Our Carbon Action Plan

Climate change is the greatest threat facing humanity. The 2015 Paris Agreement outlined the need for urgent reductions to global carbon emissions to keep the average temperature rise to 1.5 degrees Celsius or lower.

Our commitments.

1. **To achieve zero direct carbon emissions by 2038** *(direct emissions otherwise known as "scope 1 and 2" are those which come from the production and use of energy across the University)*
2. **To achieve net zero for our scope 3 emissions by 2050** *(scope 3 emissions are emitted as an indirect result of our activities such as the goods we purchase, or staff and student travel)*

Scope 1 and 2

The University of Manchester has been tracking its direct ("Scope 1 and 2") carbon emissions since 2007. Since then, our emissions have fallen by 36% but we are committed to doing much more.

	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24
Gas	26,442	26,698	28,654	29,712	27,177	29,272	25,851	26,467	25,058	25,395	26,081	25,883	25,940	32,304	31,258	32,788	29,233
Electricity	53,496	51,563	52,171	47,826	47,586	46,754	45,796	46,898	44,334	38,048	31,367	27,750	22,857	21,306	20,127	18,599	17,966
Oil	272	178	497	185	246	621	142	170	189	197	228	242	166	190	194	229	198
Fleet Vehicles	340	398	344	336	355	333	205	197	172	146	139	141	104	101	107	115	100
Total	**80,550**	**78,837**	**81,666**	**78,059**	**75,364**	**76,980**	**71,994**	**73,732**	**69,753**	**63,751**	**57,815**	**54,016**	**49,067**	**53,901**	**51,686**	**51,730**	**47,497**
% change on baseline		-2.1	1.4	-3.1	-6.4	-4.4	-10.6	-8.5	-13.4	-20.9	-28.2	-32.9	-39.1	-33.1	-35.8	- 35.8	-41
% change on previous year		-2.1	3.6	-4.4	-3.5	2.1	-6.5	2.4	-5.4	-8.6	-9.3	-6.6	-9.2	9.9	-4.1	0.1	-8.2

Fig 1: Scope 1&2 carbon emissions in tonnes CO_2 at The University of Manchester 2007-2023

In 2019 the University committed to becoming zero carbon in its direct operations by 2038 from a 2018 baseline. This target is in line with the one adopted by the city of Manchester and was set by colleagues at the University's Tyndall Centre for Climate Change Research.

The 2038 target commits the University to reducing its carbon emissions by an average of 13% each year between 2018 to 2038 in order to stay within its "carbon budget". Milestones were set by the Manchester Climate Change Partnership (MCCP).

In 2021 the University produced its first "Zero Carbon Masterplan" (ZCM), an exploratory document highlighting the strategic and technical actions required to achieve the 2038 target.

The main recommendations of the ZCM were:

1. The University should embark on a programme of energy efficiency measures which will reduce our energy consumption and carbon emissions and save money in the longer term;
2. The University should enter a "Corporate Power Purchase Agreement" (CPPA), meaning the University's electricity demand will be matched by a developer generating renewable energy on our behalf. Critically, the electricity generated must be "additional" to what would have been created should the CPPA not exist;
3. The University should decarbonise its heating through a gas boiler and heat network replacement programme. Air source heat pumps are currently considered the most viable alternatives to gas.

Scope 1 and 2 Actions

As a result of the ZCM, these are our actions:

Sourcing more of our energy from renewables	In 2024 we entered into a Corporate Power Purchase Agreement (cPPA) which is a long-term energy contract with a developer of renewable power, Enviromena. This will see up to 65% of our electricity demand supplied through a brand-new solar farm based in Medebridge, Essex. Once complete, Medebridge Solar Farm will comprise 104,000 solar panels across 175 acres of low-grade agricultural land, the equivalent of around 70 football pitches.
Delivering our energy reduction programme	Projected work includes replacement of lighting with LEDs, "baseload optimisation" (reducing the amount of energy used by buildings when they are unoccupied) and upgrading Building Management Systems so they run more efficiently. Lighting surveys have been completed for ten buildings, and four of these (Michael Smith, Arthur Lewis, Carys Bannister and Car Park D) are now entering the commercial tender stage before works will commence to remedy known improvement areas. This year we will also conduct a power system and heat network study to review further opportunities to decarbonise our buildings. £157m has been committed to energy efficiency projects by 2032/33. Our target runs to 2038 so between now and 2033 we

