

# Environmental Sustainability Annual Performance Review 2021-22

6<sup>th</sup> December 2022

Report by Richard Smith, Head of Environmental Sustainability

## 1. Executive summary

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

- Completing the first iteration of our “Zero Carbon Masterplan”, outlining the actions and funding required to achieve our “zero carbon 2038” target
- Securing funding of £11.4m for “essential works” in 21/22 towards the zero carbon target, with an expectation of an additional ~£125m in the next nine years, subject to Board approval
- 37% reduction in the weighted average carbon intensity of our public equity holdings, exceeding the target of 30%
- Completing the first estimate of our “Scope 3” indirect carbon footprint
- Securing approval of an ambitious and sector-leading travel emissions reduction target
- Near completion of a new Environmental Sustainability (ES) strategy
- Receiving a nomination for the prestigious “Earthshot” award for our work on Living Labs and the 50,000 Actions staff and student engagement campaign
- Rising from 81<sup>st</sup> to 26<sup>th</sup> in the “Climate Action” section of the THE Impact Rankings due to our purchase of “REGO”-backed renewable electricity from January 2021
- Preparing to enter a “Power Purchase Agreement” in 2023, which will enable us to buy large volumes of zero carbon electricity from sources created specifically for our use.

However, for the first time since we adopted the zero carbon 2038 target, our direct carbon emissions rose in 2021 and are static in 2022. There are understandable reasons for this, explained below, but regardless, it means we must reduce emissions faster and deeper than ever if we are to stay within our “carbon budget” set by the Tyndall Centre in line with Greater Manchester’s climate ambitions.

This report presents key *operational* environmental activity, with a focus on work of the ES team. It does not capture aspects relating to Research, Teaching & Learning and the Faculties, all of which have made significant progress on environmental matters in 21/22 and are covered elsewhere.

## 2. The University’s direct carbon emissions

The University reports the direct carbon emissions from its operations (energy usage in buildings and fleet vehicles) in calendar years. In 2021 our carbon emissions were 52,835 tonnes CO<sub>2</sub>e (carbon dioxide equivalent), a rise of 13% on 2020 and only a fraction lower than 2019. There are clear reasons for the rise. First, the need for increased ventilation meant an increase in gas consumption due to additional heating and the mechanical air flow system’s use of gas. Secondly, with MECD opening, the estate grew significantly as much of North Campus was still open. Energy demand grew further with the addition of three new buildings, leading to a 19% rise in gas consumption compared to 2020. The emissions increase would have been worse were it not for the continued decarbonisation of the National Grid, which meant our electricity emissions fell by 19% despite our consumption falling by just 2.5%.

Half-yearly data for 2022 shows energy consumption similar to 2021. The closure of North Campus is likely to result in falling energy use and associated emissions. Nonetheless, we are continuing to fall further behind our annual carbon reduction pathway of 13% and our 2021 footprint is only 5% below the 2018 baseline. This has consequences for our “carbon budget”. The budget is our share of the total emissions which can be emitted in Manchester if it is to play its part in limiting the global average temperature rise to 1.5 degrees. The Tyndall report states the University can emit only 443,000 tonnes CO<sub>2</sub> from 2018 onwards if we are to stay within our budget. If we exceed this figure, steeper emissions cuts will have to be made by others as we will have emitted more than our allocated share. If emissions stay at their current level, it is likely that we will blow our carbon budget by around 2026.

### 3. The Zero Carbon Masterplan (ZCM)

The ZCM is an attempt to plan how to decrease the University’s direct emissions to zero by 2038 and within the carbon budget. Co-created by Siemens and the University, it describes what actions need to be taken when, and critically, how much they will cost. The image below summarises the proposed actions, timeline and impact they will have on the carbon budget.

