Carbon Reduction Plan

Supplier name: University of Essex

Publication date: 11/04/2025

Commitment to achieving Net Zero

The University of Essex is committed to achieving Net Zero emissions by 2035.

Carbon Emissions Baseline and Targets

Baseline emissions are a record of the greenhouse gases that have been produced in the past and were produced prior to the introduction of any strategies to reduce emissions. Baseline emissions are the reference point against which emissions reduction can be measured.

The following table captures the University's current and historical carbon emissions baselines and targets.

Table 1 – Scope 1, 2 and 3 Carbon emissions baselines and targets

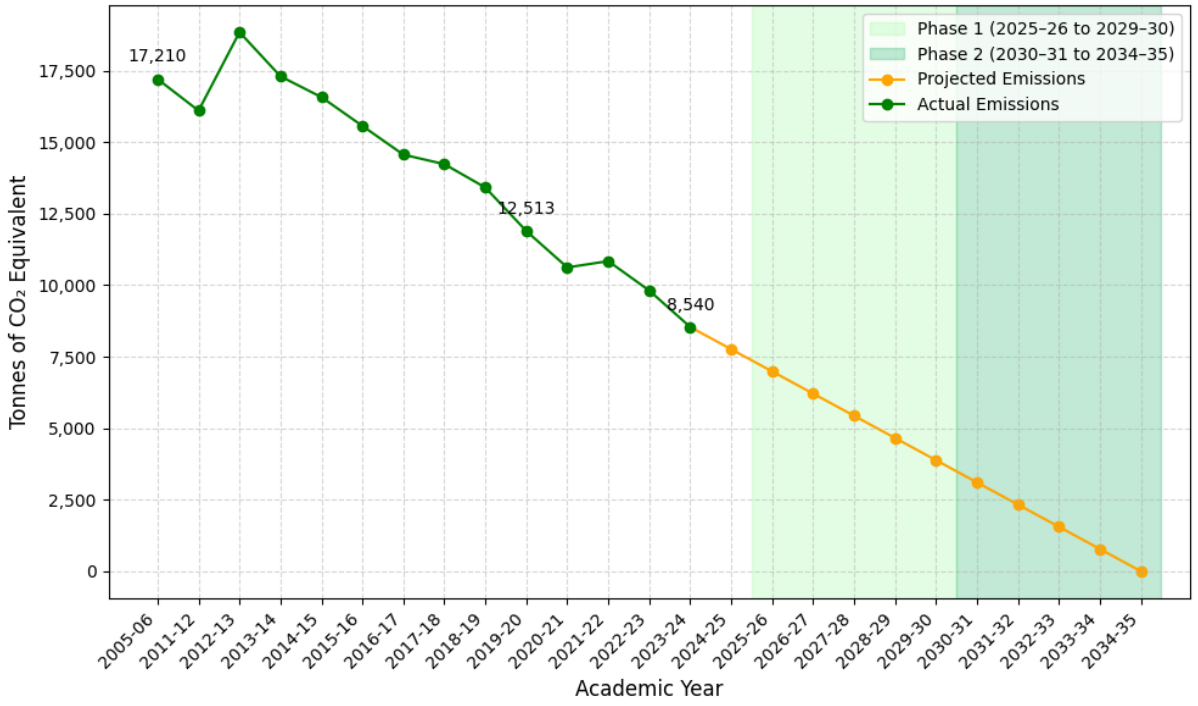
Scope	Baseline Year	Baseline tCO_2e	% Target Reduction	Target Year	Target tCO_2e
Scope 1 and 2	2005-06	17,210	43%	2019-20	9,810
	2019-20	11,896	40%	2029-30	7,500
	2019-20	11,896	100%	2034-35	0[1]
Scope 3	2021-22	63,701	100%	2049-50[2]	0

[1]100% reduction may include up to 3,000 tCO_2e of offsetting.
[2]Government target of 2050.

Scope 1 and 2 - The University's first scope 1 and 2 carbon emissions target was a 43% reduction by 2020, from a 2005 baseline (17,210 tCO_2e). This was achieved in 2023-24. A subsequent target was set in May 2021 to reach net zero scope 1 and 2 carbon emissions by 2035 from a 2019 baseline of 12,500 tCO_2e, as recommended by the University Climate and Ecological Emergency Advisory Group (CEEAG) and endorsed by the University Steering Group (USG) and Council.

Our 2035 net zero scope 1 and 2 carbon emissions target includes a maximum of 3,000 tCO_2e of offsetting, recognising that it will be challenging to reduce all of our scope 1 and 2 emissions to absolute zero.

Figure 1 – Carbon emissions 2005 to 2035.



Scope 3 - The University's scope 3 carbon emission baseline for 2021-22 was calculated to be approximately 63,700 tCO_2e. The University aligns with the Climate Change Act (2008) to reduce its Scope 3 carbon emissions to zero by 2050. Table 2 below sets out the baseline data for each scope 3 carbon emission category.