	will continue to seek additional funds to supplement the £157m already approved and extend the funding beyond 2033. We have received Salix funding of £2.2 million to decarbonise our Zochonis building, which is included in the above figure.
Delivering a phased approach to zero carbon building works	Phase 1 of the zero-carbon works in our Booth Street East and Dalton Ellis buildings were completed in 2024. This is estimated to save 332 tonnes of carbon annually. We have created a video to showcase our first zero carbon building, Booth Street East. Works to a further four buildings are planned in Phase 2, including Zochonis, Humanities Bridgeford Street, Simon and Crawford House. Projects include air source heat pumps, photovoltaics, new roofing systems, new glazing and internal insulation systems. Once completed, these projects are predicted to save 1,406 tonnes of carbon annually.

Scope 1 and 2 carbon emissions attributed to residential accommodation.

The University of Manchester Owned Residences

The Carbon Management Plan includes Scopes 1&2 emissions for residences owned by The University of Manchester.

In 2022/23 (our latest confirmed data), carbon from these residences made up 12% of our total Scope 1 &2 footprint.

Emissions	2022-23	Historical Data					
		2021-22	2020-21	2019-20	2018-19	2017-18	2016-17
Residential* scope 1 and 2 carbon emissions total (t CO_2e)	**6,148**	6,650	6,316	6,331	7,369	8,354	9,232

*11 residential buildings provide rooms for 3,930 students.

External Residences

Alongside these University owned residences, we partner with other landlords to provide an additional 2,200 rooms in seven external residential buildings.

Whilst we have no operational control over energy use, nor access to data on the amount consumed, we estimate (using average emissions per room for our University owned residences) that the scope 1 and 2 emissions for our external residences for 2022 - 2023 is 3,442 (t CO_2e).

Baseline and targets

Category	2018/19 Baseline CO_2e	Target	2022/23 Progress
Purchased goods and services	96,368	Net zero by 2050	203,036
Capital goods including building and refurbishment	63,089	Net zero by 2050	13,634
Transportation of goods to the institution	Included in our purchased goods and services calculations using HESCET data.		
Waste	831	Recycle 45% of the waste we produce through campus operations by 2025. Divert 100% of waste from landfill via new waste contracts from 2023 onwards.	227
Business Travel	16,504	Aim to limit annual emissions from air travel to 50% of our 2018/19 level Net zero by 2050	11,313
Staff commuting	3,639	Net zero by 2050	5,845
UK Student Travel & International Student Travel	97,461	Net zero by 2050	169,722
Student accommodation (including externally managed accommodation on university estates)	10,811 (including 3,442 from private accommodation)	Net zero by 2050	10,534

Scope 3

In July 2023, the University set a Scope 3 emissions (which are emitted as an indirect result of our activities) target of net zero by 2050. We are currently developing our plans on how to meet this aspiration and aim to publish this in the 2025/26 academic year.

We have already set the following targets:

