University of Cambridge

Environmental Sustainability Data Assurance Methodology Statement for the 2021/2022 reporting year

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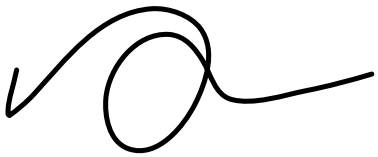
The Council of the University of Cambridge's Statement on The University of Cambridge's selected environmental sustainability performance data (the "Selected Information") within the Environmental Sustainability Report for the year ended 31 July 2022 ("the Report")

As the Council of The University of Cambridge, we confirm that we are solely responsible for the preparation of the Report including this Directors' Statement and for reporting the Selected Information in accordance with the reporting criteria set out within this document.

We confirm, to the best of our knowledge and belief, that we have:

1. designed, implemented and maintained internal controls and processes over information relevant to the measurement, evaluation and preparation of the Selected Information that is free from material misstatement, whether due to fraud or error;
2. established objective reporting criteria for preparing and presenting the Selected Information, including clear definition of the entity's organisational boundaries, and applied them consistently;
3. presented information, including the reporting criteria, in a manner that provides relevant, complete, reliable, unbiased/neutral, comparable and understandable information;
4. reported the Selected Information in accordance with the reporting criteria.



Sally Pidgeon

Interim Head of Sustainability

For and on behalf of The Council of The University of Cambridge

27/02/2023

Introduction

The University of Cambridge published the Environmental Sustainability Vision, Policy and Strategy in 2015:

https://www.environment.admin.cam.ac.uk/files/environmental_sustainability_vision_policy_and_strategy_for_web.pdf.

This sets out our aims, targets and key implementation mechanisms under nine themes and contains a number of key performance indicators (KPIs). Progress against the ambitions with this policy is reported annually in an Environmental Sustainability Report:

https://www.environment.admin.cam.ac.uk/Annual-Report.

In July 2019, the University announced a new, ambitious science based target (SBT) for carbon reduction. This commits us to reduce energy-related (scope 1 and 2) carbon emissions to absolute zero by 2048, with a steep 75% decrease on 2015 emissions by 2030. The University has also expressed an aspiration to be ten years ahead of its SBT decarbonisation pathway at all times and to reach zero carbon by 2038:

https://www.cam.ac.uk/news/university-of-cambridge-adopts-science-based-target-for-carbon-reduction.

It is important that the University's environmental sustainability data is as accurate as possible to enable us to measure our progress against targets, as well as reduce our negative and enhance our positive environmental impact. This is why we have chosen to gain an Independent public limited assurance opinion on selected information within our Environmental Sustainability Report for the year ended 31st July 2022, as we have also done in recent prior years.

Scope of reporting

As the table below shows, a number of the key metrics included in our Environmental Sustainability Report refer directly to the University's carbon emissions (scopes 1, 2 and 3). A number of the other metrics (for example, water consumption, waste and staff commuting figures) are used as part of our carbon emissions calculations.

For this reason, for many of our metrics, we have defined the scope of what we include when measuring our progress according to international best practice guidance on carbon emissions reporting (ghgprotocol.org/corporate-standard). Under this guidance, there are a number of different approaches that an organisation can take to define which operations and activities need to be included when calculating and reporting its carbon emissions. The University has adopted what is known as the Operational Control approach, under which the buildings, activities and operations included in our calculations and reporting are those over which the University has direct control or significant influence.

It should be noted that, to date, our reported carbon figures and related metrics refer only to buildings that are occupied by the academic portion of the University – that is, the institutions that are directly involved in delivering the University's teaching and research; and the administrative departments and non-school institutions that support teaching and research. Currently, the buildings and activities of other parts of the wider University are not included in our reported figures (Figure 1). In practice, this means that our reported figures do not include the buildings and activities of Cambridge University Press and Assessment or the North West Cambridge Development, except for those buildings on the development that provide an academic-related function (such as the Post-Doc

Centre). Nor are the University's commercial property portfolio or rural estate included in our reported figures.

The University owns a number of subsidiary organisations but does not have operational control over all of these. Subsidiaries over which the University does not have operational control are excluded from our metrics. Of the subsidiaries over which the University does have operational control, those based in buildings that form part of the North West Cambridge Development, or are occupied by Cambridge University Press and Assessment are currently excluded from our metrics. Some of the University's subsidiaries are located overseas and we will undertake further work to confirm whether the University has operational control over these.

Under best practice and the Operational Control approach to carbon emissions reporting, our figures *should* include emissions arising from the wider University, including the North West Cambridge Development and buildings occupied by Cambridge University Press and Assessment. We are working with representatives from across the wider University to achieve this. For this reason, the scope of our carbon metrics and many of the metrics that are used in our carbon emissions calculations may change in future periods.

It should be noted that the KPIs 'Number of awards won by Green Impact teams' and ' Number of members of the Sustainability Champion Network ' can include departments of the University, the Colleges, CUP&A, principal subsidiaries, associated undertakings and significant investments.

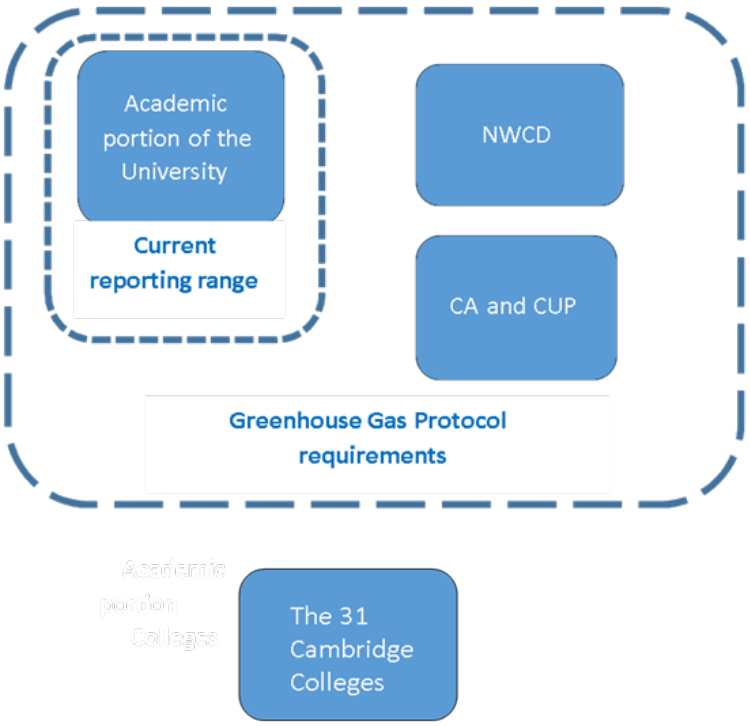


Figure 1: *The University's current carbon emissions reporting boundary versus what should be included in the University's reported figures according to the Operational Control approach.*

It is important to note that the 31 Cambridge Colleges are each separate legal entities (from the University, and each other) and under the Operational Control Approach are out of scope of the University's reported metrics.

New University buildings are brought into scope of our reported figures from the date that they are handed over to the University by the building developer. This is the point at which the University gains operational control over the building and assumes responsibility for utilities used in the building. For example, if the building is acquired and comes under our control two months before the year end, then two months' worth of data will be included for that year. The same applies for disposals, in that if we pass on the control of a building to another organisation we will only include the energy data for those months up until the buildings control was passed over to the new organisation.

The table below summarises the metrics included in our University's Environmental Sustainability Report, and for each indicates:

- Whether the metric is one of our stand alone Key Performance Indicators (KPI), or data used in our carbon emissions calculations, or both.
- Whether the scope of the metric aligns with our boundary definition of the Operational Control approach outlined above.

Where the scope of a specific metric differs to that defined under the Operational Control approach, further information is provided in the section for that metric, below.

