The University of Manchester:

Scope 3 Results and Workshop Preview

Version two, last updated on 10/05/2024

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Agenda

1   Objectives

2   Scope 1&2 Review

3   Scope 3 – High Level Results

4   Scope 3 Upstream Results

5   Scope 3 Downstream Results

6   Future Footprints
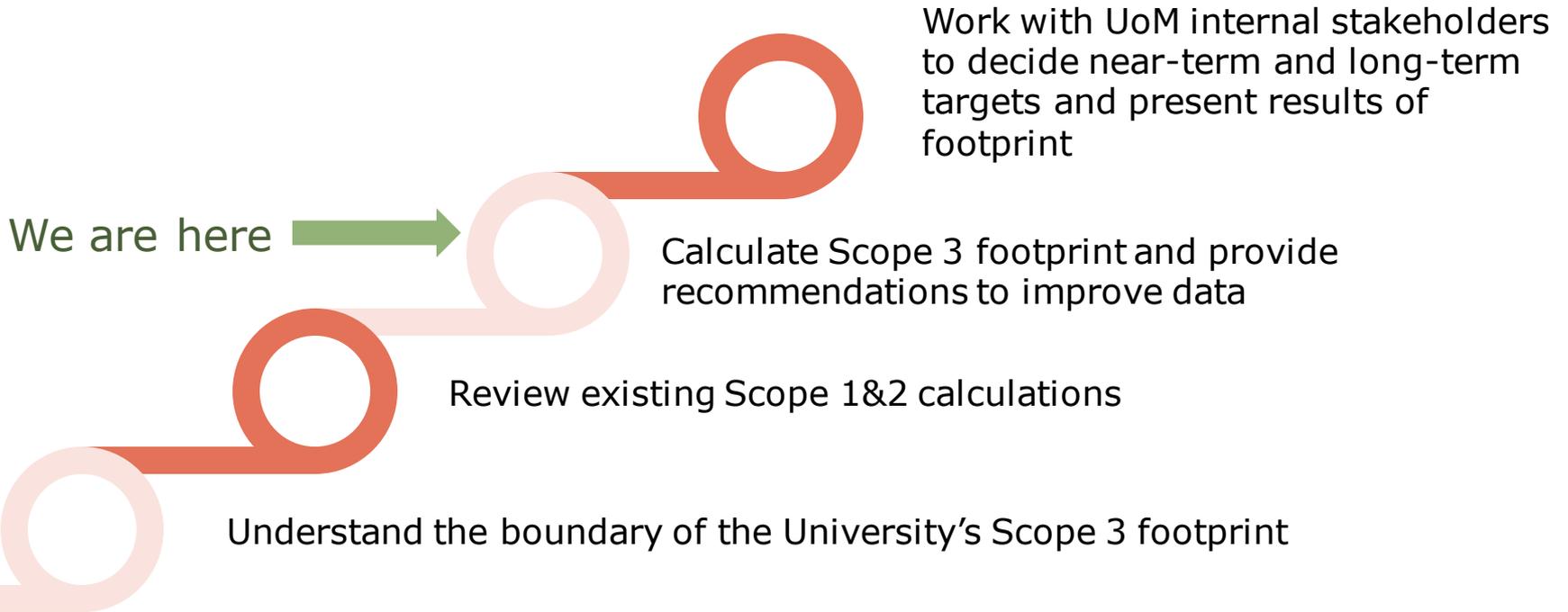
7   Workshop Review

8   Q&A

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Version Control

► This document was last updated on 10/05/2024.

► Version two of this document presents an updated version of our 2018/19 baseline data, now refined with updated emission factors (transitioning from SIC to COICOP) to account for inflation. This adjustment allows for a more accurate comparison of our 2022/23 data with the baseline. As a result, our total scope 3 emissions baseline has shifted from 342,820 to 390,672 tCO2e, marking an increase of 14%.

► While the previously published version one offered valuable insights, this updated version provides a more precise and comprehensive understanding of our environmental impact, making it comparable to 2022/23 and future data. This recalibration aligns our data with the latest industry standards and best practices, reinforcing our commitment to sustainability.

► For those interested in the original V1 2018/19 baseline data published in 2023, please email es@manchester.ac.uk

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Objectives

GHG inventory calculation methodology and objectives

Project Objectives

Work with UoM internal stakeholders to decide near-term and long-term targets and present results of footprint

We are here

Calculate Scope 3 footprint and provide recommendations to improve data

Review existing Scope 1&2 calculations

Understand the boundary of the University's Scope 3 footprint

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Project Process

Scoping Assessment	Scope 1&2 Data Review	Scope 3 Data Collection	Calculation	Reporting

Scoping Assessment
- **Map all organisational activities** to Scope 3 categories.
- **Identify data requirements** and sources.
- **Determine calculation methodology** based on data available.

Scope 1&2 Data Review
- **Critically review Scope 1 and 2 data** in calculation file provided by the University and the annual report Scope 1 and 2 figures.
- **Address gaps** and provide data recommendations

Scope 3 Data Collection
- **Collect relevant data**.
- **Review suitability of data** received.
- **Address gaps**.
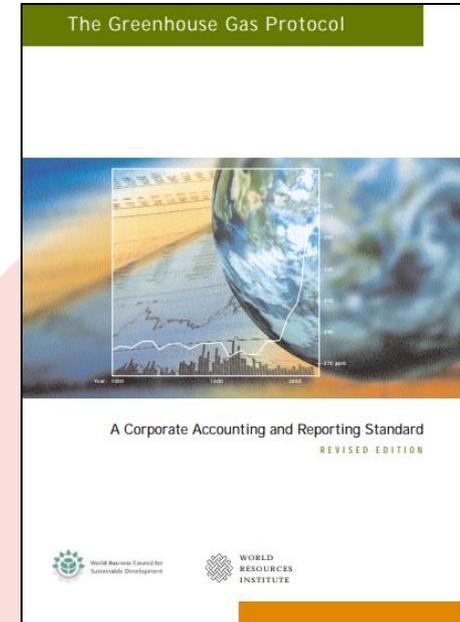- **Identify proxy data** where primary data was not available (e.g. spend).

Calculation
- **Development of calculation tool** for relevant categories.
- **Application of relevant emission factors**.
- **Quality assurance** of calculations and data flows.

Reporting
- **Presentation and analysis of calculation results**, including methodology.
- **Recommendations** to improve data quality and impact.

Focus of this report

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Methodology – Aligning to the Greenhouse Gas Protocol

▶ To measure The University of Manchester's (UoM) carbon footprint, EcoAct has followed the **GHG Protocol Corporate Accounting and Reporting Standard**.

   – This standard provides guidance for companies to prepare a GHG emissions inventory and is complemented by the **Corporate Value Chain Standard**, the best-practice standard for calculating emissions resulting from value chain activities.

▶ The Corporate Value Chain Standard categorises Scope 3 emissions into 15 distinct categories. This provides companies with a systematic framework to understand and report Scope 3 activities, in addition to their Scope 1 and 2 emissions.

▶ The **operational control approach** is used in this footprint. Under this approach, we have accounted for 100% of the GHG emissions from operations over which the University has control

The Greenhouse Gas Protocol

A Corporate Accounting and Reporting Standard
REVISED EDITION

World Business Council for Sustainable Development

WORLD RESOURCES INSTITUTE

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Scope 1 & 2 Review

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Scope 1 & 2 Review

▶ EcoAct has reviewed and critically assessed the University of Manchester's *'Corporate Carbon Footprint'* report and the calculation file provided by the University. The objective is to ensure that the Scope 1&2 baseline set is wholly accurate and includes all relevant scopes of emissions required under the Greenhouse Gas Protocol.