Table 2 – Scope 3 Carbon emissions estimates baseline and targets

Scope 3 Category	Baseline Year	2023-24 tCO_2e	Target date	Data Type (actual, assumption, mix)
Purchased Goods and Services[3]	2021-22	40,983	2050	Actual spend based
Capital Goods	2021-22	tbc	2050	Included in PGS
Fuel and Energy Related Activities	2021-22	2,006	2050	Actual
Waste Generated in Operations[4]	2021-22	56	2050	Actual
Business Travel[5]	2021-22	2,288	2050	Actual
Employee commuting	2021-22	3,508	2050	Mix
Downstream Transportation and Distribution[6]	2021-22	33,221	2050	Mix
Leased Assets	2021-22	1,545	2050	Actual

[3]Including supply chain.

[4]Including construction waste.

[5]Staff and student business travel.

[6]Includes staff and Student daily commuting and student international arrivals at the start and end of term (including international students' travel to and from their home country).

Current Scope 1, 2 and 3 Carbon Emissions Reporting

Our carbon emissions for 2023-24 were:

- **Scope 1** carbon emissions **– 4,668 tCO_2e.**
- **Scope 2** carbon emissions **– 3,872 tCO_2e.**
- **Scope 3** carbon emissions (estimate) **– 83,603 tCO_2e.**
- **TOTAL** carbon emissions – **94,321 *tCO_2e.***

Our scope 1 carbon emissions are a direct result of burning natural gas in boilers for space heating and hot water, fuel consumption from university owned vehicles and fugitive refrigeration (F-Gases) from Heating Ventilation and Air Conditioning (HVAC) equipment.

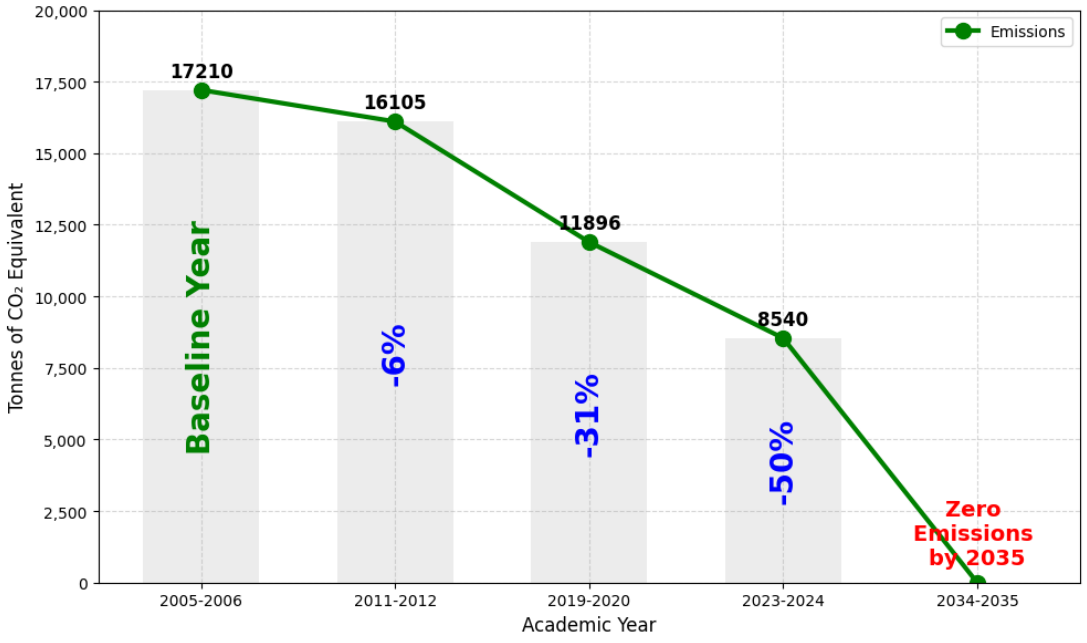
Natural gas is responsible for most of our scope 1 emissions, with F-Gas emissions accounting for less than 2.98% (139 Tonnes) of scope 1 and transport-related emissions accounting for less than 1.27% (59 Tonnes) of scope 1.

Our scope 2 carbon emissions are derived from the University's purchased electricity. Electricity consumption covers a diverse area of lighting, heating, ventilation, comfort cooling, computers, research and teaching equipment, as well as other electrical appliances.

The University purchases its electricity from 100% certified renewable sources. However, as the electricity is supplied from the national grid, which has a mix of electricity produced from both renewable and non-renewable sources, the University does not claim zero carbon from the electricity it obtains from the national grid.