Metric	**Type of metric**	**Boundary of the metric**
Energy use (kWh)	Part of our carbon calculations	Buildings that are occupied by the academic portion of the University - that is, the institutions that are directly involved in delivering the University's teaching and research; and the administrative departments and non-school institutions that support teaching and research.
Total scope 1 and 2 carbon emissions – Location-based (tCO_2e)	Stand alone KPI	Buildings that are occupied by the academic portion of the University - that is, the institutions that are directly involved in delivering the University's teaching and research; and the administrative departments and non-school institutions that support teaching and research.
Total scope 1 and 2 carbon emissions – Market-based (tCO_2e)	Stand alone KPI	Buildings that are occupied by the academic portion of the University - that is, the institutions that are directly involved in delivering the University's teaching and research; and the administrative departments and non-school institutions that support teaching and research.
Total Scope 1 and 2 carbon emissions (Location-based) per FTE staff and student (tCO_2e/FTE)	Stand alone KPI	Buildings that are occupied by the academic portion of the University - that is, the institutions that are directly involved in delivering the University's teaching and research; and the administrative departments and non-school institutions that support teaching and research.
Total Scope 1 and 2 carbon emissions (Market-based) per FTE staff and student (tCO_2e/FTE)	Stand alone KPI	Buildings that are occupied by the academic portion of the University - that is, the institutions that are directly involved in delivering the University's teaching and research; and the administrative departments and non-school institutions that support teaching and research.
Total Scope 1 and 2 carbon (Location-based) emissions per total income (tCO_2e/£000)	Stand alone KPI	Buildings that are occupied by the academic portion of the University - that is, the institutions that are directly involved in delivering the University's teaching and research; and the administrative departments and non-school institutions that support teaching and research.

Total Scope 1 and 2 carbon (Market-based) emissions per total income (tCO_2e/£000)	Stand alone KPI	Buildings that are occupied by the academic portion of the University - that is, the institutions that are directly involved in delivering the University's teaching and research; and the administrative departments and non-school institutions that support teaching and research.
Carbon emissions from water use (tCO_2e)	Stand alone KPI	Buildings that are occupied by the academic portion of the University - that is, the institutions that are directly involved in delivering the University's teaching and research; and the administrative departments and non-school institutions that support teaching and research.
Carbon emissions from water use per FTE staff and student (tCO_2e/FTE)	Stand alone KPI	Buildings that are occupied by the academic portion of the University - that is, the institutions that are directly involved in delivering the University's teaching and research; and the administrative departments and non-school institutions that support teaching and research.
Carbon emissions from water use per total income (tCO_2e/£000)	Stand alone KPI	Buildings that are occupied by the academic portion of the University - that is, the institutions that are directly involved in delivering the University's teaching and research; and the administrative departments and non-school institutions that support teaching and research.
Percentage of energy generated from onsite renewable or onsite zero/low carbon sources (%)	Stand alone KPI	Buildings that are occupied by the academic portion of the University - that is, the institutions that are directly involved in delivering the University's teaching and research; and the administrative departments and non-school institutions that support teaching and research.
Total water consumption (m^3)	KPI and part of our carbon calculations	Buildings that are occupied by the academic portion of the University - that is, the institutions that are directly involved in delivering the University's teaching and research; and the administrative departments and non-school institutions that support teaching and research.
Total water consumption per FTE staff and student (m^3/FTE)	Stand alone KPI	Buildings that are occupied by the academic portion of the University - that is, the institutions that are directly involved in delivering the University's teaching and research; and the administrative departments and non-school institutions that support teaching and research.
Waste mass generated per FTE staff and student (tonnes/FTE)	Stand alone KPI	Buildings that are occupied by the academic portion of the University - that is, the institutions that are directly involved in delivering the University's teaching and research; and the administrative departments and non-school institutions that support teaching and research.
Waste sent to landfill (tonnes)	KPI and part of our carbon calculations	Buildings that are occupied by the academic portion of the University - that is, the institutions that are directly involved in delivering the University's teaching and research; and the administrative departments and non-school institutions that support teaching and research.
Percentage of waste generated that is recycled or composted (construction and non-construction waste) (%)	Stand alone KPI	Buildings that are occupied by the academic portion of the University - that is, the institutions that are directly involved in delivering the University's teaching and research; and the administrative departments and non-school institutions that support teaching and research.
Scope 3 emissions (water; commuting; business travel; waste) (tCO_2e)	Stand alone KPI	Buildings that are occupied by the academic portion of the University - that is, the institutions that are directly involved in delivering the University's teaching and research; and the administrative departments and non-school institutions that support teaching and research.

Scope 3 emissions (supply chain) (tCO2e)	Stand alone KPI	Buildings that are occupied by the academic portion of the University - that is, the institutions that are directly involved in delivering the University's teaching and research; and the administrative departments and non-school institutions that support teaching and research.
The percentage of new buildings that are certified at least BREEAM Excellent or equivalent (%)	Stand alone KPI	Buildings that are occupied by the academic portion of the University - that is, the institutions that are directly involved in delivering the University's teaching and research; and the administrative departments and non-school institutions that support teaching and research.
External awards for sustainable construction/design (An award received)	Stand alone KPI	Buildings that are occupied by the academic portion of the University - that is, the institutions that are directly involved in delivering the University's teaching and research; and the administrative departments and non-school institutions that support teaching and research.
Percentage modal split for commuting by staff single occupancy car journey (%)	KPI and part of our carbon calculations	Staff from University of Cambridge only (academic staff, administrative staff and support staff).
Percentage modal split for commuting by staff car share (%)	KPI and part of our carbon calculations	Staff from University of Cambridge only (academic staff, administrative staff and support staff).
Percentage modal split for commuting by staff bus (%)	KPI and part of our carbon calculations	Staff from University of Cambridge only (academic staff, administrative staff and support staff).
Percentage modal split for commuting by staff train (%)	KPI and part of our carbon calculations	Staff from University of Cambridge only (academic staff, administrative staff and support staff).
Percentage modal split for commuting by staff cycle (%)	KPI and part of our carbon calculations	Staff from University of Cambridge only (academic staff, administrative staff and support staff).
Percentage modal split for commuting by staff walk (%)	KPI and part of our carbon calculations	Staff from University of Cambridge only (academic staff, administrative staff and support staff).
Percentage modal split for commuting by staff motorbike (%)	KPI and part of our carbon calculations	Staff from University of Cambridge only (academic staff, administrative staff and support staff).
Percentage modal split for commuting by staff other (%)	KPI and part of our carbon calculations	Staff from University of Cambridge only (academic staff, administrative staff and support staff).
Per capita carbon emissions from flights (tCO_2e/FTE)	Stand alone KPI	Buildings that are occupied by the academic portion of the University - that is, the institutions that are directly involved in delivering the University's teaching and research; and the administrative departments and non-school institutions that support teaching and research.
Number of awards won by Green Impact teams (An award received)	Stand alone KPI	Staff from University of Cambridge, 31 colleges, CUP&A, principal subsidiaries, associated undertakings and significant investments.
Number of members of the Sustainability Champion Network (An individual)	Stand alone KPI	Staff from University of Cambridge, 31 colleges, CUP&A, principal subsidiaries, associated undertakings and significant investments.

The University's reporting year runs from 1st August to 31st July every year.

Reporting specifics and methodology

1. Normalisation

As detailed in the following sections, a number of our reported metrics are normalised against a series of factors, as a way of contextualizing our performance in specific areas. The normalisation factors that we apply are explained below:

a) Staff and student numbers

Several KPIs are specified per FTE (Full Time Equivalent) staff and student.