▶ Both sources have differing units:

	Academic Year 2018/19	
	Annual Report (tCO$_2$)	Calculation File (tCO$_2$e)
Electricity	25,982	27,750
Natural Gas	24,733	25,883
Oil	242	225
Fleet	141	139
Total	51,098	53,997

▶ During the review, EcoAct, in line with the GHG protocol, applied Defra Emission factors to calculate emissions per unit to review both the Annual Report and calculation file.

▶ The threshold for error is set at 5% and so a difference between the figures being reported by the University and the results calculated by EcoAct greater than 5% would require further investigation

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Scope 1 & 2 Review

Emission Factors used in EcoAct Check:

DEFRA 2018 and 2019 for relevant months of academic year

- ► Fuels - Natural Gas - Gross CV
- ► DEFRA Emissions Factors - Fuels - Gas Oil - Liters
- ► DEFRA Emissions Factors - Fuels - Petrol Average Biofuel Blend and Diesel Average Biofuel Blend – Litres
- ► DEFRA Emissions Factors - UK Electricity Generated

Gaps in reporting:

The University is currently reporting:
- ► Natural Gas consumption
- ► Oil consumption
- ► Fleet fuel consumption
- ► Electricity consumption

EcoAct recommends that the University also considers:
- ► Refrigerants
- ► Fugitive Emissions (any leaks from pipes etc.)
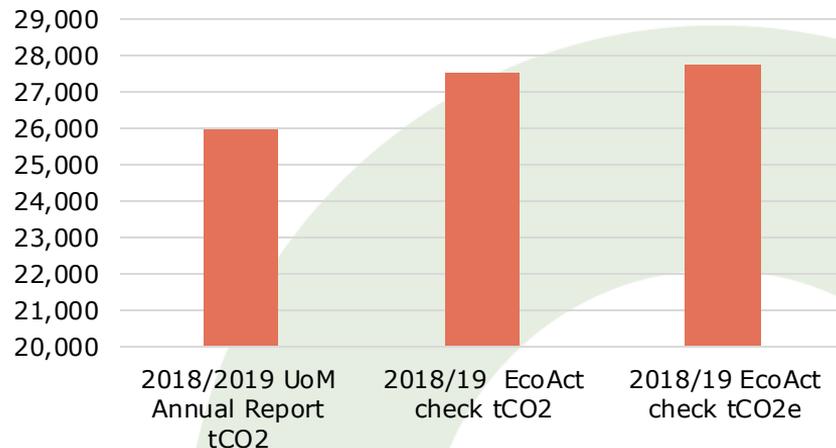
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Annual Report Check

EcoAct compared the Annual Report figures with tCO_2 and tCO_2e, despite it being reported as tCO_2.

Comparison of **Scope 1** Emission Calculations

Legend: ■ Natural Gas ■ Oil ■ Fleet
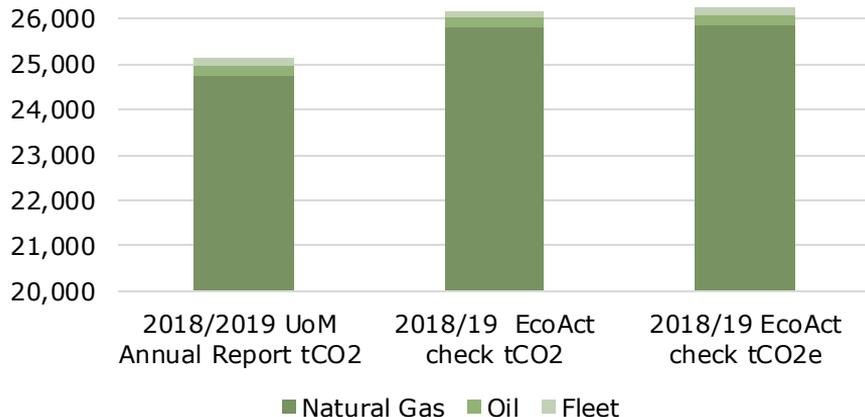
The results showed a **4.02%** discrepancy between the emissions being reported by the University of Manchester and the results EcoAct came to when calculating tCO_2 and a **4.24%** discrepancy when tCO_2e is used.

Comparison of **Scope 2** Emission Calculations

The results showed a **5.63%** discrepancy between the emissions being reported by the University of Manchester and the results EcoAct came to when calculating tCO_2 and a **6.37%** discrepancy when tCO_2e is used.

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Calculation File Check

tCO2e	UoM		EcoAct		% Difference	
	2018	**2019**	**2018**	**2019**	**2018**	**2019**
Electricity	28,909	26,476	28,909	26,474	0.00%	0.00%
Natural Gas	26,281	26,304	26,275	26,282	0.02%	0.08%
Oil	272	191	272	191	0.00%	0.00%
Fleet	143	135	139	132	2.87%	2.52%

There is very low discrepancy in the calculation file compared to EcoAct checks.

The Natural Gas emission factor used in the calculation file does not match DEFRA Natural Gas Emission Factor. We would recommend revisiting this and amending.

The fleet emission factors used in the calculation file are not consistent throughout the months in 2018 and 2019 which has caused a larger discrepancy.

We would recommend assuming a 60% Petrol, 40% Diesel split, as per the following source: https://www.ons.gov.uk/economy/environmentalaccounts/articles/arewereadytoswitchtoelectriccars/2017-08-16 and applying the relevant emission factors to the fleet activity data.

As discrepancy is low and the calculation file is over-reporting, the existing work completed by The University of Manchester in the calculation file has shown to be satisfactory and this exercise has not identified any material data gaps requiring attention. However, we would recommend considering other Scope 1 sources such as refrigerants and fugitive emissions.

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Scope 1 & 2 Review

Recommendations:

► The University reports Scope 1 & 2 emissions as tCO_2 in their annual report. **It is recommended to report and calculate it as tCO₂e**, which incorporates all Greenhouse Gas Emissions into the footprint

► As there is a discrepancy of more than 5% in the Annual Report figures compared to EcoAct's review, we would suggest reviewing this output. The Greenhouse Gas Protocol suggests that if new calculations change the total emissions by more than 5%, **re-baselining and re-instating** is required

► Review **Fleet and Natural Gas** emission factors in the calculation file

► Consider other sources of Scope 1 emissions

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Home Working Calculations Check

3

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Home Working Calculations Check

EcoAct reviewed the University's home working carbon emission calculations.

The kWh figures are hard-coded in the excel calculation file provided, and therefore visibility of the estimation of kWh formula was unavailable.

EcoAct have back calculated the calculation for tCO_{2e} for electricity and gas from the figures provided by UoM and found that the **emission factors being used are correct.**

We would suggest reviewing the calculation of kWh estimation, as the University seems to be over-reporting overall.

▶ Total tCO_2e for UoM is a 25% increase on the EcoAct calculation, with a difference of 378 tCO_2e.

▶ There should be a consistent kWh/FTE for all departments, however this intensity metric differs from department to department with a range between 4,106-4,826 kWh/FTE.

