “Our Sustainable Future”.
- Commencement of a programme of works to decarbonise the University, including the replacement of gas boilers with air source heat pumps in some of our buildings.
- Considerable progress on entering into a “corporate Power Purchase Agreement” which will provide zero carbon electricity to meet more than half our needs by Q2 2025.
- Good progress on our target to limit travel emissions to no more than 50% of pre-COVID levels.
- Growth in the number of labs which have been certified under the “LEAF” certification scheme.
- Launch of a new and much improved Environmental Sustainability website
- A rise from 68th to 56th in the highly visible People & Planet league table
- Winner in the Climate Action category of the 2023 Green Gown Awards.

However, we continue to fall behind on the carbon reduction pathway required to achieve our 2038 zero carbon target. Our emissions only fell by 2% in 2022 against 2021. We now require an 19% annual reduction to stay within our science-based “carbon budget” as set by the Tyndall Centre in line with Greater Manchester’s climate ambitions.

For the first time, this report is structured around our key targets as summarised in the ES strategy. It does not capture activity in Research, Teaching & Learning and Faculties as this is recorded elsewhere.

2. Zero Carbon: Target: Achieve zero carbon emissions in our operations by 2038 and without exceeding our “carbon budget”

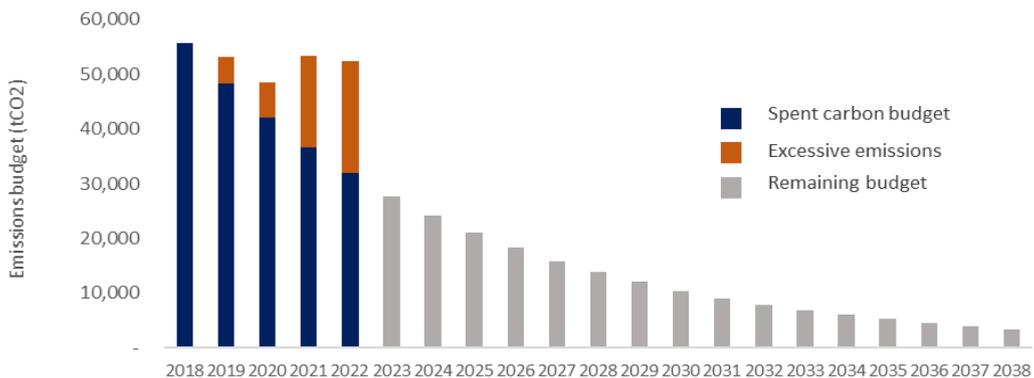


Fig 1. University of Manchester Scope 1&2 carbon emissions against carbon budget, 2018-2023

The University reports the direct carbon emissions from its operations (energy usage in buildings and fleet vehicles) in calendar years. In 2022 our direct “Scope 1&2” carbon emissions were 52,130 tonnes CO₂e (carbon dioxide equivalent), a fall of just 2.2% on 2021. The drop was small as our gas consumption continued to grow: installation of the two new “combined heat and power” plants in Shuster and Williamson in 2022 led to a rise of 7% in gas consumption compared to 2021.

We are continuing to fall further behind our annual carbon reduction pathway of 13% and our 2022 footprint is only 6% lower than the 2018 baseline. Unlike in previous years, our reduction pathway was hindered by the carbon in the energy from the National Grid. It rose by 7% in 2022 due to the increase in fossil fuels usage sparked by the Ukraine crisis. This meant any carbon savings achieved elsewhere were negated by the increased carbon intensity of our electricity. While the emissions trend for the Grid is expected to be downwards, this highlights the risk of relying on Grid decarbonisation to contribute to our targets. We need to take control of our pathway by acting ourselves to ensure success.

Half-yearly data for 2023 shows a 3% decrease in total emissions vs the same period in 2022. Energy consumption continues to reduce due to the North Campus exit. By the end of Q2 2023, there was a 34% reduction in electricity use and 37% reduction in natural gas across North Campus compared to the previous year. The full realisation of energy and carbon benefits relating to the decant will be seen this academic year but will be insufficient to make up the lost ground.