The staff FTE figure is the sum of each employee's contract FTE measured over the reporting period (1 August to 31 July). An employee's FTE is 1 if they are full-time and have worked for the entire period. If their hours are part-time and/or they have not worked for the full period, then their FTE is reduced accordingly. The Staff FTE is calculated by the Human Resources Division. Staff FTE comprises non-residential staff and residential staff including all academic, research, support, administrative and technical staff. It includes staff employed under a contract of employment and/or for whom the University is liable to pay class 1 NI contributions. It does not however include non-academic atypical staff (such as temporary workers), Cambridge University Press & Assessment employees, contractors, or employees from principal subsidiaries, associated undertakings and other significant investments. The FTE figure is not reduced for maternity leave or employees on long-term sick leave as they are still employees of the University.

The input data behind the student numbers is reformatted and calculated by the University, in line with HESA published rules, to produce the student FTE figure. This is then submitted by the University to the Higher Education Statistics Agency (HESA), who conduct their own validation checks. Due to the timing difference, when HESA validates and calculates the student figure versus when the Sustainability Report is published, the University has to calculate the student FTE figure themselves using the HESA rules. The student FTE figure represents the full-time equivalence of a student on a credit-bearing course of study during the HESA-defined reporting period of 1 August to 31 July. Where a student is studying part-time and will spend less than eight weeks in the UK as part of their course of study, these student numbers are not included in the submission to HESA, on which the FTE calculation is based. In their FTE calculation, HESA exclude the following students on a course of study:

- where any of the courses of study are not taught by the University of Cambridge.
- student is dormant for the year.
- student is on sabbatical for the year.
- student is writing-up their thesis, having completed their formal period of study.
- distance learning student.
- student on industrial placement.
- student is studying abroad.

There is a student FTE figure for taught students and an FTE figure for research students. We include both taught and research students in the FTE figures we apply.

b) Per capita emissions

Our KPI on emissions from flights is specified per capita. 'Per capita' is slightly different to FTE staff and students (see the above section on normalisation).

Per capita refers to the FTE number of staff employed by the University and the number of research students enrolled at the University, but it excludes the number of undergraduate students enrolled at the University. This is because the vast majority of the University's air travel is carried out by staff and research students. Some undergraduate students take flights for international field trips, but these are minor in terms of spend and distance compared to flights by staff and research students.

c) Total income

Total income is defined as the total teaching and research income of the University's Academic Group. The Academic Group includes the University's academic departments and associated administrative services, and the subsidiary companies of the University, as listed in the University's Annual Report[1].

The Academic Group excludes Cambridge University Press and Assessment and the Cambridge Trusts.

The total income figure is taken from the University's Reports and Financial Statements, as relevant to our reporting year.

It should be noted that the University does not have operational control over all of the subsidiaries included in the total income figure for the Academic Group. Some of the subsidiaries are located in buildings that are neither owned nor managed by the University. In line with best practice guidance on carbon emissions reporting, therefore, these subsidiaries should be excluded from the income figure we apply for normalisation of our environmental sustainability metrics. In practice, however, it is not feasible to separate out the income from those subsidiaries over which the University does not have operational control.

This means that the total income figure is not directly comparable, in terms of coverage, with our environmental sustainability metrics. However, on analysis, we believe that this is the most appropriate income figure to use for normalisation of our metrics, as it is the income figure that aligns *most closely* with the Operational Control approach.

2. Restatement Policy

When necessary, and where information is available, we will restate the prior years' figures using the latest available data to make data as comparable between years as possible. Where restatements have been made for specific KPIs, these will be clearly outlined in our reporting.

Restatements are considered necessary if there is a change to an individual KPI of greater than 5% (our significance threshold).

Restatements may be needed as a result of:

- Structural change: Where we experience a structural change to the scope of our reporting (Figure 1) in future periods, we will recalculate the baseline and other data as required, so that we can monitor our performance on a consistent basis.
- Methodology change: Changes in calculation methodology or improvements in the accuracy of emission factors or activity data, which result in a significant impact on the KPI data.
- Corrections: Discovery of significant errors, or a number of cumulative errors, that are collectively significant.

[1] https://www.cam.ac.uk/about-the-university/view-and-download-the-annual-report.

3. Carbon

Definition: Carbon represents emissions of carbon dioxide from the University's operational estate and associated activities. Subject to available data, our figures include:

- **Scope 1 emissions –** those arising directly from our estate and operations as a result of the fuel we consume in our buildings (for example, in gas boilers) and University-owned vehicles.
- **Scope 2 emissions** – emissions that arise upstream from the University's estate and operations as a result of the electricity and steam that we procure and consume.
- **Scope 3 emissions** – those that arise either upstream or downstream from the University estate and operations. The Greenhouse Gas Protocol identifies 15 different categories of scope 3 emissions but at present, due to difficulty in obtaining data, we only report on emissions from the waste we produce, the water we consume, staff commuting and business travel undertaken by our staff and students. We also report our supply chain scope 3 emissions as a separate KPI.

The Greenhouse Gas Protocol covers seven different greenhouse gases in total, the six other than carbon dioxide being methane, sulphur hexafluoride, perfluorocarbons, hydrofluorocarbons, nitrous oxide and nitrogen trifluoride. It is highly probable that some, if not all, of these gases are in use across our estate, for research purposes or, in the case of hydrofluorocarbons, in refrigeration and air-cooling units. However, to date we have not been able to collect reliable data on these emissions and they are not included in our reported figures. During summer 2021, we undertook an exercise to compile data on fluorinated gases ('F gases', which include sulphur hexafluoride, perfluorocarbons and hydrofluorocarbons) that are in use across the estate, and estimate the magnitude of their emissions. The study extrapolated carbon emissions from F gas to be around 5% of the University's current scope 1 and 0.2-0.3% of the overall carbon footprint (scope 1, scope 2 and measured scope 3 which includes business travel, supply chain, commuting, waste and water). The proportion will potentially increase as the University moves towards heat pumps as a primary source of heating. The study was small scale and work will continue to understand the materiality of emissions from f-gases. In the 2021/22 reporting year, F gases continue to be excluded from our Scope 1 emissions reporting.

Relevant KPIs:

- Total scope 1 and 2 emissions – Location-based.
- Total scope 1 and 2 emissions – Market-based.
- Total scope 1 and 2 emissions (Location-based) per FTE staff and student.
- Total scope 1 and 2 emissions (Market-based) per FTE staff and student.
- Total scope 1 and 2 emissions (Location-based) per total income.
- Total scope 1 and 2 emissions (Market-based) per total income.
- Carbon emissions from water use.
- Carbon emissions from water use per FTE staff and student.
- Carbon emissions from water use per total income.
- Per capita carbon emissions from flights.

Unit: We calculate and report our emissions in tonnes of carbon dioxide equivalent (tCO_2e). The KPIs listed above that relate to emissions normalised by staff and student numbers, or total income, are measured as tCO_2e/ FTE and tCO_2e/ £000, retrospectively.

Method: We align to the Greenhouse Gas Protocol Corporate Standard for carbon emissions reporting. We begin by collecting annual data for the following emissions sources:

Emissions source	Unit of measurement	Source(s) of data
Scope 1		
Natural gas	kWh/ year	See the Energy section below.
Oil		
Biomass		
Diesel and petrol used in University-owned vehicles	litres/ year	Departmental fuel account cards and receipts, showing the amount of fuel purchased. Further details are provided below.
Scope 2		
Purchased electricity	kWh/ year	See the Energy section below.
Purchased heat and steam		
Scope 3		
Water and wastewater	m^3/ year	See the Water section below.
Waste	tonnes/ year	See the Waste section below.
Business travel	km travelled/ year	Report on purchased flights, train journeys etc. from the University's preferred travel management company supplier. Report on expenditure on flights, train journeys, car hire, taxis etc. from the preferred provider of University staff credit cards. University's financial records, for staff and student expense claims for flights, train journeys, car hire, taxis etc. Further details are provided below.
Staff commuting	km travelled/ year	The annual staff travel survey – see the section on Staff Commuting, below.
Supply chain	£ expenditure /year	University's financial records. Further details are provided below.

Further information on how we compile our energy, waste, water and staff commuting figures, and use these to calculate our carbon emissions, is provided in the following sections.