▶ EcoAct's intensity metric was 3,489 kWh/FTE.

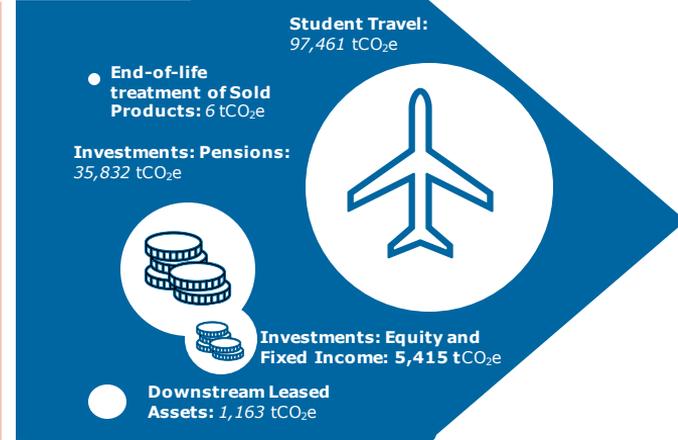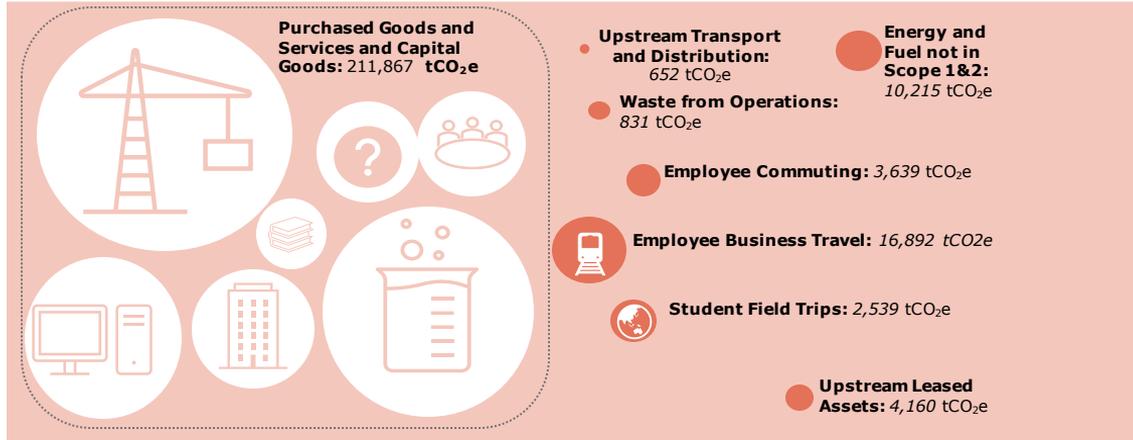|	UoM	EcoAct
kWh	8,123,850	6,054,014
tCO_2e	1,501	1,123

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Scope 3 Results

High Level Review

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Objectives of Scope 3 Project

▶ Summarise the **results of Scope 3 calculations**.

▶ Understand the **most material elements** of The University's Scope 3 footprint and conduct analysis on key categories.

▶ **Review the identified data gaps** and outline suggested methods to address the missing information for future calculations.

▶ **Build on the opportunities** to improve data quality, **target 'hotspots'** for future and detail next steps.

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July 2018-August 2019 Scope 3 Emissions

Total: 390,672 tCO$_2$e (Location-Based)

Purchased Goods and Services and Capital Goods: 211,867 **tCO$_2$e**

Upstream Transport and Distribution: *652* tCO$_2$e

Waste from Operations: 831 tCO$_2$e

Energy and Fuel not in Scope 1&2: *10,215* tCO$_2$e

Employee Commuting: *3,639* tCO$_2$e

Employee Business Travel: *16,892 tCO2e*

Student Field Trips: *2,539* tCO$_2$e

Upstream Leased Assets: *4,160* tCO$_2$e

End-of-life treatment of Sold Products: *6* tCO$_2$e

Investments: Pensions: *35,832* tCO$_2$e

Student Travel: *97,461* tCO$_2$e

Investments: Equity and Fixed Income: *5,415* tCO$_2$e

Downstream Leased Assets: *1,163* tCO$_2$e

Upstream activities

Downstream activities

Excluded categories/activity due to relevance to University and/or footprint boundary:
- Processing of Sold Goods
- Use of Sold Goods
- Franchises
- Equity Investments: Relevant, not included due to lack of data visibility
- Student study abroad travel
- Visitor travel to/from campus university events

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Academic Year 2018 Scope 3 Emissions

Sources of Emissions	Metric tonnes CO2e	% of total Footprint (Market Based)
Cat 1 - Purchased Goods and Services	171,213	44.3%
Cat 2 - Capital Goods	40,654	10.5%
Cat 3 - Energy and Fuel	10,215	2.6%
Cat 4 - Transportation & Distribution	652	0.2%
Cat 5 - Waste	831	0.2%
Cat 6 - Business Travel	16,892	4.3%
Cat 6 - Field Trips	2,539	0.7%
Cat 7 - Staff Commuting	3,639	0.9%
Cat 8 - Upstream Leased Assets (Location Based)	4,160	1.1%
Cat 8 - Upstream Leased Assets (Market Based)	523	0.1%
Cat 9 - Student Travel	97,461	25.2%
Cat 10 - Processing of Sold Goods	-	0.0%
Cat 11 - Use of Sold Goods	-	0.0%
Cat 12 - End of Life Treatment	6	0.0%
Cat 13 - Downstream Leased Assets	1,163	0.3%
Cat 14 - Franchises	-	0.0%
Cat 15 - Investments: Mercer Report (Equity)	5,415	1.4%
Cat 15 - Investments: Pensions	35,832	9.3%
TOTAL (Location Based) tCO2e	390,672	
TOTAL (Market Based) tCO2e	387,035	

Where possible, **primary data** (electricity consumption, mass, energy etc.) has been collected directly from internal business units within The University of Manchester.

Where **secondary data** has been used(spend/average data), there is an increase in uncertainty of emissions and the chance of driving action throughout your value chain decreases.

A greater proportion of primary data will need to be obtained in future to reduce carbon through engagement, strategy and governance based on detailed product data provided by suppliers.

Effort required (time/cost) — **Efficacy** (accuracy/ability to influence)

Spend-based
- **Data source:** Spend data from procurement
- **Function:** Assess relative materiality
- **Level of detail:** Company aggregate; sector average

Industry databases
- **Data source:** LCA database, R&D, sales
- **Function:** track product-level performance
- **Level of detail:** by SKU*; ingredients/components; market average data

Supplier
- **Data source:** Suppliers
- **Function:** Track performance at ingredient, component, material level
- **Level of detail:** by ingredient / component / material; supplier-specific data