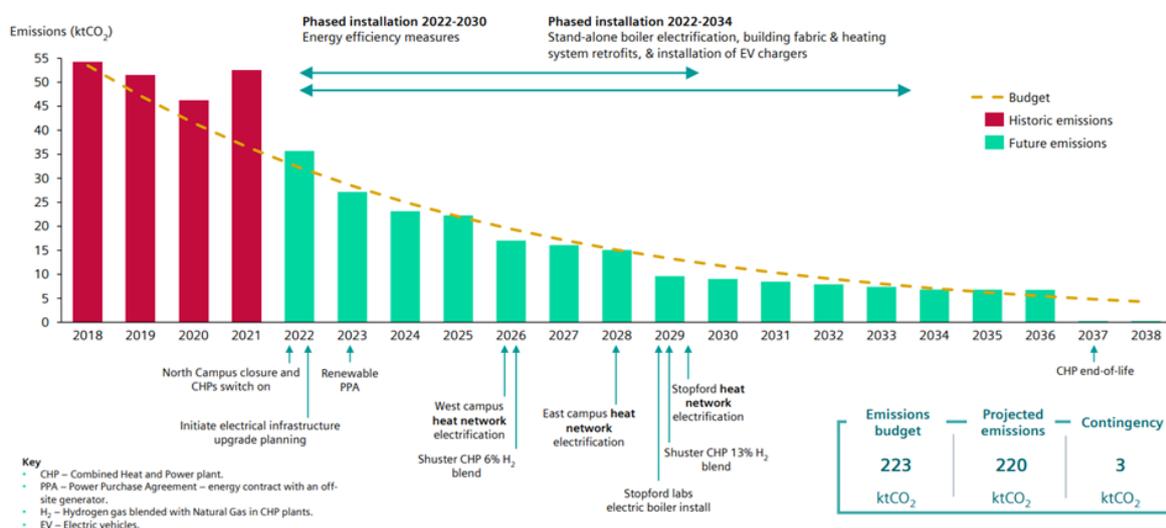


Fig 1. UoM Zero Carbon Masterplan: summary of actions required by date

The cheapest pathway indicated by Siemens still requires ~£640m capex by 2038. To begin funding the ZCM, a request for approximately £136m was presented to the Board at their strategy day and was subsequently approved by Finance Committee as part of the Capital Budget. The money is for energy efficiency projects such as the installation of low energy lighting, upgrading building management systems and improving the efficiency of buildings when they are largely unoccupied. The projects have the added benefit of saving the University money once they have paid back their original cost, which is timely given the current energy crisis. These “essential works” are to align with Long-Term Maintenance funding to ensure repair work is done with zero carbon in mind.

The team responsible for delivering this work in Estates & Facilities is currently finalising plans for how the essential works will be managed and work should start in early 2023. However, as above, any delay impacts on our remaining carbon budget, requiring us to take more intense cuts to make up for the emitted carbon. The table in the bottom right-hand corner of Fig 1 above shows the very small margin for delay if we seek to stay within the carbon budget. Immediate action is required alongside the development of a pipeline of future projects which will ensure the funding is spent on time, tackling the most carbon-intensive activities. Once the pipeline is drafted, early release of future funding may be required to make up for lost time and emitted carbon.

Two current projects will hopefully kickstart our decarbonised campus. The Pankhurst building is designed to run on air source heat pumps, albeit with gas boilers as a back-up; we do not yet know how much they will be needed. More ambitiously, Booth Street East will be converted to a fully electric heating system. Both projects will be invaluable in informing future decarbonisation works.

The £140m allocated to zero carbon essential works is sector leading but still far short of the estimated £640m required to achieve full decarbonisation. We will continue to seek external funding from sources such as the Public Sector Decarbonisation Scheme (PSDS) (from which we were recently awarded £850k to spend on Booth Street East as described above) to supplement internal resource; however, we cannot rely on the hope of external grants such as PSDS. The funding of our carbon targets must be continually re-examined to ensure we achieve our goal.

#### 4. “Scope 3” emissions

Carbon emissions fall into three groups or “scopes”. Scope 1 refers to the emissions arising from the direct burning of fossil fuels during operational activity such as gas in heating and fuel in fleet vehicles. Scope 2 refers to emissions from the use of purchased electricity, where carbon is emitted as a result of operational activity but not on site. Scopes 1 and 2 are both “direct” sources of emissions and are considered within an organisation’s operational control. Our zero carbon 2038 target refers to our Scope 1 and 2 emissions only.