In this section, we provide an overview of how we compile our data on fuel used in University vehicles, University business travel, and purchased goods and services.

Application of carbon conversion factors

It should be noted that, for all but one of the emissions sources listed in the table above, we convert the source data (e.g. kWh of energy, km travelled, etc.) into tonnes of carbon dioxide equivalent, using the carbon conversion factors published annually – typically in June or July – by the UK Government[2]. The factors published each year are valid for the following reporting period 1 August – 31 July. When calculating our emissions, we apply the most recent factors across our data for the entire reporting period. For example, we would apply factors published in June 2022 to the reporting year August 2021- July 2022.

The only emission source that we do not apply the latest Government factors to is the 'Supply Chain KPI'. As explained below, we estimate our supply chain emissions by using a tool made available through the Environmental Association of Universities and Colleges (EAUC)[3]. The tool maps carbon factors to expense transaction codes. The factors are updated each year by the tool publishers from Government reported figures[4] but are three years behind.

a. Diesel and petrol used in University-owned vehicles

To establish fuel use by University-owned vehicles, details of the vehicles and fuel consumption figures are required. An initial vehicle list is established from the University's insurance record. The University has two main preferred fuel card providers; we acquire from each a report on the amount of fuel purchased from them by the University during the reporting year.

Many of the vehicles on the insurance list will be fueled exclusively using fuel cards and so consumption is captured by the annual fuel card report. After cross-referencing the fuel card reports against the insurance list there will be some vehicles that do not appear in the fuel card reports and so their associated fuel consumption is unaccounted for. The departments that own the vehicles are then contacted individually and asked for missing details or updates on their vehicles that may not be captured in the insurance list and all fuel consumption records.

Returns from departments vary in quality and timeliness. The vast majority of returns will have fuel type and volume, so can simply be added to the totals. Some returns may just be expense claims that need converting to fuel volume using the average from the fuel card report data sets. If fuel type is not identifiable from departmental returns, a judgment call is made based on the type of vehicle. Vans can be assumed to run on diesel and tractors without a registration number can be assumed to use red diesel, for example.

[2] https://www.gov.uk/government/collections/government-conversion-factors-for-company-reporting
[3] https://www.eauc.org.uk/
[4] https://www.gov.uk/government/statistics/uks-carbon-footprint#history

b. Business travel

Business travel is defined as travel undertaken by University staff or students for work or research purposes. It includes all class types and short haul, long haul, domestic and international travel. We include travel via the following modes in our figures:

- Air
- Rail
- Bus and coach
- Taxi
- Car and van hire
- Privately-owned vehicles
- Ferry.

Air travel makes up the vast majority of the University' expenditure on business travel, followed by rail.

Air travel and rail data are collected from three sources:

- Distance and spend reports on purchased flights and rail journeys from the University's preferred Travel Management Company, supplier of travel services (currently Key Travel Ltd).
- Report on expenditure using University staff credit cards from the University's preferred supplier for credit card services (currently Barclaycard).
- University's financial records, for staff and student expense claims (Accounts Payable data).

For air and rail travel, two report types are received from the University's preferred travel services supplier; one containing distance and carbon emissions information and one containing spend information. The distance report contains journey distances along with class and haul type tags and carbon emissions figures for the journeys itemised. The emissions figures are checked by the University to ensure that the correct carbon conversion factors have been applied (see 'Application of carbon factors' section above) for our purposes.

The distance report includes flights that were 'Cancelled' after booking. These are filtered out before totals are taken. As the report is based on bookings, if the booked flights are not cancelled with Key Travel, not taken by the passenger and not refunded, they will remain in the dataset and included. This means that distance figures and therefore carbon emissions estimates from Key Travel are likely to be over estimates.

The University's financial records and Barclaycard report do not provide the key information needed to calculate carbon emissions from flights and rail journeys (for example, distance travelled, or class of flight). The reports do itemise spend though, so spend on flights can be isolated and then converted to carbon emissions figures. Filtered spend totals (£) from the expenses records and the credit card reports are converted to carbon emissions using the two reports from the University's preferred travel services supplier. Combining the distance and spend information enables the calculation of spend-to-distance conversion ratios which can be applied to spend figures from the University's expenses system records and credit card report. Carbon conversion factors can then be applied along with further manipulation required to combine the results from these three data streams whilst minimising the risk of double-counting or under-counting.

To establish a total spend on flights taken from these reports, the University's financial records are filtered for travel-related transaction codes and keywords associated with flights. The Barclaycard spend report is filtered using the 'Merchant Category Code' (MCC) field. Different airlines have a

different MCC, as do travel agencies. Travel agency MCCs are not included as spend with these merchants could be anything travel-related (i.e. not flights).

There are limitations to using spend data from transaction records, particularly with regard to cancelled and refunded journeys. If journeys booked but then not taken are not refunded, they will remain in the spend totals. Any lost deposits will not be 'netted-off' by the refund and some spend will remain in the totals. Also refunds on cancelled flights will need appropriate coding or keywords in descriptors to be picked up by the filters we use. If they don't, the original spend will not be 'netted-off' as the refund won't have been captured, so will be counted in totals when in reality the journeys weren't made. Many of these issues with transaction records should be resolved with the forthcoming improvements to the accounts payable management system as the University transfers to the Concur system.

There are some notable limitations to how our air and rail emissions figures are calculated. Currently, three different sources of data must be manipulated independently as none will capture all flights to a high degree of confidence or accuracy alone. None of the raw data is collected for the purpose of carbon reporting and so flights are recorded in a wide variety of ways and formats, even within one data set. Bespoke coding script has been developed in-house to attempt to extract meaningful spend data attributable to flights or rail from the expenses sourced data set. This relies on users inputting accurate descriptions and expensing the booking to the correct code, which is an inherent limitation. Compound expenses, for example, where a description reads "Conference expenses: flights, accommodation, taxi" will be excluded.

For two of the worked datasets, flight data needs converting from spend to carbon emissions. This is done using a conversion factor derived from the Key Travel dataset, which has an output of distance travelled. By doing this, we must assume that travel recorded by the preferred travel supplier is representative of the other two data sets. Assumptions include: value-for-money of the flights purchased; the average class travelled and proportion of short-haul to long-haul flights.

For these reasons, our KPI on per capita emissions from flights has some limitations which reflects the quality of the raw data and the complexity of the calculation methodology.

Further, it should be noted that each data set contains different date information. Data from the preferred travel supplier does contain 'date travelled'. However, the other two only contain the date that the travel booking was made or paid for, not the date of travel itself. This probably means that, for any given reporting period, some journeys that were taken during the reporting period are excluded from our reported metrics, and conversely that some of the journeys included in our reported metrics were taken outside of the reporting period. This is a consistent issue from year to year, therefore we believe it introduces minimal error to the metrics for any given reporting period.

Finally, the report from the preferred credit card provider is filtered for MCC codes that capture airlines. However, it does not filter for flights booked through travel agencies. As such there is an assumption that all flights booked through the credit card provider are booked directly through airlines.

For business travel by modes of transport other than air or rail, the Accounts Payable spend figures are filtered by transaction code, which divides up travel expenses into taxi, car hire, van hire, etc. Travel spend attributed to generic transaction codes is allocated to the travel mode in the same ratio. Carbon emissions for these journeys are calculated by converting the amount spent (£) into distance travelled (km), using spend-to-distance ratios from such sources as car mileage expense reclaim rates.

c. Supply Chain

To estimate the University's supply chain emissions, a publicly available tool called the Higher Education Supply Chain Emissions Tool (HESCET) is used. It is made available and maintained by the Environmental Association of Universities & Colleges (EAUC) and the Higher Education Procurement Association (HEPA)[5].

This tool applies a simplistic economic input-output approach, which converts levels of expenditure on different categories of goods and services in the period into carbon emissions figures (see 'Application of carbon conversion factors section' above).