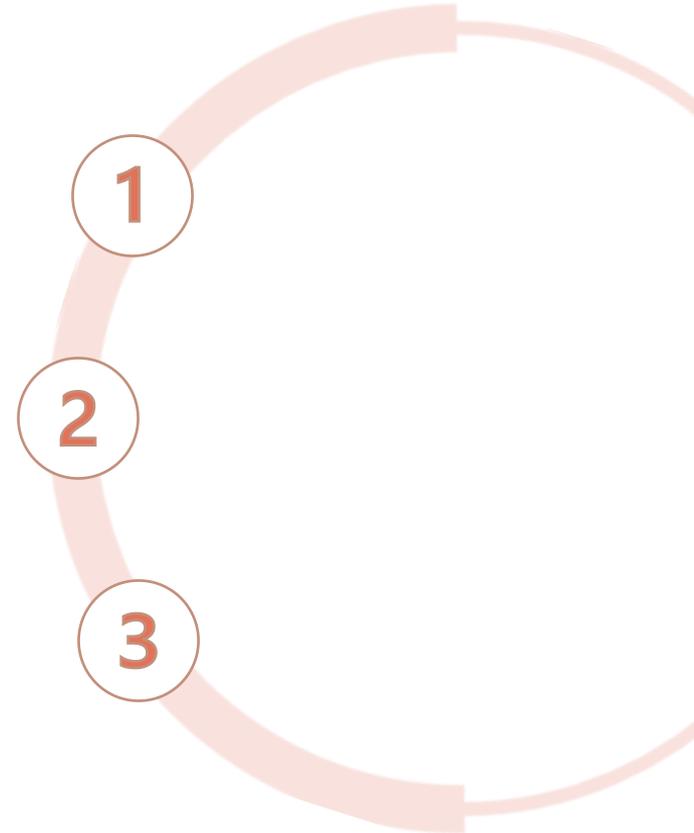Greater accuracy requires more detailed analysis

Top recommendations for improving data quality

Utilise Greenstone tool by adding in a column which maps DEFRA emission factor names to the activity data in the tool for ease of conversion

1

Improve the response rate for the travel survey to at least 20% of staff and 20% of students.

2

Supplier engagement:

- Obtain Scope 1&2 emissions of suppliers to reduce reliance on spend-based method.
- Obtain actual WACI* metrics for investments

3

*Weighted Average Carbon Intensity metrics. This term tends to be used for carbon intensity for investment funds

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Greenstone/Defra Emission Factors

As part of our recommendations, we suggest mapping DEFRA emission factor labels to your Greenstone activity. Below are some examples where we have mapped Greenstone activity to DEFRA emission factor labels for waste and business travel. By including a DEFRA Emission Factor Label column in your Greenstone tool, ensuring it matches exactly, it will speed up the process of calculating your Scope 3 emissions.

Business Travel: Air

Greenstone Distance	DEFRA Route Type
International	International, to/from non-UK
Long Haul	Long-haul, to/from UK
Medium Haul	Short-haul, to/from UK
Short Haul	Domestic, to/from UK

Waste

Greenstone Material Type	Greenstone Material Treatment	DEFRA Waste Treatment Label
Cardboard	Recycling (Closed Loop)	Paper and board: board
Clinical (Consumption only)	Energy (Combustion)	Commercial and industrial waste
Clinical (Consumption only)	Landfill	Commercial and industrial waste
Commercial and Industrial (Mixed)	Energy (Combustion)	Commercial and industrial waste
Commercial and Industrial (Mixed)	Landfill	Commercial and industrial waste
Commercial and Industrial (Mixed)	Recycling (Closed Loop)	Commercial and industrial waste
Construction (Aggregates)	Recycling (Open Loop)	Aggregates
Construction (Asbestos)	Landfill	Asbestos
Construction (Bricks)	Landfill	Bricks
Construction (Bricks)	Recycling (Open Loop)	Bricks

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Data Key

► Throughout the following slides, there is a key in the top right corner, explaining the activity data type for the category being analysed.
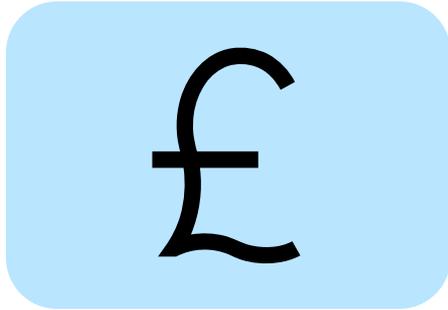
Spend Data
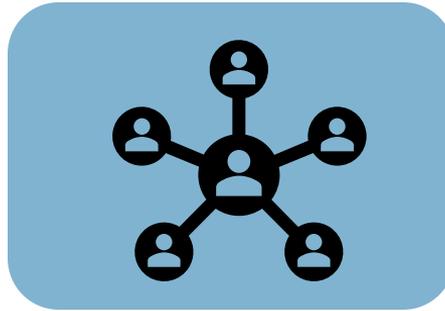
Average Data

Actual Data

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Results

Upstream categories

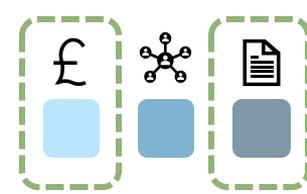*Using DEFRA SIC Code Emission Factors to calculate emissions from Spend-Based activity.*

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Category 1 & 2:
Purchased Goods & Services, Capital Goods
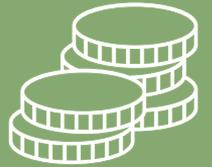
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Category 1:
Purchased Goods & Services

Category 1 **emissions are responsible for 44.3%** of The University of Manchester's carbon footprint, totalling at 171,213 tCo_2e.

All calculations other than food/catering supplies (calculated by Klimato) have been based on spend data. Progress needs to be made to collect raw data from suppliers to enhance this data over time.

Category 1	Unit	Value 18/19	tCO2e	% of Total
Laboratory/Animal House Supplies & Services	£	47,700,140	43,959	26%
Computer Supplies & Services	£	89,046,529	35,180	21%
Miscellaneous/Unclassified	£	64,950,678	30,532	18%
Estates & Buildings	£	50,982,055	23,488	14%
Library & Publications	£	33,911,295	11,374	7%
Professional & Bought-in Services	£	3,097,859	6,445	4%
Furniture, Furnishings & textiles	£	10,426,512	4,735	3%
Catering Supplies & Services	£	3,350,108	2,406	1%
Workshop & Maintenance Supplies (Lab & Estates)	£	2,275,087	2,259	1%
Safety & Security	£	10,967,945	2,225	1%
The Arts, Audio-Visual & Multimedia Supplies and Services	£	3,957,914	1,949	1%
Stationery & Office Supplies	£	1,739,042	1,568	1%
Medical, Surgical, Nursing Supplies & Services	£	3,917,789	1,446	1%
Printing	£	5,931,452	1,127	1%
Janitorial & Domestic Supplies & Services	£	2,132,545	778	0%
Agricultural/Fisheries/Forestry/Horticultural/Oceanographic Supplies & Services	£	2,451,462	479	0%
Food and Drink (Catering) Calculated by Klimato	£	1,210,302	365	0%
Travel & Transport (incl. Vehicle hire & Subsistence)	£	359,148	293	0%
Water Supply	m3	17,453,822	267	0%
Telecommunications, Postal & Mail Room Services	£	753,245	259	0%
Vehicles (Purchase, Lease, Contract Hire)	£	161,953	70	0%
Utilities	£	33,764	10	0%
Total			**171,213**	

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Category 2:
Capital Goods
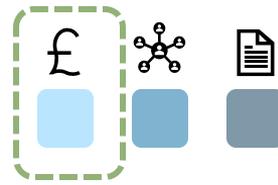
Category 2 emissions are responsible for 10.5% of The University of Manchester's carbon footprint, totalling at 40,654 tCO$_2$e

As with Category 1, progress needs to be made to collect raw data from suppliers to enhance this data over time, focusing on the embodied carbon* of construction projects across the campus

Spend category	Emissions (tCO2e)
Plant Purchase, Hire & Maintenance, inc. Lifts, Air-conditioning, Boilers, Generators etc	200
Temporary & Mobile Buildings, Hire & Purchase	304
Capital Projects	40,150
Total	**40,654**

*Embodied carbon consists of all the GHG emissions associated with building construction, including those that arise from extracting, transporting, manufacturing, and installing building materials on site, as well as the operational and end-of-life emissions associated with those materials.