Good progress has been made reducing scope 1 and 2 carbon emissions from a high of 17,210 tCO_2e in 2005 to 8,540 tCO_2e in 2023-24, a 50.3% reduction to date.

Figure 2 – Scope 1 and 2 carbon emission reduction progress



The University's scope 3 carbon emissions for 2023-24 are estimated to be:

- 2023-24 – 83,603 tCO_2e.

Scope 3 emissions comprise all indirect (incidental) greenhouse gas emissions that occur as a result of the University's activities but originate from sources not owned or directly controlled by the University. This ultimately covers a vast array of activities.

Our Scope 3 emissions categories are defined based on the guidelines from the Greenhouse Gas (GHG) Protocol, a widely adopted framework for measuring and managing greenhouse gas emissions. The GHG Protocol provides a comprehensive standard for identifying and calculating emissions across an organisation's entire value chain. By using this framework, we ensure that our Scope 3 emissions reporting is consistent with global best practices, allowing for transparency and comparability with other institutions.

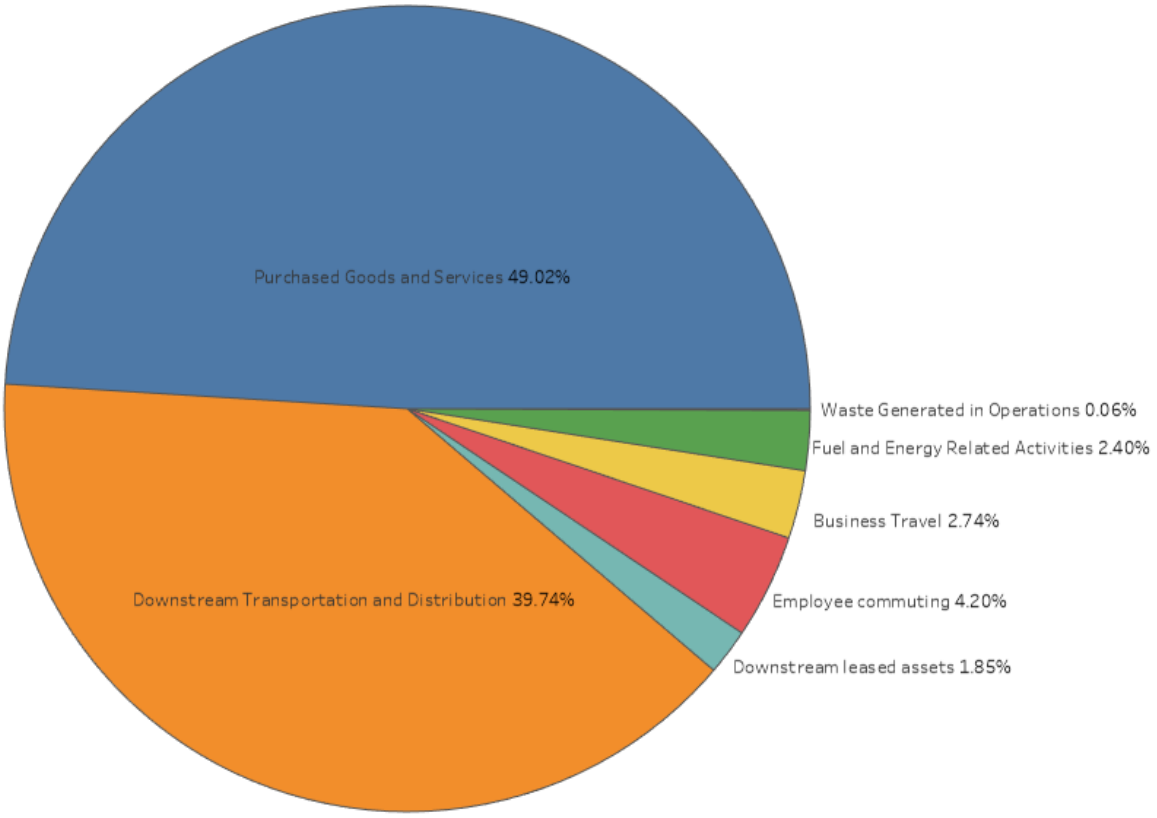
The following sections detail the data for each of the relevant Scope 3 categories that we measure, in line with the GHG Protocol:

a. Purchased Goods and Services
b. Capital Goods
c. Fuel- and Energy-Related Activities Not Included in Scope 1 or Scope 2
d. Waste Generated in Operations
e. Business Travel
f. Employee Commuting
g. Downstream Transportation and Distribution
h. Downstream Leased Assets

In our approach to calculating Scope 3 emissions, we adhere to a standardised methodology that ensures consistency and comparability year-on-year. Each year, as we refine our processes, we can capture more detailed data that previously might have been obscure or unavailable. Additionally, we continuously integrate new data streams that were previously missing. Consequently, the level of detail in our Scope 3 data evolves, becoming increasingly comprehensive with each reporting cycle. The detailed breakdown of the standardised calculations and assumptions used in calculating Scope 3 emissions can be found in Appendix 1.