We apply this input-output model as it would be impractical to calculate carbon for every individual purchased item and service. The University procures a huge quantity and variety of goods and services.

As with the Business Travel methodology, the source data is an annual 'Expenses' report reconciled with the Finance Division's reporting. The report is constrained to invoices which are booked to the accounts payable ledger within the reporting year. A supplementary report is also sourced from the Estates Division Finance Team which takes expenses relating to Major Projects and itemises them by transaction type, which allows their inclusion in the tool as well. Without this supplementary report, major projects spend could not be appropriately assigned.

The HESCET relies on expenditure being categorised by an industry-standard system of TB (Trial Balance) transaction codes, produced by HEPA. The HESCET takes financial transaction data as its input, which conforms to the TB system. However there are a small number of other Cambridge-specific TB codes that the tool will not recognise or convert the spend of into carbon figures. These Cambridge-specific TB codes are manually reassigned to standard HEPA TB codes for inclusion. The TB codes that the tool uses are 'purchasing' codes, beginning with 'E___'. Other TB codes, such as those beginning with 'F___' cover transactions for pay, donations, sales etc. and must be removed as part of preparation for input into HESCET. Some excluded 'F' coded entries are transactions/expenses that have been coded wrongly, but because the 'F' coding system does not follow the convention of the 'E' TB codes that HESCET needs, it is not possible to reassign these entries for inclusion.

Expenditure resulting from University major projects (construction) is all given the transaction code of 'PADA' within the University's financial records report. An additional report from the Estates Division's Finance team is therefore required, which does apply the TB transaction codes to the major project expenditure, allowing it to be added to the HESCET input.

As the HESCET is for calculating supply chain scope 3 emissions, as part of its methodology, it discards purchasing transaction codes relating to scope 1 & 2 emissions (e.g., oil purchases) and business travel.

As with the business travel calculation methodology, we must assume that purchases (and indeed all transactions) are coded correctly by a multitude of accounts and finance staff across the University's departments and offices. We must also assume that the transaction occurred in the same year as the product or service was actually purchased (the invoice date).

The results from this input-output model should primarily be viewed as an indication of the approximate scale of our supply chain emissions. Whilst limited, the results highlight that emissions from the University's supply chain dominate the University's carbon emissions across all scopes. They also

[5] https://www.sustainabilityexchange.ac.uk/hescet_tool

flag the areas of procurement activity that are likely to have the greatest carbon impact and where we need to focus our efforts around data collection and carbon reduction in future.

Scope limitations:

There are currently some notable limitations to our reported carbon figures:

- Scope: Our reported carbon figures currently relate to the estate and operations of the academic portion of the University. Emissions arising from other parts of the wider University, including Cambridge University Press and Assessment and the North West Cambridge Development, are not included in our reported figures.

- Data gaps: There are some emissions sources that we do not currently report, simply because we do not have access to robust or complete source data. This includes:

  - F gas emissions (scope 1): These include emissions that occur as a result of refrigerant leaks from air conditioning/ cooling units across the estate.
  - A number of scope 3 emissions sources, such as some buildings the University owns and leases to other parties (part of the University's commercial property portfolio) and investments.

We have identified various initiatives to improve the accuracy and completeness of our reported emissions figures. For example, a screening assessment is underway (commenced September 2022) across all 15 categories of scope 3 emissions to determine their magnitude and where we should focus our future data collection efforts; and we are working to expand the scope of our reported emissions to align with the Greenhouse Gas Protocol reporting requirements (Figure 1). We are prioritising these according to our ability to influence the data collection process, as well as the significance of the emissions source.

4. Energy

Definition: Energy is defined as the annual consumption of electricity, gas, steam and fuel in buildings over which the University has operational control. Principally these fuels are used either to generate power for use in electrical equipment or to produce heat for space heating, hot water or process heat in support of research activities.

Relevant KPIs:

- Percentage of energy generated from onsite renewable or onsite zero/low carbon sources[6].

Our energy consumption figures are also used to calculate our scope 1 and 2 carbon emissions figures and KPIs (see above).

Unit: Kilowatt hours (kWh)

Method: Energy data are primarily collected through metering of the University's electricity and gas supplies, the majority of which are now automated. In addition, we have invested in hundreds of automated sub-meters to provide additional granularity where required. Energy generated on the

[6] Energy Sources which have carbon conversion factors of zero or lower than conventional fossil fuel-based energy generation.

University's site from renewables (PV) is also metered (addition detail provided on Page 17). However, we are still reliant on manual meter readings for some of our energy supplies – most notably for the University's use of steam at the Addenbrooke's hospital site (Cambridge Biomedical Campus).

Data for biomass and oil consumption are reliant on records of the delivery of these fuels to recipient sites/buildings. Delivery notes are used to validate the invoice information that is fed into the University's energy management software, SystemsLink.

Our energy data is captured and recorded in three formats within SystemsLink, namely:

- Invoice data (billing records).
- Direct data (manual readings).
- Profile data (automated meter readings).

When using SystemsLink to compile our annual energy consumption data, we produce the following data reports:

- **Electricity –** a best of data report, which gives preference to the different data sets in the order of; Invoice data – Profile data – Direct data, and a second report which uses the preference order; Profile – Direct – Invoice. This is supported by reconciliation against a non-apportioned report of monthly invoice consumption.
- **Gas –** a proportioned best of data report which uses the preference order Invoice – Profile – Direct, supported by reconciliation against non-apportioned report of monthly invoice consumption.
- **PV Meter –** an non-apportioned report is issued using profile and direct read data
- **All other fuel sources –** a consumption report from invoice data is produced.

The different reports produced for electricity and gas are then cross checked to confirm they agree, and identify where discrepancies between data types exist and require further investigation. Where there is a discrepancy of over 2% between data types (for example, between the invoice data and the profile data), selection of the data source is confirmed and a note on the reason for the decision is made.

Priority is given to the invoice data because in most cases this is underpinned by automated meter readings, support accurate billing.

Using this approach also addresses the nuance in the SystemsLink software, where on occasion, the absence of an automated meter reading can be misinterpreted as zero consumption (whereas in fact it reflects that we do not have an automated meter on that supply, or that the automated meter has for some reason stopped recording readings).

All electricity (**including PV**) and gas data is collected as kWh units. For older gas meters, which read in cubic metres (m^3), conversions into kWh are provided by our supplier within their invoices. For biomass and oil, delivery notes are generally detailed in metric tonnes and litres respectively, therefore a conversion factor is applied to calculate the respective kWh figure. These conversion factors are sometimes displayed on the invoice for biomass, however in their absence Government-published conversion factors are used to derive the appropriate factor[7]. As deliveries of these fuels are intermittent, total consumption during the reporting period is estimated based on the delivery volumes.

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

Steam supplies at the hospital site are billed by the NHS Trust, based on their manual meter readings. Consumption is metered in kg, lbs or m^3 steam, and invoiced in lbs following conversion by the supplier. A conversion factor is used to derive the associated kWh figure. The conversion factor is derived from a web-based engineering calculations tool[8]. Heat supplied by the Eddington heat network is billed in kWh.

The University does not currently have any additional means of data collection for steam, other than the invoices provided to us by the Trust. Data is therefore input into Systems-Link directly from the invoice when it arrives. The invoice typically arrives 8-10 weeks after the end of the billed period. This means that, depending on the time the reporting data is run, the University may have not received the billing for April, May and June of the reporting year, and the invoice with data relating to July of the reporting year would not be issued until mid-late November. For this reason, where necessary we apply estimates based on previously profiled consumption for the last 1-4 months of the reporting period (see the assumptions section for more on this).