Category 1 & 2:
Purchased Goods & Services and Capital Goods
Summary of emissions by data source: top 90% of emissions

The University of Manchester Spend Category	Emissions (tCO2e)	% of Cat. 1 & 2 total
Computer Supplies & Services	43,959	21%
Capital Projects	40,150	19%
Miscellaneous/Unclassified	35,180	17%
Laboratory/Animal House Supplies & Services	30,532	14%
Professional & Bought-in Services	23,488	11%
Estates & Buildings	11,374	5%
Medical, Surgical, Nursing Supplies & Services	6,445	3%
	191,128	90%

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Category 1 & 2:
Purchased Goods & Services and Capital Goods
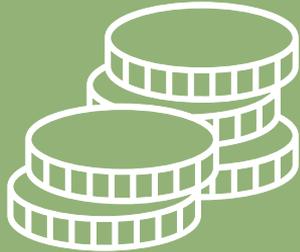
Recommendations & Filling the data gaps

- It is recommended for Capital Projects, collect embodied carbon data: raw materials used in capital projects broken down by project, weight and material type.
- Purchased Goods and Services spend data is very good quality.

To improve data quality:

- **Collect primary data from suppliers in order to understand carbon intensity of the production of purchased good and services and capital goods. This could initially be collected via questionnaires or provided directly by suppliers via a procurement tool.**

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Category 3
Fuel- & Energy-Related Activities
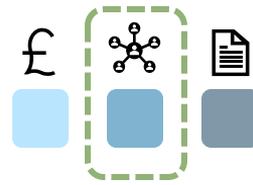
Fuel-and energy-related emissions are based on all consumption data of fuels and purchased energy used by The University of Manchester, as reported in Scope 1 & 2. Category 3 accounts for emissions such as transportation and distribution of fuel and transmission and distribution of electricity. Category 3 totals to **10,215 tCO₂e**, which is equivalent to **3% of total emissions**.

Energy and Fuel Related Activities	Fuel Type	Total tCO$_2$e
WTT - Electricity Generation:	Electricity	3,978.21
WTT - Electricity Gen T&D	Electricity	338.64
Transmission and Distribution	Electricity	2,360.13
Well to Tank	Natural Gas	3,454.91
Well to Tank	Gas Oil	49.67
Well to Tank	Petrol	19.85
Well to Tank	Diesel	13.68
Total		**10,215**

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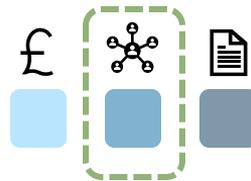
Category 3
Fuel- & Energy-Related Activities

Recommendations & Filling the data gaps

Whilst Category 3 is not a material source of emissions for the organisation, the link these emissions have to Scope 1 and 2 figures converts it into a category where **quick wins** can take place.

It is recommended that you start to understand the fuel split within fleet to calculate emissions with more accuracy

→ **By reducing Scope 1 & 2 emissions, the emissions in this Scope 3 category will reduce at a similar rate.**

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Category 4:

Upstream Transportation and Distribution

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Category 4
Upstream Transportation and Distribution
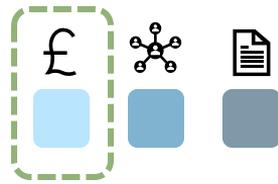
The University of Manchester' upstream T&D emissions includes all transportation to The University of Manchester' facilities which aren't already included in Category 1.

Category 4 itself accounts for **652 tCO$_2$e**, which is equivalent to **0.1% of total emissions**.

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Category 4
Transportation and Distribution
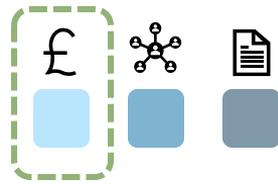
Recommendations & Filling the data gaps

Collect primary data from suppliers in order to understand mileage and transportation methods. This could initially be collected via questionnaires or provided directly by construction/logistics partner(s).

→ **Although this is a small amount of emissions, this work to collect primary data can be done in conjunction with Category 1 and 2**

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Category 5
Waste Generated in Operations
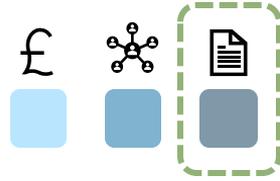
Waste generated by The University of Manchester accounts for only 0.2% of the organisation's overall emissions, producing **831 tCO$_2$e annually.**

The University of Manchester' operations involve **various waste disposal methods**, including recycling, incineration and landfill. Emissions calculated using the **waste-type-specific method.**

Waste Category	Activity Data	Units	tCO$_2$e
Waste	17,329	Metric tonnes	298
Dry Recycling	753,245	m^3	533
Total			**831**

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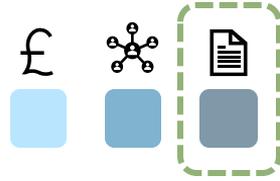
Category 5:
Waste Generated in Operations

Recommendations & Filling the data gaps

Ensure all raw data from the entire university estate is uploaded onto Greenstone. Include the DEFRA waste categories to Greenstone to improve the efficiency of the calculations.

Improve to a supplier-specific method (currently a waste-type-specific method), which involves collecting waste-specific scope 1 and scope 2 emissions data directly from waste treatment companies (e.g., for incineration, recovery for recycling).

Category 6:
Business Travel and Field Trips

Category 6
Business Travel and Field Trips

Category 6 is responsible for **19,430.8 tCO$_2$e** of total Scope 3 emissions, this category represents **5%** of total emissions.

	Activity type	Transport type	Distance	Unit	tCO$_2$e
Staff Business Travel	Business	Rail	7,954,083.0	Km	388.4
		Plane	78,898,993.0	Km	15,389.9
		Road	2,435,532.0	Km	716.4
	Hotels	N/A		N/A	397.3
Student Travel	Field Trips	Plane	246,556.1	Km	2,528.9
		Coach	7,720.0	Km	9.9
	Total		**89,542,884**		**19,430.8**

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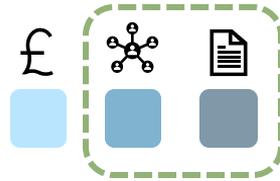
Category 6:
Business Travel and Field Trips

Recommendations & Filling the data gaps

Improve the accuracy of flight data by providing the home and destination airports for both business travel and fieldtrips.

It is recommended that the University ensures hotel data has correct data inputs for number of night stayed. 2% of the hotels data has incorrect or no time stamp associated to the hotel stay and therefore has been estimated by the mode number of nights.

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Category 7:
Employee Commuting

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Category 7
Employee Commuting
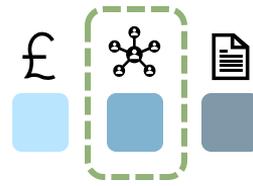
Responsible for **3,639 tCO₂e** or **0.9%** of total Scope 3 emissions. This category is calculated using The University of Manchester's Travel Survey where 8% of staff responded.