Scope 3 emissions are those produced by everything else in an organisation’s value chain, from all procurement activity to business and commuter travel and investments. Until now, the University has only had limited information its Scope 3 footprint, based on easily sourced data such as business travel. The ES Team has recently worked with environmental consultancy Eco-Act and various stakeholders across the University to create an estimate of our Scope 3 footprint for 2018/19, the last non-COVID year for which data is available. This, alongside our well-established Scopes 1&2 footprint, allows us to see the scale of our impact for the first time.

### July 2018-August 2019 Scope 3 Emissions

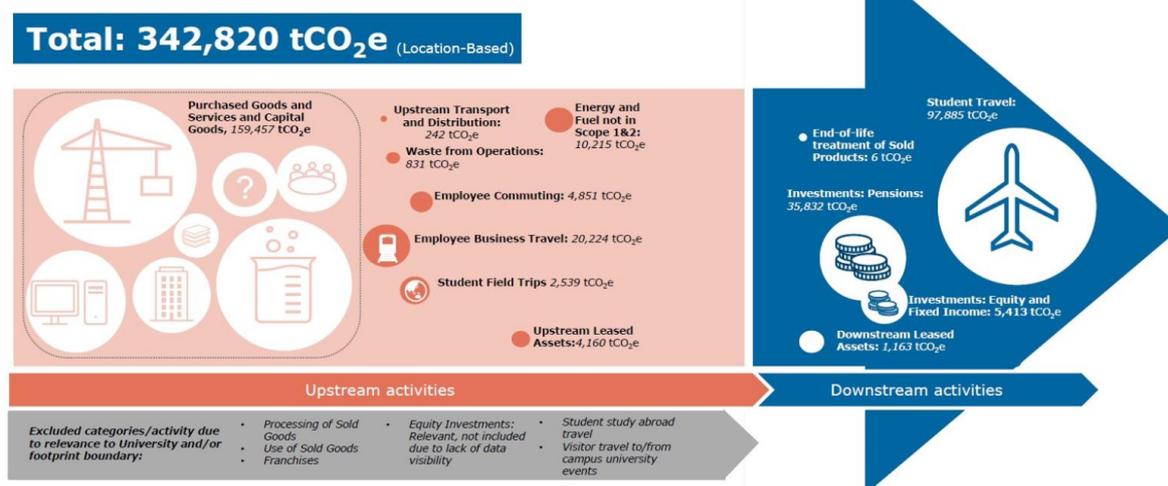


Fig 2. Estimated UoM Scope 3 Emissions 2018/19

As above, our Scope 1&2 emissions are approximately 53,000 tonnes CO<sub>2</sub>e, so when combined, our total Scopes 1-3 footprint is around 400,000 tonnes CO<sub>2</sub>e, of which Scope 3 is 87%. This is a best estimate based on available data and the standard methodology for calculating Scope 3. This often involves calculating carbon based on the “spend” in each category rather than by actual carbon data provided by suppliers, leading to a potential wide margin of error. That said, it gives us a much clearer

picture than previously and a base from which to increase accuracy. It suggests that more than 80% of our Scope 3 footprint comes from “Purchased Goods and Services”, student travel and pension investments. It is not unusual for Scope 3 emissions to dominate footprints in this way.

Scope 3 is challenging due to the reduced control we have in many of the areas which make up the footprint. We can and should influence and persuade suppliers to reduce the carbon intensity of their products and services but doing so with thousands of companies is time-consuming, requiring engagement and two-way communication. The demands we make of suppliers must be reasonable, challenging and allow them to prepare for change.

We are currently putting most of our effort into tackling our Scopes 1&2 emissions, but given the scale of Scope 3, we need to do more in this area without reducing our home-grown footprint. We need to simultaneously increase the accuracy of the footprint and take action to reduce it. By next summer we also need to set and publish a net zero carbon target for Scope 3, as committed to by Universities UK and as part of the UN’s Race to Zero programme, to which we are a signatory. Scope 3 is therefore likely to become as important a part of our zero carbon story as our existing “2038” target.