Percentage of energy generated from onsite renewable or onsite zero/low carbon sources (%)

Following the collation of energy data for total electricity consumption and total on-site renewable power generation the figures are entered into the 'Energy and Carbon Figures' workbook' the workbook makes the following calculation:

- Total renewable energy generation (Biomass and solar PV), divided by:
    - Total energy consumption of built estate (kWh) (Electricity, Gas & Biomass, Solar PV, Steam, and Oil)

This percentage is then reported as on-site generation.

GHG conversion

Finally, the consumption figures relating to each energy source are converted into carbon emissions by applying the relevant carbon conversion factor, and the resulting figures are summed, together with emissions from fuel used in University-owned vehicles (see above), to give our total scope 1 and 2 carbon emissions figures.

In October 2019, the University entered into a ten-year Power Purchase Agreement (PPA) for the supply of a fixed amount of electricity per year from UK-based wind farms. The supplied electricity is verified as renewable & zero carbon through the provision of Renewable Energy Guarantees Origin (REGO) certificates from the energy provider. The PPA is for the provision of 24,408 MWh of renewable electricity per year. The Greenhouse Gas Protocol allows for organisations to report REGO-backed renewable electricity as zero carbon as part of their reported carbon emissions figures under the Market-based emissions methodology, provided that they:

- Meet certain accounting and reporting requirements, and
- Report *both* their total emissions taking account of their zero carbon procured electricity (the figure known as the Market-based emissions figure) *and* their total emissions as calculated by applying the grid average carbon intensity to all of their consumed electricity (including that procured from zero carbon sources) (this figure is known as the Location-based emissions figure).

We calculate our Market-based emissions figure by setting the carbon intensity of the electricity we have procured through the PPA to zero because the University assesses that the 8 quality criteria in

[8] https://www.abraxasenergy.com/energy-resources/toolbox/conversion-calculators/power/

the GHG Protocol are met and the following hierarchy of emission factors in the protocol is followed thereafter in accordance with Table 6.3 in the GHG Protocol Scope 2 Guidance below:

1. Energy attribute certificates or equivalent instruments (unbundled, bundled with electricity, conveyed in a contract for electricity, or delivered by a utility).
2. Contracts for electricity, such as power purchase agreements (PPAs) and contracts from specified sources, where electricity attribute certificates do not exist or are not required for a usage claim.
3. Supplier/Utility emission rates, such as standard product offer or a different product (e.g., a renewable energy product or tariff), and that are disclosed (preferably publicly) according to best available information.
4. Residual mix (subnational or national) that uses energy production data and factors out voluntary purchases.
5. Other grid-average emission factors (subnational or national) – see 'Location-based method'.

For example, the University's supplier tariff specific emission factor is applied to remaining consumption purchased through our supply contract not covered by the PPA. The current tariff is 'EDF Zero Carbon for Business', though it does produce nuclear waste which is reported within the Annual report as a consequence of using this power source. The University is committed to moving to fully renewable electricity tariffs over time. Power consumed on some buildings at the Cambridge Biomedical Campus (CBC) are subject to third party supply by Cambridge University Hospital Trust (CUHT). For these recharges, CUHT's supplier tariff specific factor has been applied. Following assessment, for 2021-22 it was determined that the tariff specific carbon factor should be used rather than the supplier's average fuel mix due to tariff specific factors being available from the supplier. In line with our restatement policy above, the prior year has been restated with explanations included in the output reports[9].

We calculate our Location-based emissions figure by applying the grid-average carbon conversion factor published by the Government to all of our procured electricity, including that procured via the PPA.

Estimations in reporting

Where invoice data (for electricity, gas, biomass, oil and steam) is being used which is based on supplier estimates, these will be accepted unless data to contradict these figures exists.

Estimates in the case of the annual report process refer to instances where there is an absence of data from any source.

The following steps will be followed when making estimates:

- For estimates required to complete the reporting period (e.g. the final 1-6 months), the estimate is based on the consumption record in the previous 3 months taking account of any trend in consumption during that period.
- Data Gaps of 6 months or greater will be investigated to establish the reasons for the gap. If data for a prior period exists this will be used to inform an estimate. In the absence of any

[9] The tariffs specifically referred to for GHG factors are as follows: UoC non-PPA electricity – EDF Zero Carbon for Business (0.0kgCO2/kWh) Power supplied at CBC – EDF Standard Flexible tariff (0.221 gCO2/kWh) sourced from EDF fuel mix disclosure https://www.edfenergy.com/fuel-mix

historical data, a decision will be made to either report 'no data' or apply a suitable benchmark based on the building's current use and floorspace.

- With respect to estimation of Solar PV generation in the absence of data,
    - Where historical AMR data is missing due to a technical fault with the metering, generation for the period affected will be considered zero.
    - Where there is an absence of manual meters reads within six months of the start or end of the reporting period the generations will be recorded as zero.
    - When estimating consumption for the remainder of the reporting period:
        - The consumption from corresponding months in the preceding reporting year will be used; or
        - If data is unavailable, an estimate based on the performance output of the PV system in months with data vs the solar irradiance levels for that time period. This calculation will assume the PV system will generate in the remaining period and that its performance will be similar to that in the rest of this year.

Assumptions made or limitations of the data:

On occasion, where an automated meter stops working properly and this is not spotted or rectified quickly, there may be a gap in the data. Similarly, where manual meter readings cannot be taken regularly, for whatever reason, there may be a gap or absence of data for some supplies (or, in the case of PV, some generation assets). In this circumstance, and in the absence of any other supporting data, the process set out in the preceding section will be followed.

For our supplies that are not on automated meters, we aim to take or obtain manual meter readings on at least a quarterly basis, and in some cases on a more regular basis where this is possible, consumption is apportioned evenly per day between reads.

We take photographs to substantiate manual meter readings, and photographic readings of all visible electricity, gas, PV, water and steam meters when attending plant rooms and sites, for data verification purposes.

For the 'Percentage of energy generated from onsite renewable or onsite zero/low carbon sources (%)' KPI, the University has 24 building integrated solar PV arrays, however for 2021/22, accurate data was only available 19 of these systems. In the absence of data for the remaining 5 systems or alternative evidence to indicate these systems have been functioning during the reporting year that could justify use of an estimate, these systems have been removed from the scope for the 2021/22 year.

5. Water

Definition: Water is defined as the annual consumption of water from municipal water suppliers as a result of the University's activities in buildings over which the University has operational control.

Relevant KPIs:

- Total water consumption.
- Total water consumption per FTE staff and student.
- Carbon emissions from water use.
- Carbon emissions from water use per FTE staff and student.
- Carbon emissions from water use per total income.

Unit: We report our total water consumption in cubic metres (m^3). Total consumption per staff and student is measured as m^3/FTE.

Carbon emissions from water use are measured as tCO_2e, emissions from water use per staff and student as tCO_2e/FTE and emissions from water use per total income as tCO_2e/£000.

Method: Water consumption data is currently reliant on readings taken by the supplier and direct readings taken by the Facilities Management (FM) team in some circumstances. Limited profile data is available from automated sub-meters in some newer buildings. The University therefore predominantly uses billing/invoice data to record consumption data. Data is input into SystemsLink as with energy above, however there is a higher reliance on invoice data for the purpose of reporting performance.

The water consumption data is used to calculate carbon emissions from water use as follows:

- The amount of water used is converted into emissions by applying the water supply carbon conversion factor from the set published by the UK Government[10].
- Our carbon figure also needs to take account of the emissions caused by the disposal and treatment of our wastewater. Our wastewater is not metered therefore we estimate it as 90% of the amount of water we have used. We then convert this figure into carbon emissions by applying the water treatment carbon conversion factors from factors published by the UK Government.
- We sum both figures to calculate total emissions from water use.

Assumptions made or limitations of the data: A lack of automated readings means a higher degree of estimated billing made by the supplier takes place and this can either inflate or underestimate the consumption at particular sites.