	Staff Numbers 2018/19	2018/19 Number of Staff Respondents	2018/19 Survey Response Rate	2018/19 tCO₂e
Staff Numbers	10,245	870	8%	**3,639**
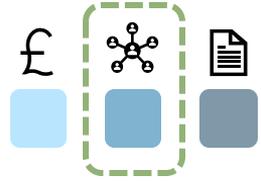
Category 7:
Employee Commuting

Recommendations & Filling the data gaps

This category is one of the more difficult to influence as increased working from home also has associated emissions.

It is recommended to improve the travel survey response to 20% of staff, currently it stands at 8% of staff. Greater detail could be given on the type of cars that are used so that more specific emissions factors can be used in the calculations.
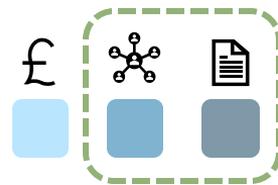
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Category 8:
Upstream Leased Assets
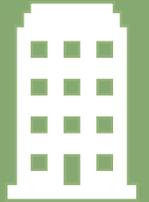
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Category 8
Upstream Leased Assets

Due to the data centre having renewable energy, we have calculated the emissions on a location-based and market-based basis.

Category 8 is responsible for **4,160 tCO$_2$e** of total Scope 3 location based emissions, this category represents **1.1 %** of total emissions. If we account for the 100% renewable energy used for the data centre, Category 8 is responsible for **523 tCO$_2$e** of total Scope 3 market-based emissions, this category represents **0.1%** of total emissions.

Building Type	tCO$_2$e (Location Based)	tCO$_2$e (Market Based Based)
Cent Admin	0.26	0.26
Data Centre	3,636.27	-
Mixed	212.18	212.18
Offices	8.44	8.44
Research	117.84	117.84
Storage	68.83	68.83
Telescope	115.80	115.80
Total	**4,159.63**	**523.36**
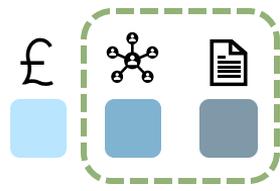
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Category 8:
Upstream Leased Assets

Recommendations & Filling the data gaps

It is recommended that the university updates a template similar to the one provided by EcoAct on a quarterly basis to ensure there is a full data set for properties in which leases have been taken.

Sites missing energy (gas and/or electricity) data from 18/19 are listed on the right. Energy benchmarks using actual or CIBSE TM46 have been used to fill these gaps.

Category 8 emissions could be reduced in future through consideration of a renewable electricity tariff and/or switching heating services to be electrically powered – reducing the emphasis on gas.

Bright Building Suite 2
Bright Building Suite 3
Reynolds House 2nd Floor
Altrincham Street Arches 16-32
Charles Street Arches 33 - 43
Alderley Park Block 13 First Floor
Alderley Park Block 3 second floor [part]
Alderley Park Block 3 Basement [part]
Alderley Park Block 14 first floor
Alderley Park Block 14 second floor
Alderley Park Block 12 ground floor [part]
Alderley Park Block 12 second floor [part]
Alderley Park Block 12 first floor
Alderley Park Block 33 ground floor
Alderley Park Block 8 first floor
Alderley Park Block 13 Ground Floor
Alderley Park Block 13 Second Floor
Aldow Enterprise Park Unit B
Lapwing Centre - Unit 5
Unit 5 Guinness Road Trading Estate

Results
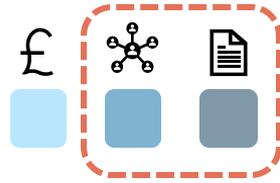
Downstream categories

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Category 9:

Student Travel: Term Time Commuting

# Category 9
Student Travel: Term Time Commuting

Responsible for **97,461 tCO₂e**, or **25.2%** of total Scope 3 emissions. This category is calculated using The University of Manchester's Travel Survey where 1% of students responded. The 2021/22 travel survey responses have been extrapolated to the 2018/19 student numbers.

August 2018 - July 2019	Student Numbers 2018/19	Student Numbers 2021/22	Travel Survey Response Numbers	Number of Student Respondents	2018/19 Total Well to Wheel tCO$_{2e}$
Domestic Travel to and from Base Home	37,090	41,810	236	1%	16,113
Student Weekly Commuting	37,090	41,810	223	1%	77,597
International Travel	16,833	18,975	18,975	100%	3,750
Total					**97,461**
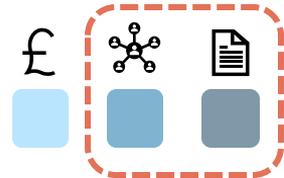
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Category 9:
Student Travel: Term Time Commuting

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Recommendations & Filling the data gaps

It is recommended to improve the travel survey response to 20% of students, currently it stands at 1% of 2021/22 students.

The data quality is detailed although specific cities could be added to the overseas student data to increase the accuracy of emissions calculations.
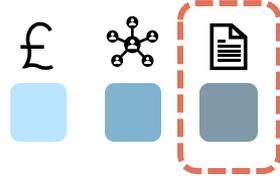
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Category 12
End of Life Treatment of Sold Products

Emissions from the disposal of gift shop sold products account for **0.002%** of all Scope 3 emissions, or **6 tCO$_2$e.** Despite low materiality, it is a significant category to drive sustainability/carbon to customers, staff and students as it is consumer facing.

Category	Total expected waste weight (t)	tCO$_{2e}$
Fleece	2,958.45	4.19
Accessories	201.18	0.28
T-Shirt	558.38	0.79
Jacket	340.69	0.48
Headwear	105.60	0.15
Unlisted	39.33	0.06
Total	**4,203.63**	**5.95**

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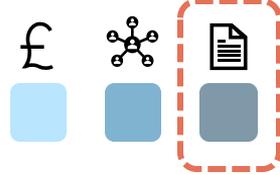The University of Manchester

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Category 13:
Downstream Leased Assets

# Category 13
Downstream Leased Assets

Category 13 includes any emissions from the operation of assets leased that are not already included in Scope 1 or Scope 2.

Responsible for **1,163 tCO₂e** of total Scope 3 emissions, this category represents **0.3 %** of total emissions.

Building Type	tCO₂e (market based)
Offices	491
Research	669
Mixed	3
Total	**1,163**

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Category 13:
Downstream Leased Assets
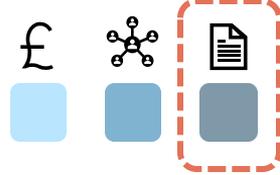
Recommendations & Filling the data gaps

The energy data quality for buildings, in which leases were granted, is sufficient. No averages/benchmarks were used however 2022 data was used to estimate 2018/19 energy consumption.

Like Cat 8, it is recommended that the university updates a template like the one provided by EcoAct on a quarterly basis to ensure there is a full data set for properties in which leases have been granted.
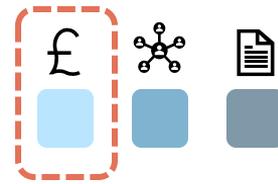
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Category 15
Investments: Pensions

The UMSS trust follows the University's procurement policies, and it is included in the University's financial report, therefore we would deem that the University has operational control/influence over the trust, despite it being a separate entity. As we are calculating the footprint under the operational control method, this would be deemed appropriate to include.