Building decarbonisation projects on campus began in earnest in 2023, based on a strategy of aligning with long-term maintenance (LTM) priorities. Work on Dalton Ellis, including the installation of an air source heat pump (ASHP), is expected to save 180 tCO₂e, a 71% reduction on the building's previous emissions. Booth Street East's existing gas heating is also being replaced with a full electric ASHP solution plus building fabric upgrades to improve air tightness; its annual carbon reduction could reach 152 tCO₂e, a 73% drop on existing annual emissions. Other buildings cited for decarbonisation and energy efficiency projects include Zochonis, Simon and HBS, subject to LTM funding approval.

Spending the annual zero carbon funding got off to a slow start, but future plans are soon likely to overtake available budget. It was established in 2022 that the estimated cost of achieving the 2038/carbon budget target is £638m, with the majority needed this decade. Although the allocated 10-year funding for "zero carbon works" has risen slightly to £156m to account for inflation, the estimated cost of achieving the target will have risen too. The Finance Director has commissioned QMPF, corporate financial advisors, to advise on options for addressing the £500m+ funding gap.

Our science-based carbon budget of 450,000 tonnes CO₂e is likely to be blown in 2026/27 unless action increases quickly. Others with the same target, including Manchester City Council, face the same challenge, but this still represents a reputational risk and means our potential carbon "overshoot" will have to be compensated for elsewhere in the city if Manchester is to stay within its own carbon budget.

3. Energy: Target: Reduce our consumption by a total of 10% against a 2018 baseline

Our total energy consumption including electricity, gas and oil usage for 22/23 was 270 MWh, an 2.3% reduction vs 21/22. As above, electricity use fell due to the North Campus decant. Electricity consumption was further reduced by the switch on of the new combined heat and power (CHP) plants for Schuster and Williamson. However, the CHPs led to a 7% increase in gas consumption, and unlike the National Grid, which in the long term will reduce its carbon intensity, the carbon associated with the burning of gas will not diminish. The CHPs have not benefitted us environmentally.

The rise in gas consumption, the temporary dual running of MECD and North Campus and the addition of Royce, CTF and MIB has resulted in a 10% increase in energy consumption against the 2018 baseline. The 10% energy reduction target is therefore highly challenging. It remains important, however; globally we need to consume less energy, and doing so will also reduce cost.

4. Travel: Target: Aim to limit emissions from air travel to 50% of our 2018/19 level

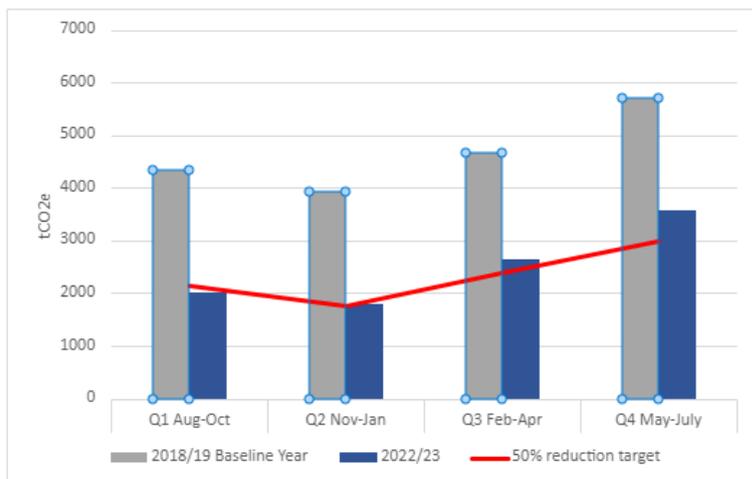


Fig 2: University of Manchester staff aviation emissions, 2022/23

This ambitious, high-profile target was nearly achieved in its first year. We reduced our aviation emissions by 46%, just below target. The number of air miles travelled fell by 50%, meaning that were it not for the increase in the carbon intensity of air travel (due to reduced passenger numbers during COVID), we would have achieved the emissions reduction target. However, as the chart above shows, the volume of air travel crept up over the last two quarters and we must be vigilant if we are to avoid air travel returning to pre-COVID levels. Obviously, this is a target which needs to be continually achieved each year; it would not have been “completed” if we had achieved it in 2022/23.