The hierarchy of data is as follows: actual data (invoice or meter readings) that covers the entire reporting period and is deemed sufficient is preferred. Where there is more than 10 months of sufficient meter readings or invoices, an estimate of annual water consumption is made by the University based on the invoice data for the earlier part of the period. If there is less than 10 months of actual data, an average of the last 24 months for that building preceding the last month in the reporting period is taken and multiplied by 12 to get the annual total for the relevant building. In the cases where this is not possible (due to inaccurate billing or missing data), manual estimates are applied and the method used to produce these estimates varies upon the circumstances of that particular supply.

6. Waste

Definition: Waste is defined as the approximate annual mass of waste arising as a result of the University's activities, including construction waste produced by contractors. The University's contractors and suppliers of services provide waste mass equivalents for the waste they remove from University premises and projects.

Scope: For the most part, the scope of our waste figures aligns with the Operational Control approach. Where it is possible to disaggregate the data, buildings that form part of the University's commercial property portfolio are excluded from the figures. However, in some cases, commercial spaces are

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

integrated within, or share collections with, University buildings or University activities, in which case the waste arising from these spaces is included in the figures.

Relevant KPIs:

- Waste sent to landfill.
- Waste mass generated per FTE staff and student.
- Percentage of waste generated that is recycled or composted.

Unit: Metric tonnes, or percentage.

Method: Data on waste is collected from a number of internal (this includes the Warpit reuse scheme, a nitrile gloves recycling scheme, a polystyrene box reuse scheme - this data is still provided by external contractors) and external sources . Each year, contractors and suppliers are contacted to request data on waste collected from the University, divided by end destination/treatment method. Figures are collected for construction waste and for operational waste. For construction waste, only 'major' projects (those classed as 'Major' under the University system of governance[11]) are included in the reporting.

Totals are produced for each category as follows:

- **Recycled** - the annual mass of waste (tonnes) sent for recycling.
- **Incineration** - the annual mass of incinerated waste (tonnes).
- **Composting** - the annual mass of waste (tonnes) that is composted.
- **Anaerobic digestion** - the annual mass of waste (tonnes) that is sent for anaerobic digestion.
- **Landfill** - the annual mass of waste (tonnes) sent to landfill.
- **Energy** - the annual mass of waste (tonnes) that is used to create energy e.g., used for biomass boilers or combined heat and power. Excludes waste that is incinerated with no energy recovery.
- **Other** - other methods of disposal offsite. This may include mechanical biological treatment and offsite autoclave, as well as 'other reuse', such as refurbishment for re-sale.
- **Hazardous** – waste which is disposed of via specialist hazardous treatment methods. Please note the data for hazardous waste is not reported.

Using the above data, three KPIs are produced:

- **Waste sent to landfill (tonnes)** - This is the total amount of the 'Landfill' category outlined above, for both operational and construction waste excluding hazardous waste.
- **Waste mass generated per FTE staff and student (tonnes/FTE)** - This is the total of all waste categories excluding hazardous, divided by the total Full Time Equivalent number of staff and students.
- **Percentage of waste generated that is recycled or composted (construction and non-construction waste) (%)** - This is the total sum of the 'recycled' and 'composting' categories as a proportion of the total amount of waste (excluding hazardous waste).

The waste figures are also used to calculate carbon emissions from waste, which forms part of our total scope 3 figure, as follows:

- The waste figures are categorised according to both the type of material (paper/cardboard, plastic, metal, food, glass, batteries, fluorescent lamps, lab reusables, metal, nitrile gloves,

[11] For the 2021/22 academic year this was defined as a project with a value over £2m

used food oil, shredded paper, toner cartridges, WEEE, wood and green waste etc.) and how the waste is processed (recycled, composted, digested anaerobically, landfill, incinerated, reused, energy from waste). Please note, for landfill waste we apply the compositional split as provided by the Higher Education Funding Council for England. We have noted this as an assumption below.

- For each category of material versus processing method (for example, paper/cardboard recycled, paper/cardboard landfill, etc.) the relevant carbon conversion factor is applied.
- It should be noted that the government published carbon conversion factors do not cover certain types of hazardous waste, for example inedible oils, solvents, clinical waste, therefore the hazardous waste streams are not included in our carbon figures.

Assumptions made or limitations of the data: Data used is provided by the University's contractors and suppliers of services, and while checks are made on this, the accuracy of externally provided data cannot be guaranteed. Some data (i.e. polystyrene, used food oil & clinical waste) is provided in volume rather than mass by the contractors, in which case standard conversion factors (WRAP waste volume to mass conversion factors) are used by the Sustainability Coordinator to convert these to weights using the most appropriate or relevant available factor. Further, in instances where contractors do not weigh the waste, the weight will be estimated by the University. The Sustainability Team estimate the waste by multiplying the number of collections by the contractor within the year with an average weight for the waste stream. The average weight is calculated using the data from the University's other waste contractors, for example if an estimate for the average weight of recycled waste is required the team will use the average weight provided by another contractor that collects recycling waste. There is an assumption here that each collection is for a full bin. End destinations of waste are based on categories reported by suppliers, however no guarantee can be made of the precise definition of end destinations of waste disposal. In the past years, where end destination data was not available, a proxy set of factors were used based on end destinations of waste reported by the same or another contractor for similar waste streams, or a figure from a reputable source (e.g., UK government) was used. This has not been the case this year. There may be some waste contractors being used at a local (departmental) level on a small scale within the University (for example when there is a need for emergency removal of waste), data from these are not routinely captured. Some on-site disposal or reuse of waste, for instance small scale composting and mulching, may occur across the University and is not recorded. Waste generated by home workers or those working away from University buildings is not currently estimated or reported on. While the reporting period is from 1 August to 31 July each year, some raw data is provided which accounts for periods which do not align precisely to this reporting window, in which case the data is factored proportionally to take account of the average likely waste produced inside and outside of the reporting period (for instance for 6 in-scope months from a total 12 months of data, the total figure is divided by 2).

When converting our waste mass to carbon, we use an assumed composition from the Higher Education Funding Council for England to estimate what the landfill waste contains. This is therefore a limitation as we are unable to reasonably measure the individual types (paper, cardboard etc.) of landfill waste generated by the University.

7. BREEAM

Definition: BREEAM Environmental Assessment rating of 'Excellent' or higher achieved during the reporting period. BREEAM is a widely accepted standard for assessing the holistic environmental impact of buildings in terms of health and wellbeing, energy, water, materials, waste, pollution and biodiversity.

Scope: The KPI applies to new build projects classed as 'Major' under the University system of governance[12]. This aligns with the capital projects process whereby 'Major Projects' are subject to review by the University Buildings Committee. The list of buildings contained in the latest 'Major Projects Portfolio Report' issued to the Buildings Committee is used to identify new buildings that are subject to the KPI. Building refurbishments and infrastructure projects are also listed in the 'Major Projects Portfolio Report' but are not subject to this KPI.

Relevant KPIs:

- The percentage of new buildings that are certified at least BREEAM Excellent or equivalent.

Unit: Individual new building classed as a Major Project.

Method: Award of the BREEAM Final Certificate (or for an agreed equivalent issue of a final report by a nominated sustainability consultant). The Sustainable Construction Manager will maintain a tracker and use this to record the reporting year for each Major Project. The date of the BREEAM Certificate (or for the agreed equivalent the date of the final report) shall determine the reporting year.

Assumptions made or limitations of the data: For unusual building functions, or highly constrained sites, 'Excellent' certification may not be possible. In these instances, the building will be reported as non-compliant with the KPI, however a commentary may be added where it is appropriate to recognise that best endeavors have been applied in maximising the BREEAM rating, together with an explanation of why certain credits were not achievable.

Awards for Sustainable Construction and Design

Definition: an award specifically relating to environmental sustainability given by a reputable body external to the University during the reporting year. Awarding bodies include the RIBA, CIBSE, IStructE, Cambridge Design and Construction Awards, BREEAM, and the Passivhaus Institute. The list of awarding bodies will be reviewed and updated on an annual basis. The award title and awarding body will be recorded for transparency.