Other pensions such as USS, Pension Saver, NHS Scheme, GMPF and Nest Pensions will be excluded from the footprint, due to the lack of operational control.

Pensions are responsible for **35,832 tCO$_2$e** of total Scope 3 emissions, this category represents **9.3%** of total emissions.

| Pension Asset Class	£(m) Invested Dec 2018	tCO$_2$e
Equity	216.5	15,717.68
Growth Fixed Income Assets	168.2	7,606.63
Matching Assets	206.3	12,507.94
Total		**35,832**
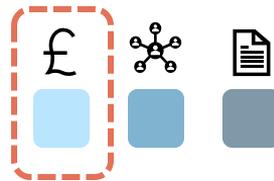
Category 15:
Investments: Pensions

Recommendations & Filling the data gaps

Pensions: It is recommended that the University obtains actual WACI emission factors (Weighted Average Carbon Intensity) for each Mandate by collecting Scope 1&2 emissions of each company/asset within the Mandate.

There is limited guidance to calculating carbon emissions associated to pensions but as years go on, this will become more refined.

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Category 15

Investments: Equity and Fixed Income
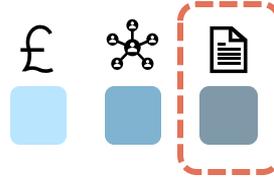
Endowment funds are responsible for 5,415 **tCO₂e** of total Scope 3 emissions, this category represents **1.4%** of total emissions.

Asset Class	£(m) Invested Academic Year 2021	tCO₂e
Ninety One - Global Equity	47	1,439
Mercer - Passive Sustainable Equity	46	519
Ruffer - Multi Asset	47	2,277
Mercer - Absolute Return Fixed Income	19	788
Mercer - Short Duration Bond Fund	19	392
BlackRock Property Fund	34	Not Calculated
Total	**212**	**5,415**

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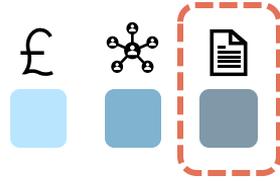
Category 15:
Investments: Equity and Fixed Income

Recommendations & Filling the data gaps

Without visibility of the Mercer methodology, we are unable to provide recommendations on data quality. Understanding the portfolio-specific WACI figures will help the university to continue to decarbonise and we would encourage the university to continue to measure these emissions at a portfolio-level basis.

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Investment Intensity Metrics

The University commissioned an asset management consultancy to understand the emissions from their portfolio and therefore, the carbon calculations for Equity and Fixed Income are more refined due to the understanding of the actual footprint of the investments.

EcoAct did not have visibility of the inveWACI figures were applied which could result in less accurate emission results within UMSS Pensions and therefore global indexes.

Investment Type	Carbon Intensity tCO2e/£m
Mercer Calculations, Equity and Fixed Income (2021/22)	30.42
Pensions (2018/19)	60.63

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Future
Footprints

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Future Footprints

Things to consider:

▶ Staff home working emissions calculations using EcoAct's White Paper Methodology: https://info.eco-act.com/en/homeworking-emissions-whitepaper-2020

▶ Inclusion of NFT's in footprint from art galleries (if significant): https://www.theartnewspaper.com/2021/07/23/the-whitworth-gallery-in-manchester-mints-a-william-blake-nft-in-aid-of-community-causes

▶ New procurement system will need to be mapped against the DEFRA procurement emission factors (or another data set if you choose)

Better Data: High Impact/Focus Points

▶ Supplier Data for purchased goods and services and capital goods
▶ Investment/Pension funds actual WACI figures (weighted average carbon intensity)
▶ Better response on travel survey

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Preview of Workshop Slides/Agenda

Targets

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Workshop Objectives:

- ▶ Give a breakdown of the various categories and highlight impact categories
- ▶ Highlight the risks of not setting a Net Zero target
- ▶ Modelling example/suggestions
- ▶ Understand the priorities of the University and its departments
- ▶ Agree on high-level Near-Term and Long-Term targets
- ▶ Agree on category-level targets

Agenda:

09:00-09:10	Introductions and Workshop Objectives
09:10-10:00	High-level footprint overview, running through methodology, data quality and data recommendations
10:00-10:20	Footprint Q&A
10:20-10:40	Break
10:40-10:55	Modelling example and reduction suggestions
10:55-11:20	Target Workshop: Room is split into groups to discuss how to reduce emissions for their category, thinking about the various priorities for the University and trade-offs
11:20-11:50	Target discussion
11:50-12:00	Conclusion

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Current Targets:

► Zero Carbon (Scope 1 & 2) by 2038

► Signed up to Race for Zero

RACE TO ZERO

Draft Targets to be approved in early 2023:
Scope 1 & 2

► Decarbonise fleet vehicles by 2030 and provide adequate electric vehicle charging points for staff, students and visitors.
► Design all new construction projects from 2023 as zero carbon in operation.

Scope 3
► Ensure emissions from University air travel will not exceed 50% of the pre-pandemic level (2018/19).
► Recycle 45% of the waste we produce through campus operations by 2025.
► Roll out food waste collection facilities to 100% of buildings by 2024, or when legislation demands it, whichever is sooner

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Government and Other Universities

▶ Government strategy focuses on consumer choice, 'polluter pays', protection of vulnerable people and low carbon tech. Strategy that may affect the University's carbon footprint:

– 2035: UK will be powered by clean energy

– 2030: No new petrol or diesel cars sold

– 2030: Half of journeys to be cycled or walked

– 2028: Near elimination of biodegradable waste sent to landfill

▶ New Report from the Environmental and Climate Change Committee: "In our hands: behaviour change for climate and environmental goals" discusses ways in which the government needs to build a country in which **low carbon choices can flourish;** which is very relevant when looking at a Scope 3 strategy.
https://committees.parliament.uk/publications/30146/documents/174873/default/

Russell Group Universities

▶ Oxford University: Net Zero by 2035 using a sustainability fund of **$200million** to aid sustainability initiatives – big driver on offsetting

▶ Nottingham University: Scope 1&2 Only - 63% reduction by 2030 (science-based), Carbon Neutral by 2040 with offsetting), **Zero Carbon by 2050**

▶ The University of Bristol – **No Scope 3** target set

▶ UCL – Net Zero by **2030**

▶ The University of Edinburgh – only including **operational Scope 3** (business travel, waste and water) in their Carbon Neutral target (2040)

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Science-Based Targets

► Although the University is not submitting a target to the Science-Based Target Initiative, it is recommended to set Near-Term and Long-Term targets which align with a 1.5˚C ambition level, which is considered best practice.