5. Waste: Target: Recycle 45% of the waste produced as a result of campus operations.

In 2022/23 we generated 2427 tonnes of waste (excluding construction waste), a slight drop of 1.3% on 21/22. We recycled about 33% of that – up 1.5% on the previous year – and diverted 99% from landfill. The roll out of food waste recycling in all staff kitchens and academic buildings contributed to the small recycling increase. Our “true” recycling rate may be higher than 33%, but Manchester City Council, who collect residences’ recycling, do not provide us with any data. Rectifying this would involve a change in contractor with additional cost; this was not supported when proposed earlier this year.

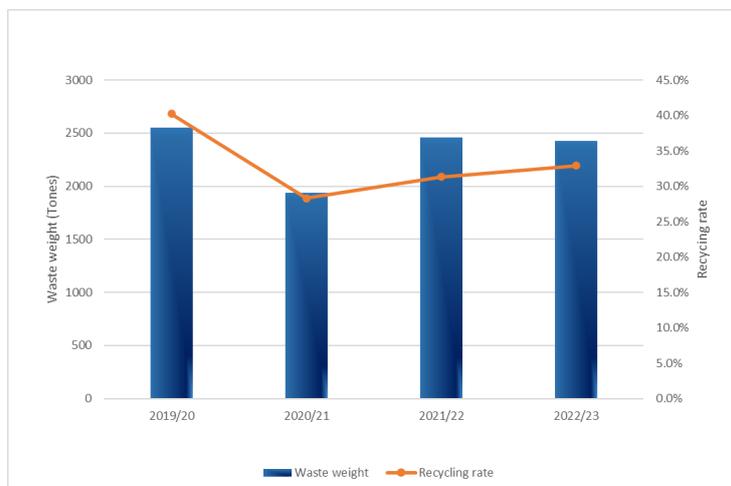


Fig 3: University of Manchester waste production and recycling rates, 2019/20-2022/23

Several “re-use” schemes are available to staff to re-home equipment, including the external “Warp It” and “UniGreen” schemes, plus our own successful internal furniture and stationery store. However, the external outlets are not well known and there is some resistance to their use, mainly around risk.

Our recycling target of 45% appears modest and has been challenged. However, the UK domestic recycling rate is 44%, and typically, waste management and positive behaviours are easier to control and influence in a domestic setting. Sustained, high profile comms will be required to shift the current recycling rate (see 11. Engagement below).

6. Procurement: Target: Develop appropriate Scope 3 emissions targets in relation to the procurement supply chain and measure estimated emissions against these targets.

Scope 3 emissions are our indirect emissions in our value chain - including all the goods and services we pay for such as staff travel - and also emissions resulting from University activity, regardless of whether we pay for them, including staff and student commuter travel. Last year we estimated our Scope 3 footprint for the first time, using data from 2018/19. The estimate was c350,000 tCO₂e, compared to c52,000 tCO₂e for Scopes 1&2 (see section 2 above). The largest elements of our Scope 3 footprint related to purchased goods and services, investments and international student travel. We are currently analysing the 2022/23 Scope 3 data and this will be completed in January 2024.

This year saw the approval of our first Scope 3 target: net zero by 2050. This is not an ambitious target as it aligns with the UK’s legal requirement on net zero, but it is significant as it acknowledges the impact of our Scope 3 emissions and the need to address them.

Our [Sustainable Procurement Action Plan](#) was approved in 2022/23 which sets out plans for supplier engagement as well as other actions in this area.

We were one of five universities participating in a pilot in 2022/23 to work with our suppliers to obtain more accurate Scope 3 data for our supply chain. This has enabled us to get carbon data directly from almost 100 of our suppliers instead of estimating carbon based on spend. This “Net Zero Carbon Supplier Tool” is now being rolled out across the sector, which will allow us to reach more suppliers and gain more accurate data. Due to the need to improve data accuracy, we have not yet set targets for the procurement supply chain but we are aiming to do so during 2023/24 and a Responsible Procurement Group has been set-up to support this process. We continue to share our progress in this area and work with other HEIs as this is a sector-wide issue with many suppliers in common.