	Target	Progress
Waste <0.1% of our Scope 3 Emissions in 22/23	Recycle 45% of the waste we produce through campus operations by 2025.	In 2024 we recycled 39% of our waste.
	Divert 100% of waste from landfill via new waste contracts from 2023 onwards.	In 2024 our landfill diversion rate was 99%.
Business Travel 2.5% of our Scope 3 Emissions in 22/23	Aim to limit annual emissions from air travel to 50% of our 2018/19 level.	Currently, at 46% reduction from the 2019 baseline, we have missed our target by 4%. However, distance travelled reduced by 50% in this timeframe, but increases in GHS emissions, due to reduced loading of planes because of COVID, has caused emissions to rise.
Investments 1.1% of our Scope 3 Emissions in 22/23	Reduce weighted average carbon intensity (WACI) of public equity holdings by at least 50% against 2019 baseline by 2027.	Currently, at 59% reduction from the 2019 baseline, we have exceeded our target.
	Reduce carbon intensity within the investment grade credit allocation by 40% by 2027.	Currently, at a 44% reduction from the 2019 baseline, we have exceeded our target.
	Reduce energy consumption within the investment property portfolio by 10% by 2027 compared to the 2019 baseline year.	The reduction in energy usage within the property portfolio in 2023 was c.+1.1% versus the baseline year (-1.3% versus baseline in 2022 and -7.8% versus baseline in 2021). Concerned this metric is moving in the wrong direction, our property portfolio, and investment managers are prioritising mitigation measures such as new technologies and systems to improve this position for us.
	Reach net zero on investment portfolio by 2038.	For a full report of our progress, see our Investment Portfolio Climate Change Report.
	Reach 100% renewable energy use within the endowment investment property portfolio by 2027	The percentage of landlord procured REGO backed renewable energy for 2023 was 100% (56% in 2022). Therefore, the University has now hit this target ahead of the 2027 date.

Scope 3 Reporting

To set and deliver future targets for emissions reductions it's important we're measuring ourselves against a baseline.

Our baseline for scope 3 emissions is 2018/19, this year was selected as it is the best data set we have pre-pandemic, which would have skewed results.

In 2023 we published this scope 3 emissions baseline, this can be found in our Scope 3 report.

Part of our journey towards net zero is also to learn more about reporting, improve data quality and increase data sources. We will be fully transparent and share our learnings as we go.

Earlier this year we measured our first comparable scope 3 data set for 2022/23. It was noted that the figures, some of which based on spend data, did not account for inflation.

Rectifying this for 22/23, we also noted we needed to recalculate our 18/19 baseline data so that the methodology and emission factors used, for both data sets, aligned.

Scope 3	2018/19 NOT factored for inflation (A)	2018/19 factored for inflation (B)	2022/23 factored for inflation (C)	% difference (C) vs (B)
tCO2e	342,820	390,672	459,142	17.6%

The Scope 3 results for 2023 are **459,142 tCO_2e**.

This is an 18% increase from the base year of which:

- 93% is coming from differences in methodologies and emission factors, such as including emissions from staff working from home and using updated benchmarks to estimate leased building energy use.; and
- 7% comes from an increase in University activity such as a 7% increase in spending and a 10% increase in student numbers.

The most material elements of the University's Scope 3 footprint are Category 1: Purchased Goods and Services (44%) and Category 9: Student Travel (37%).

Our work on setting a short to medium term roadmap for Scope 3 emissions reductions will tackle priority areas for our university.

Carbon Action Governance

Achieving the 2038 zero carbon target is a strategic priority for The University of Manchester and considerable effort is being put into the work. Zero Carbon works are overseen by a group specifically established to manage the project. This in turn reports into the Environmental Sustainability Committee (ESC), which meets quarterly. The ESC reports into the Executive Committee, which is the University's most senior governing body beneath the Board of Governors.

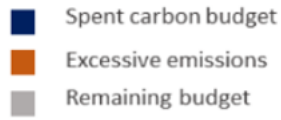
The Vice-President for Social Responsibility, Prof Nalin Thakkar, is accountable for achieving the zero carbon 2038 target. The Chief Property Officer, Barra Mac Ruairí, is responsible for the delivery of the works supporting the target. The Head of Environmental Sustainability, Julia Durkan, is responsible for day-to-day management of the project. A number of colleagues from across Professional Services are contributing to delivery of the work, including the Head of Energy, Pete Murray.