LONG-TERM TEMPERATURE GOAL	ANNUAL LINEAR REDUCTION RATE OVER TARGET PERIOD
Well-below 2˚C Approx. 66% chance of limiting peak warming between present and 2100 to below 2˚C.	2.5% ≤ X < 4.2%
1.5˚C Approx. 50% chance of limiting warming in 2100 to 1.5˚C.	X ≥ 4.2%

	NEAR-TERM	LONG-TERM	ELIGIBILITY
Absolute Contraction	**Cross-sector pathway:** • S1+2: 4.2% p.a. • S3: 2.5% p.a.	**Cross-sector pathway:** • 90% reduction • Sector-specific pathways: • FLAG sector: 80% reduction • Cement, iron & steel, residential buildings, and service buildings: >90% • Other sector-specific and commodity-specific pathways to be added	• Scopes 1-3 • Default option

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Modelling to Net Zero by 2050

Linear Target Modelling (Business as Usual)
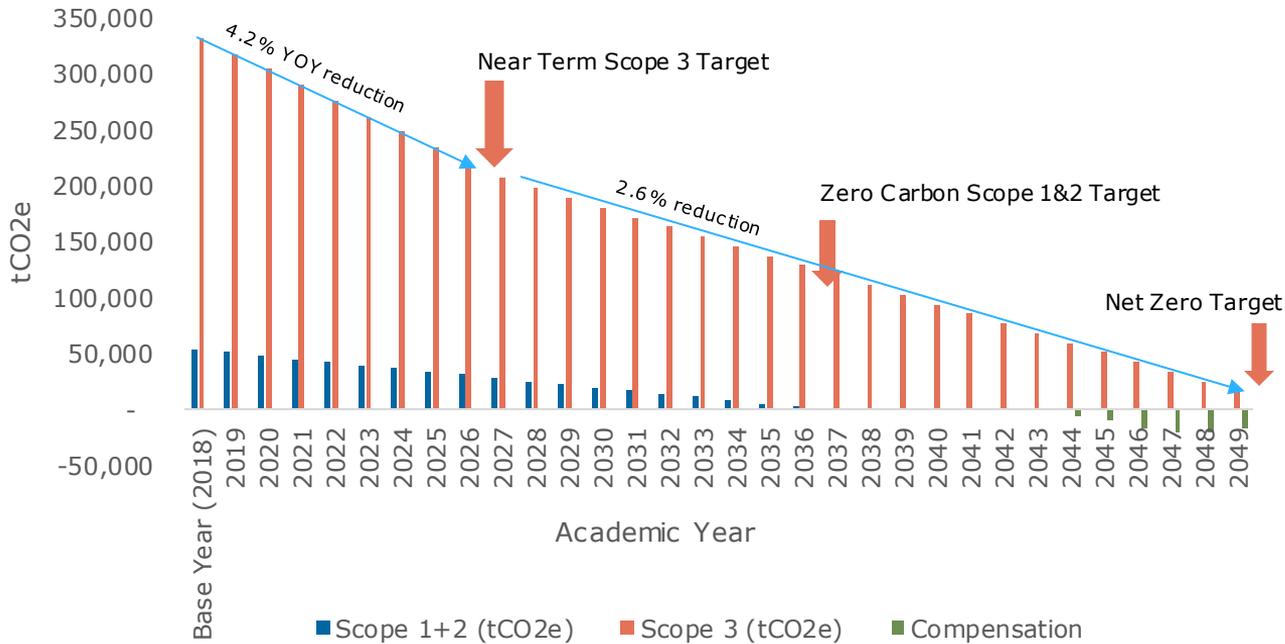
Near Term Target (5-10 years from baseline) suggestion: 40% reduction in Scope 3 emissions by 2028*

Long Term Target suggestion: 95% Reduction in Scope 3 emissions by 2050, compensating the remaining 5% (reaching Net Zero)**

These reduction targets are in-line with the SBTi Net Zero guidance and is modelled on a business-as-usual basis.

*Near-term science-based targets must cover at least 95% of company-wide scope 1 and 2 emissions. For companies with scope 3 emissions that are at least 40% of total emissions (scope 1, 2, and 3 emissions), at least 67% of scope 3 emissions must also be covered (SBTI Net Zero Standard, Page 22)

**Long-term SBTs must cover at least 95% of company-wide scope 1 and 2 emissions and 90% of scope 3 emissions. (SBTI Net Zero Standard, Page 23)

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Impact Categories

Purchased Goods and Services and Capital Goods, *211,867* **tCO$_2$e**

Student Travel: *97,461* tCO$_2$e

Investments: Pensions *35,832* tCO$_2$e

These categories make up ~80% of the University's footprint and it is recommended that these inform the majority of a carbon reduction plan

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Scope 3 Reduction: *High Impact*

► **Internal Carbon Pricing (ICP)**: Case Studies at universities such as UCL: https://www.ucl.ac.uk/sustainable/positive-climate/carbon-accountability-scheme

► However, they only focus on Scope 1&2 which requires sub-metering the campus. The University could apply ICP to focus on it for **Scope 3** categories such as Business Travel and Procurement etc. on a departmental level.

Benefits of ICP:

Increase internal climate change awareness and climate risk understanding

Aid reaching emission reduction targets

Generate funding for sustainability initiatives or offsets

Mitigate regulatory risks i.e. future carbon pricing systems or decarbonisation policies

Direct investments to low-carbon technologies more effectively

Drive internal operational efficiencies

Supplier Engagement

► The University's emissions associated to Purchased Goods and Services and Capital Goods are based on Spend.

► The University should consider a Supplier Engagement programme which encourages **suppliers to set Net Zero targets** (thus decarbonising your supply chain) but also collect Scope 1&2 emissions from suppliers to achieve a **more accurate carbon footprint.** This could be implemented to expand on the 'Net Positive' procurement tool already in place at the University.

Contextualise	
Assess*	Aligns with CDP Supply Chain
Report*	Bespoke EcoAct service
Engage	Bespoke EcoAct service
Formalise	Optional service

YoY engagement and assessment
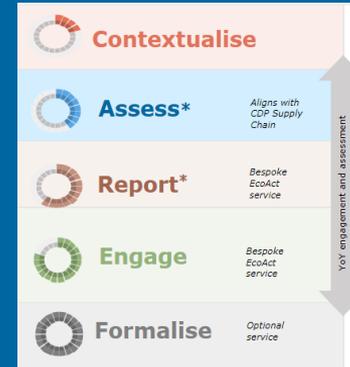
EcoAct's bespoke supplier engagement programme allows customers to:
► Understand supplier maturity and supplier emissions
► Engage through webinars
► Formalise sustainable procurement practices into policy, procurement charters and tenders.

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Student Travel:
International Students

Project 33 looks to increase University of Manchester's international student population to 33% of student population.

Long-Term Strategy

► **Financial incentives** for oversees students travelling via rail or sea (Europe).

► **Work with other Greater Manchester organisations to co-ordinate with flight operators** regarding less carbon intensive fuels and/or set up an investment fund for this particular research/development.

► Consider more capacity for **online courses**

► Consider **lecturers travelling** to the students overseas: hybrid of online and face to face. Similar to the graduation scheme where professors go to countries to present degrees to students at a graduation

Quick Wins

► **Reduce travel** home throughout the year – how can the campus be more inviting over the holiday breaks? Seasonal job schemes/internships?

► **Zero carbon transfers** – organize electric vehicles for students coming to and from the airport/train station at the start and end of the year

► Take advantage of **Host Families Scheme** for the Christmas break.

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Questions

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Your climate experts.
Your partners for positive change.

EcoAct, an Atos company, is an international climate consultancy and project developer that supports companies to set robust science-aligned net-zero strategies and achieve their climate targets. Founded in France in 2006, the company now spans three continents with offices in Paris, London, Barcelona, New York, Montreal, Munich, Milan and Kenya.

With a team of more than 260 international climate experts, EcoAct's core purpose is to lead the way in delivering sustainable business solutions that deliver true value for both climate and client. EcoAct is a CDP Gold Partner, a founding member of ICROA, a strategic partner in the implementation of the Gold Standard for the Global Goals and reports to the UN Global Compact.

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