The Scope 3 carbon associated with international students remains significant and problematic and any increase in student numbers will work against savings made elsewhere.

7. Training: Provide staff with environmental training, with senior staff prioritised.

Progress on this target is limited, mainly due to staff resources. SLT training was de-prioritised due to the impact of the cyber incident. It was confirmed that the preference is for SLT training to be delivered in-house and have a short duration.

Some progress has been made on developing an online, 30-40 minute “Introduction to Environmental Sustainability” training course; however, work has been slower than hoped due to lack of time.

8. Biodiversity: Achieve 20% biodiversity net gain on all major construction and refurbishment projects; increase the quality and quantity of existing green space, achieving a 10% increase in urban green space, from 2018 levels.

The Nature Action Group, comprising PS and academic staff, has contributed to the development of a draft action plan to deliver the “Valuing Nature” commitments set out in the ES Strategy. The appointment of a Future Leaders Graduate to the ES Team in Nov 2023 will assist in finalising the plan. Live projects in development to increase the quantity of green space on campus include the Martin Harris entrance and the Old Quad, which is estimated to deliver 80% biodiversity net gain. The

Landscaping Team have eliminated the use of peat-based compost, planted trees and wildlife hedges with saplings provided by the late Queen's Green Canopy Project, increased the number of wildflower areas on campus and took part in successful No Mow May trials, allowing selected lawns across campus to grow freely for a month to provide a much-needed boost for wild plants and wildlife. It is hoped these areas can be expanded.

In December 2022, our University was announced as a founding member of a new Nature Positive Universities Alliance at the UN Biodiversity Conference. The initiative aligns with our strategy and includes taking action to reduce biodiversity impacts and protect and restore species and ecosystems.

9. Laboratories: All labs to achieve a LEAF award to a minimum of Bronze and adopt a 6R "responsible plastics protocol" by August 2025. 25% of labs to achieve minimum of LEAF Silver.

LEAF is a certification scheme which aims to reduce the waste and energy associated with lab operations and potentially save money. In 22/23, the number of labs with LEAF accreditation was about 5% of our estimated 1400+ labs. At our current speed, we are likely to fall far short of the above target and are heavily reliant on volunteers. A briefing note is being prepared which will detail the predicted financial savings from increased LEAF engagement, which promotes energy efficiency and reduced purchasing. It is hoped that these savings will negate the cost of additional resource required to achieve the LEAF target. The VP for Social Responsibility will be raising this matter with Faculties.

10. Endowment Investment: See appendix, page7, for progress against the targets.

The absolute emissions of our investment portfolio has fallen by 10.5% on the previous year. This has been driven by falls in the absolute emissions of the Ruffer Multi-Asset Portfolio, The Mercer Short Duration Bond Fund and The Mercer Passive Sustainable Global Equity Fund. The WACI measure for the equity investments has increased from 69.4 to 87.6 tco2/£revenue due to an increase in WACI from the equity holdings within the Ruffer portfolio and the Ninety One active equity fund. WACI within the fixed income investments has fallen from 117.3 to 105.4 tco2/£revenue and progress is ahead of target. Information is not yet available for the two property-related targets. Despite these issues, Mercer, who advise us on investment portfolio in relation to climate change, state we are on track to achieve our short term (2027) targets.

11. Staff and student engagement

Engagement is a cross-cutting theme of the new ES strategy but does not as yet have any metrics attached to it. Post-COVID, 2022/23 saw an increase in engagement. Our student volunteer programme, Sustainability Champions, which is part of Stellify, saw 20 students run events, social media and engagement activity for their peers. We are aiming to increase participation in this programme for 2023/24 which will see an increase in events and engagement across campus.

A new sustainability section was developed over the summer and added to the main corporate University website, leading to an increase in visitors compared to the previous online offering. The new content has been written to ensure that evidence required for the Times Higher Impact Rankings and the People & Planet University League can be easily found by external assessors.