In 2024 we:

1. Installed a fossil-fuel free heating system in our Booth Street East and Dalton Ellis buildings and have now moved on to phase 2 for a further four buildings including Zochonis, Humanities Bridgeford Street, Simon and Crawford House.
2. Signed our CPPA, our long-term commercial commitment to sourcing more renewable energy. Construction on the new solar farm began April 2024, and will be operational by July 2025.
3. Will carry out further studies on our buildings to understand in greater detail the actions needed to decarbonise the heat networks and improve energy efficiency, with a view to creating a pipeline of activity and submitting further bids for external funding.
4. Will develop and publish a short to medium term plan for meeting our Scope 3 target of net zero by 2050.

Progress against our carbon budget

Our colleagues at the Tyndall Centre for Climate Change Research have estimated that from 2018, The University of Manchester can emit up to 450,000 tonnes of carbon dioxide into the atmosphere before exceeding our remaining carbon budget. The chart below shows the amount of carbon we have already emitted since then.



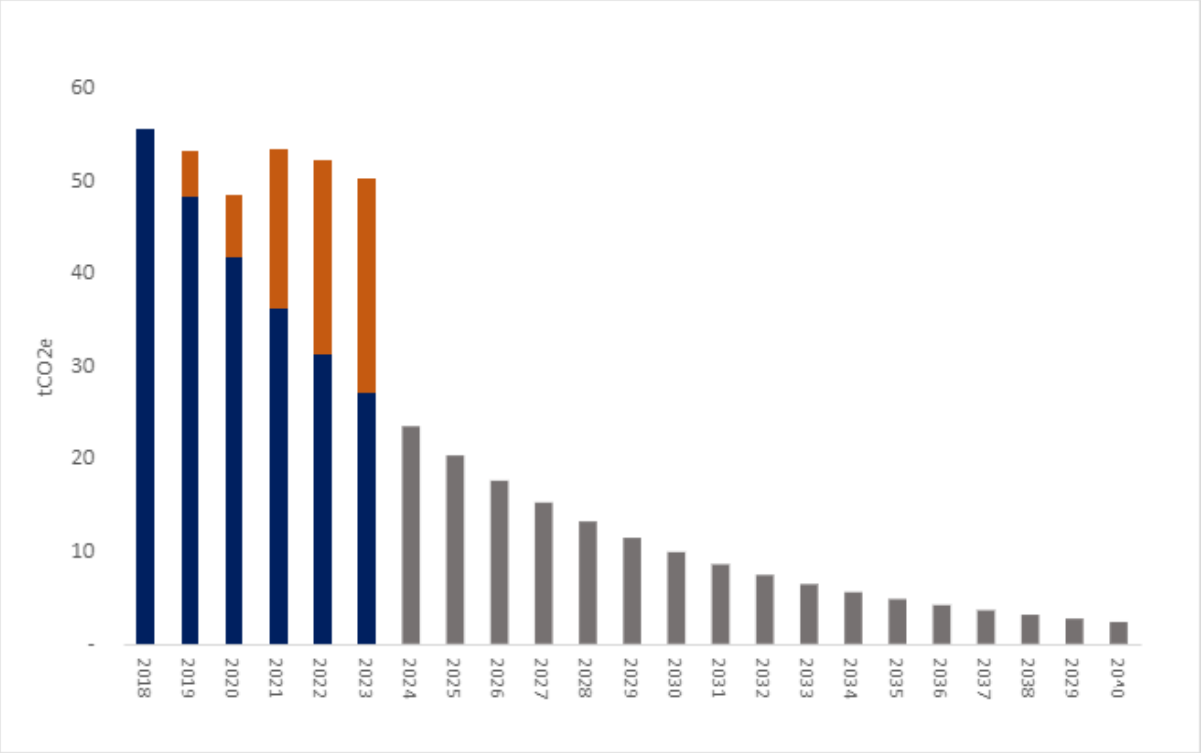


Fig. 2: carbon emitted since setting our carbon budget

We are aware that at our current emissions rate, we will exceed our carbon budget far sooner than the target date of 2038. However, we remain committed to doing everything we can to ensure that we stay below the budget for as long as possible.

The targets and our progress against them will be continually reviewed to ensure they are relevant and being acted upon. Where necessary we will update them.