Scope: Major and minor construction projects, including refurbishments.

Relevant KPIs:

- External awards for sustainable construction/design.

Unit: An award received.

Method: The Sustainable Construction Manager will maintain a tracker and use this to record if an award has been received and the location of the award (typically a link to the awarding body's website). The date of the award announcement shall determine the reporting year.

Assumptions made or limitations of the data: There is no methodological process that guarantees that the University will be aware of all awards made as the decision to enter an award is generally taken by third parties such as designers and contractors.

[12] For the 2021/22 academic year this was defined by the Finance Division as a project with a value over £2m

8. Staff Commuting

Definition: The staff commuting mode share is the percentage of respondents travelling by each transport mode during a neutral week in October (Monday-Friday).

Scope: Staff employed by the University working on a University site or remotely, and contractors or volunteers based at a University site for two days or more per week. This excludes staff employed by CA, CUP and the Colleges. Staff who were on annual leave or not working for other reasons (such as illness) during the survey week can still complete the survey and note that they did not travel.

Relevant KPIs:

- Percentage modal split for commuting by different modes.

Unit: Percent (%).

Method: This data is collected through an annual staff travel survey conducted online (via Survey Monkey). The link for the survey is included in an email sent to the 'all staff mailing list' by our internal communications team. Completion of the survey is on a voluntary basis.

The mode share is calculated by calculating respondents' daily travel modes during the week (Monday to Friday), which is the mode the respondent used to travel the greatest distance each day. The weekday travel mode is then calculated by taking the most common daily mode for each respondent. The calculations are based on the number of respondents as a sample representing the University staff population.

If there is no clearly identifiable mode (e.g. if someone walks for two days and cycles for two days), the respondent is classed according to the following order: Walk, Cycle, Universal Bus, Bus, Train, Taxi, Car – Driver, Car Share – Driver, Car Share – Passenger, Electric/kick scooter Motorcycle/Moped Worked from home, and non-working day.

If a respondent stated that they were not working or working from home, then any miles they have entered as part of a journey to work are assumed to be errors and not counted, the respondent is allocated to not working or working from home.

Respondents who state they were not working on a day during the survey week are not asked why they weren't at work; therefore, this figure will include staff not contracted to work on that day, staff who are on sick leave, staff on annual leave or not present for any other reason. The survey week is assumed to be representative of the whole year in this regard. Blank responses are discounted.

The mode share is calculated by external consultants following the method described.

Within the KPI table staff mode "other" is used to capture new modes of travel that have been added to the survey since the KPI was defined, historically little used modes; as well as staff who did not travel to their workplace. Therefore "other" encompasses electric/kick scooter, taxi, working from home and non-working day.

Data from the annual staff travel survey is also used to calculate carbon emissions from staff commuting, which forms part of our total scope 3 figure. For 2021-22, responses to an additional interim staff travel survey were also used in the Scope 3 calculation (but not the modal split calculations as above), to capture commuting both before and after Covid-19 working restrictions were ended. The process is as follows:

- For each staff survey, data for the distance travelled to work (miles) is captured for each respondent.
- These ‘distance travelled' figures are doubled to reflect that commuters return home, are summed, then divided by the respective number of respondents to each of the travel surveys.
- Figures are then converted into km and separately multiplied by the number of working weeks in the period that the survey applies to (minus annual leave allocations).
    - The annual staff travel survey occurred during the period in which Covid-19 policies were still in place and as such this survey’s figures have been applied to the weeks that were affected by Covid-19.
    - The interim staff travel survey took place once there were no Covid-19 policies in place, so this survey’s figures were applied to weeks in which Covid-19 policies were not in place. The date that divides the time period that the 2021 annual travel survey was used for from the time period that the interim travel survey was used for is 21/01/2022 as this was the date when the Vice-Chancellor formally ended central controls.
- The km for each mode for both surveys are combined and converted to carbon by applying the relevant DEFRA carbon conversion factor.
- These figures are then multiplied by the number of staff FTE, to return annual commute distance figures for each travel mode. Some surveyed modes are consolidated for reporting purposes, for example “universal bus” and “other bus”, are consolidated into “bus”.

Assumptions made or limitations of the data: We have assumed that the respondents to the travel survey are representative of the whole staff population. Other assumptions include that commuters travel home in the same way that they travel to work and that they use all of an averaged annual leave allowance (different grades and role types receive different annual leave allocations).

9. Green Impact

Definition: The Green Impact KPI measures the number of Green Impact awards won by teams taking part in the University of Cambridge’s Green Impact initiative. Green Impact is an international initiative run by SOS-UK (Students Organising for Sustainability – UK) which supports staff and students in improving the environmental performance of their places of work and study. At the University of Cambridge, the scheme is tailored to the specific context of the organisation, including awards aimed at the Cambridge Colleges. Awards are available for participants after the end of each academic year, based on the number of sustainability-themed ‘actions’ that they complete. The KPI measures the number of awards presented at the end of each year, usually in June.

Scope: The Green Impact initiative is open to all parts of the University of Cambridge, including those within the Operational Control scope, and those outside of it (including the Colleges, Cambridge University Press and Assessment, principal subsidiaries, associated undertakings and significant investments). Individual Green Impact teams each determine their own ‘scope’, typically depending on the areas that their team represents, and these can include buildings, departments, institutes or laboratories, as well as the Cambridge Colleges.

Relevant KPIs:

- Number of awards won by Green Impact teams.

Unit: An award received.

Method: At the end of each Green Impact year, each team receives an audit facilitated by SOS-UK and the University's Sustainability Team, conducted by trained student auditors. During the audit process, each team's evidence is verified to confirm they have achieved a given award level. Once this is confirmed, an award, or awards, for each successful team is ordered from a third-party supplier. The list of winners is published on the Sustainability Team's website.

Assumptions made or limitations of the data: In some cases, the number of awards will be different from the number of teams as some teams will enter for two awards (for instance a conventional award and a 'Labs' award), while some teams may not complete their submission or it will not meet the required standards at audit, and therefore will not be presented with an award. 'Special' awards, which are a means of extra recognition for individuals and actions based on a nomination and judging process, are not included in the figures as these awards are separate from the core Green Impact process and are not subject to an audit process.

10. Sustainability Champions

Definition: This KPI measures the number of Sustainability Champions. Sustainability Champions (SC) are volunteers who provide a local focus point for environmental and energy issues in their department or institution. SC are expected to offer advice and support to staff and students, feedback issues to the Sustainability Team and help with the management of any environmental initiatives or projects in their workplace. SCs are part of a network who share ideas, practices and information from across the University. Regular networking events as well as training are run for the SC network. A 'role description' is available for SC.

Scope: The SCs network is open to all parts of the University of Cambridge including the Colleges, Cambridge University Press and Assessment and the principal subsidiaries, associated undertakings and significant investments. SCs can represent any part of the University, including a whole department, institution, or a specific building or buildings. Some larger departments and buildings can have two or more representatives who share the SCs role.

Relevant KPIs:

- Number of members of the Sustainability Champions Network.

Unit: An individual.

Method: The Sustainability Team maintains a register of Sustainability Champions. When a new SC joins the network they receive a short induction, at which point they are then added to the register, as well as relevant mailing lists and online groups. In order to collect the data for this KPI, a sum total of the number of SCs on the register is taken immediately after the end of the reporting period (usually within the month of August). Members of the Sustainability Champions Network have the ability to opt out of the network at any time in the reporting period by emailing the Sustainability Communications and Engagement Coordinator.

Assumptions made or limitations of the data: The Sustainability Team rely on SCs providing information on their status, for instance whether they are leaving the University, and therefore there may be cases where departed SCs display on the register. This will only be rectified once a year following the email and survey process outlined above and in some cases only if the SCs themselves clarify if they have moved role and no longer wish to be a part of the network.