## **5. Environmental Sustainability Strategy**

The development of a new University-wide ES Strategy has been running in parallel with the zero carbon work described above. The draft Strategy encompasses all aspects of environmental impact, not just carbon, and references the core goals of Our Future alongside operational aspects such as construction and refurbishment, biodiversity and climate risk. Staff and students have been consulted in its creation. The Strategy is hopefully nearing its final draft, with a further revision underway to incorporate feedback from SLT. It is hoped it will be approved in early 2023 and launched soon afterwards. This will require significant comms support.

## **6. Business travel, fleet vehicles and electric vehicle charging points**

The ES Team has worked with SLT and Prof Carly McLachlan, Academic Lead for Carbon, to build on the sharp fall in air travel carbon emissions during the pandemic. The revised travel policy adopts an objective of limiting emissions to 50% of pre-pandemic levels and was approved by PRC in September 2022. The approach utilises the existing approvals process based on local judgement and will provide colleagues with information on the comparative impact of different transport choices, checklists and examples of best practice. A small ‘top-up’ fund for more expensive, lower carbon travel will be offered and will be particularly targeted at early career colleagues. A comms campaign will begin in 2023 to raise awareness and challenge existing norms. (See Fig 3 in Additional Reading below for current vs historical data on carbon emissions from air travel).

Elsewhere, the ES team is working with Finance colleagues to develop a plan to decarbonise our fleet of approximately 75 vehicles. The switch to electric vehicles (EV) will be based on lease expiry dates and the suitability of EVs for the job performed by the vehicles. Where gaps in data have been identified we will be using “telematics” technology to collect real-time information on actual usage. The fleet decarbonisation plan will identify suitable electric vehicle replacements, timelines, costs and options for charging. It should be noted that the plan is not yet funded.

We have also proposed the University partners with Iduna, who run Greater Manchester’s public EV charging network, to increase charger provision for staff. Under the proposal Iduna fund installation and maintenance of charge points in agreed locations. In return they receive income from the chargers over a 20-year lease. We have been given approval to progress the proposal.

## **7. Waste**

Waste data is reported one year in arrears due to data lag. Around 2,000 tonnes of waste was produced in 2020/21, about 50% less than 2018/19, in part due to the impacts of lockdown. Recycling was particularly low due to collections being paused for part of the academic year. These collections have since been reinstated so the data for 2021/22 should show an increase in recycling. (See Fig 4 in Additional Reading below for current vs historical data on waste generation and disposal).

Staff have long requested a food waste collection service, so this year saw a pilot project at staff kitchens in Humanities Bridgeford Street, Arthur Lewis, and John Garside. The trials were a success and food collection facilities have now been installed across MECD. It has also been agreed to roll the service out to all staff kitchens by 2025. Collected food is sent to an anaerobic digestion plant where it is broken down to produce biogas (a fuel) and nutrient rich biofertiliser for farmland.

Further data collection to support our public commitment to eliminating avoidable single use plastics (SUP) proved to be impractical and no further guidance could be obtained from the wider GM partners who spearheaded this commitment. As such the SUP Action Plan was updated to include a commitment to 'the responsible use of plastics, minimising waste, and seeking opportunities to reuse and recycle plastic, allowing for circularity and efficiency in use'. A new action plan to 2025 has been developed and the group will rebrand as the Materials Action Group for this academic year.

## **8. Biodiversity**

Biodiversity surveys measuring the volume and variety of species have been carried out across campus to baseline and identify priority areas to benefit both wildlife and people.

The Landscaping Team successfully trialled peat-free compost over the summer and future compost purchases will be entirely peat-free by the end of this year. The Landscaping Team are increasing the number of wildflower areas on campus and are working with the ES Team to establish a mowing regime that benefits both nature and people. We have also worked together to assess the condition of green roofs and agree responsibilities to maximise the biodiversity value of these areas.