We believe our current engagement programme, 50,000 Actions, is no longer fit for purpose due to being built on now outdated software. We will research other engagement apps and test these with students and staff, with the aim of launching a new engagement programme in September 2024.

2023/24 will also see a review of our ES comms, supported by Communications and Marketing and an external agency. This will form the framework of a new ES comms plan and will shape a series of events and comms to provide guidance to staff and students on their role in delivering the ES strategy.

Appendix:

Summary of progress against headline commitments from the ES Strategy.

Priority	Commitments	Target Date	Progress for 22/23	
Zero Carbon	Achieve zero carbon emissions in our operations (Scopes 1&2) by 2038 and without exceeding our "carbon budget"	Aug 2038, with carbon budget monitored annually	Red	Scope 1 & 2 total emissions for 2022 were 52 kilotonnes tonnes CO ₂ e, which exceeded the carbon budget target for that year by 21.0 kilotonnes (equivalent to 67% excess). From 2018 to 2022, a total 53% of the carbon budget was spent.
Energy	Reduce our energy consumption by a total of 10% against a 2018 baseline, achieved by joint working across the University led by The Directorate of Estates & Facilities and IT Services.	Aug-25	Red	Total energy consumption for 22/23 was 270MWh, an 2.3% reduction vs 21/22 but a rise of 10% against 2018 baseline.
Travel	Aim to limit annual emissions from air travel to 50% of our 2018/19 level (pre the Covid-19 pandemic) with immediate effect	Aug-24	Amber	We reduced our aviation emissions by 46%.
Waste	Recycle 45% of the waste produced as a result of campus operations	Aug-25	Red	We recycled 33% of the waste we produced.
Procurement	Develop appropriate Scope 3 emissions targets in relation to the procurement supply chain and measure estimated emissions against these targets	Develop target: Dec 2023; measure emissions Aug 2024	Amber	We set the Scope 3 emissions target of net zero by 2050 in July 2023.
Training	Provide staff with environmental training, with senior staff prioritised.	SLT trained by Aug 24, all staff trained by Aug 26	Red	Sustainability training course content is still in pre-development
Biodiversity	Achieve 20% biodiversity net gain on all major construction and refurbishment projects.	Aug-25	Amber	The biodiversity net gain requirement has been/ will be stated in major construction and refurbishment projects
	Increase the quality and quantity of existing green space, achieving a 10% increase in urban green space, from 2018 levels.	Aug-28	Amber	Assessment of the latest quality and quantity of the campus green space to be arranged
Laboratories	Require all laboratories to achieve a LEAF award to a minimum of Bronze and adopt a 6R "responsible plastic protocol" by August 2025. 25% of labs to achieve minimum of LEAF silver.	Aug-25	Red	About 5% of our labs have been LEAF accredited

Investment	Reach net zero on investment portfolio	Aug-38	Blue	The absolute emissions of our investment portfolio was 5144tCO ₂ e (down from 5750tCO ₂ e) on 31 July 2023. Please note the latter figure has been restated following revisions to the carbon data for the Mercer funds)/
	Reach 100% renewable energy use within the endowment investment property portfolio	Aug-27	Amber	Not yet available for 22/23. Previous year: 64%.
	Reduce weighted average carbon intensity of public equity holdings by at least 50% against 2019 baseline.	Aug-27	Amber	The University has reduced the weighted average carbon intensity (WACI) in the equity portfolio by 47% relative to 2019 position. This is a rise in WACI compared to last year's reduction of 55%. Mercer state we are on track.
	Reduce carbon intensity within the investment grade credit allocation by 40%	Aug-27	Blue	The University's investment grade credit portfolio has a WACI which is 44% lower than the 2019 baseline. This is a rise in WACI compared to last year's reduction of 52%. Mercer state we are on track.
	Reduce energy consumption within the investment property portfolio by 10%	Aug-27	Amber	Not yet available for 22/23. Previous year: 8% reduction against 2021 baseline.