Figure 3 shows the split of scope 3 carbon emissions by category. Purchased Goods & Services and Downstream Transportation & Distribution are responsible for almost 89% of all scope 3 emissions and are a significant focus for the University.

Figure 3 – Scope 3 carbon emissions 2023-24



Carbon Reduction Projects

Completed Carbon Reduction Initiatives

Building fabric - The fabric of our buildings plays a significant part in reducing our energy use and carbon emissions. The better the thermal performance, the less energy is lost from our buildings and the less energy we need to use to heat and cool spaces. Buildings with a greater level of fabric performance also require less powerful systems to create optimal conditions, which are more cost effective to install, maintain, and replace. Low carbon heating solutions require high levels of thermal fabric to perform at their best, so improving the fabric of the University's estate is critical to saving energy and reducing carbon emissions.

The University will take a prioritised approach to building upgrades and improvements, contributing to our target to reduce energy sourced from the grid by 76% per m2 of Gross Internal Area (GIA), from a 2019 baseline (SSS KPI 30) and net zero scope 1 and 2 carbon emissions by 2035 (SSS KPI 1). Roof, loft, cavities and windows will be optimised reducing energy use and carbon emissions and paving the way for low carbon energy systems such as ground and air source heat pumps.

Mechanical and Electrical Infrastructure – To reach our net zero scope 1 and 2 carbon emissions target, where possible our gas-powered heating systems are being upgraded to non-fossil fuel alternatives, such as electric boilers and/or air source and ground source heat pumps. As we implement further PV solar, generating our own electricity and the national grid decarbonises, phasing out our use of gas maximises our chance of reaching our net zero target.

The following environmental management measures and projects have been completed and the University is benefiting from includes:

Scope 1 and 2 Carbon Emissions

- Roof insulation upgrades to several roofs across the central Colchester campus and Constable Building.
- Window upgrades to the Constable and John Tabor buildings.
- Over 1.4MW of PV installations at the Colchester campus providing 8% of our electricity requirements.
- More than 2,500 LED lights installed at the Colchester and Southend campuses.
- Air Source Heat Pumps (ASHP) installed at our Essex Business School building.
- More than 2,000 low flow taps/aerators fitted to taps at the Colchester campus.
- Upgrades to Building Management Systems (BMS) at our Colchester and Southend, providing enhanced control of our buildings heating and cooling.

Scope 3 Carbon Emissions

- Adoption of circular economy and resource efficiency principles to support sensible purchasing of essential, long-lasting equipment and goods.
- Improvements to bin provision and signage/labelling.
- On-going engagement activities to raise awareness of sustainable action individuals can take on campus (as part of work or studying) or their personal lives.
- Set up of a dedicated space, and procedure, for furniture reuse on campus. This avoids unnecessary purchase of new items and avoidance of disposal.
- Work to identify water wastage and improvement of efficiency, such as installation of lower-flow shower heads and taps, as well as engagement work to remind students and staff to save water.
- Creation of a Single Use Plastics Policy to focus on reducing waste.
- Creation of a Business Travel Policy, which seeks to lower our travel-related emissions.
- Promotion of active and sustainable travel for student and staff commuting. This includes expansion of cycle parking facilities; on-site availability of short-term e-bike and e-scooter hire and discounted bus tickets.
- Addition of food waste bins in some areas of accommodation, with more to follow, to help drive efforts to best segregate waste for the most appropriate treatment type.

- Where possible Essex Food have cut out single use plastics from takeaway packaging.

In the future we hope to implement further measures such as, further roof mounted PV Solar, building fabric upgrades, BMS systems and LED lighting measures.

Declaration and Sign Off

This Carbon Reduction Plan has been completed in accordance with PPN 06/21 and associated guidance and reporting standard for Carbon Reduction Plans.

Emissions have been reported and recorded in accordance with the published reporting standard for Carbon Reduction Plans and the GHG Reporting Protocol corporate standard[1]and uses the appropriate Government emission conversion factors for greenhouse gas company reporting[2].

Scope 1 and Scope 2 emissions have been reported in accordance with SECR requirements, and the required subset of Scope 3 emissions have been reported in accordance with the published reporting standard for Carbon Reduction Plans and the Corporate Value Chain (Scope 3) Standard[15].

This Carbon Reduction Plan has been reviewed and signed off by the Director of Sustainability.

Signed on behalf of the Supplier:

RJDavey

Date: 07/04/25

[1] https://ghgprotocol.org/corporate-standard

[2] https://www.gov.uk/government/collections/government-conversion-factors-for-company-reporting

[15] https://ghgprotocol.org/standards/scope-3-standard