The Nature Action Group, comprising both academic and PS colleagues, has developed a set of principles to underpin the "Climate Care" scheme, as trailed in the Social Responsibility section of Our Future. Climate Care (a working title) seeks to develop external partnerships to enable our communities to support projects that capture carbon, restore the natural world and benefit wildlife. Development of proposals are underway, and it is hoped the scheme will launch in 2023.

## **9. Staff and student engagement**

ES Team face-to-face efforts were mainly focused on students, using pop-up stalls across campus to promote our engagement and education programmes: 50,000 Actions and the Sustainability Challenge, the online interactive activity delivered as part of the Stellify employability award. We also piloted a new Sustainability Champion programme which allows students to volunteer with the ES Team and take part in activities such as social media takeovers, audits and running events. The pilot was successful and has been oversubscribed for the new academic year.

The 50,000 Actions website remains our flagship engagement programme, asking staff and students to do an environmental activity and log it on the site. There are many sites vying for staff and particularly

students' attention and it is hard to cut through with limited resource. Use of the site has been steady and we hope to increase it this year before considering the future of the tool.

Finally, 20/21 saw about 30 labs sign up to the LEAF sustainable lab assessment scheme, of which 15 submitted assessments and achieved certification. Work is now underway to develop support for all labs to achieve a LEAF Bronze, or higher, by 2025.

## 10. Priorities for 2022/23

We will complete and publish the ES strategy including targets for waste, biodiversity etc; play our part in ensuring the “zero carbon” funding is spent well and on time; research and evaluate options for funding the currently unfunded element of the 2038/carbon budget target; support the roll-out of the new business travel target; develop plans to act on our Scope 3 carbon footprint, and work with colleagues to create an environmental training module for staff. The latter is essential as we find that while most colleagues are supportive of our work, many have a limited understanding of the crises we face or how they can contribute to our aims.

Richard Smith, Head of Environmental Sustainability, 25<sup>th</sup> November 2022.

## Additional reading

Fig 3. University of Manchester air travel carbon emissions 2018/19 - 2021/22.

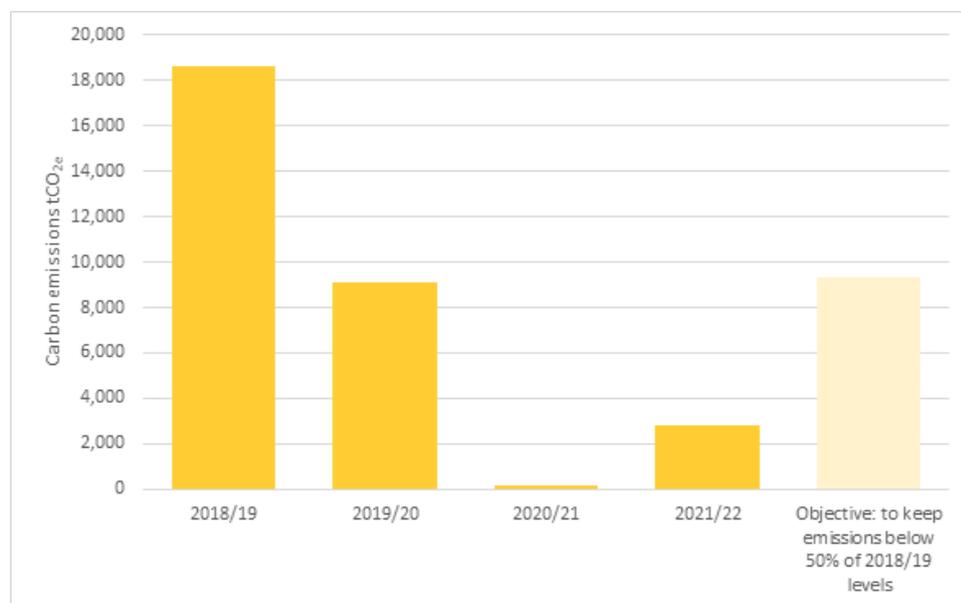


Fig 4. University of Manchester waste generation and disposal 2017-2021

