

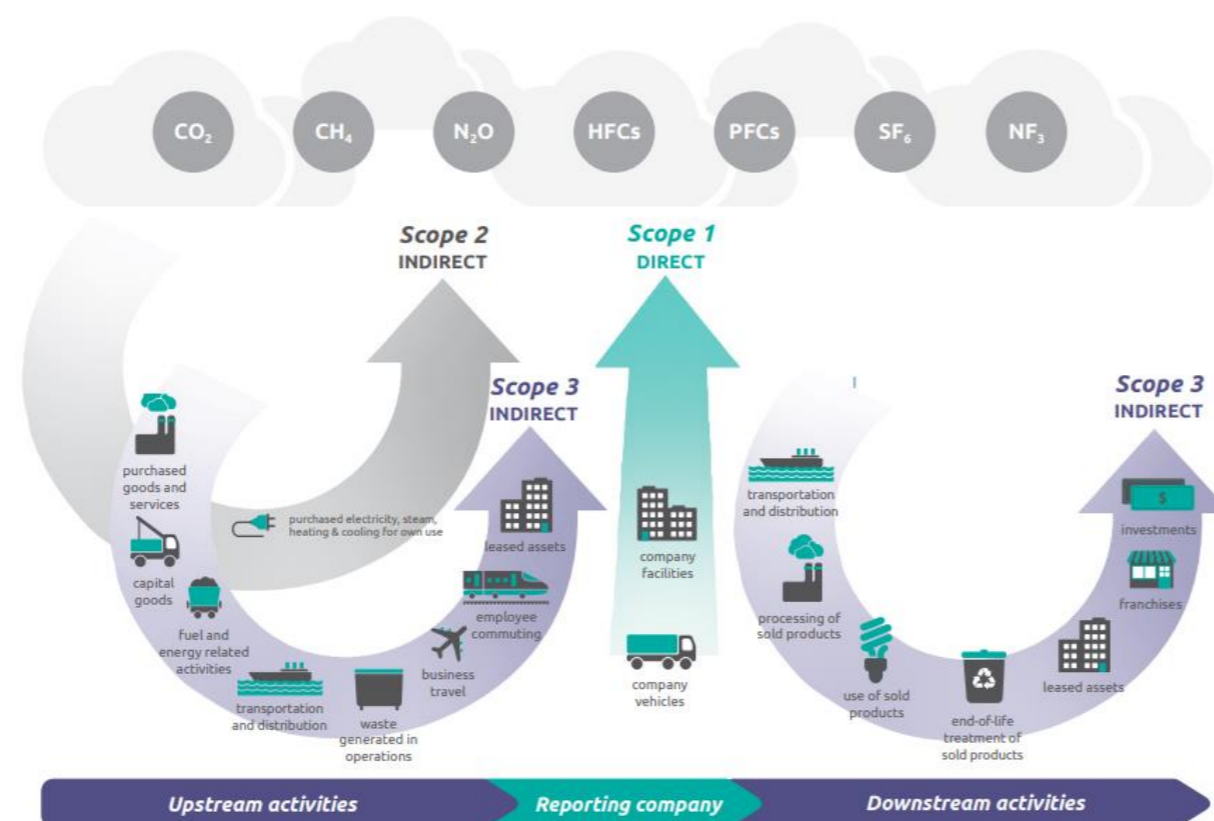
Standardised Carbon Emissions Reporting for Further and Higher Education

The aim is to help standardise greenhouse gas (GHG) emissions reporting across the FE & HE sectors by signposting institutions to good practice, guidance and methodologies. The Framework will help develop a fuller understanding of how their operations contribute to the climate emergency and enable them to take action across a broader range of areas. The Framework is based on the GHG Protocol and will lay the foundation for institutions that may wish to take a Science-Based Target approach. The Framework will also contribute to capacity building of the sector. The Framework has been developed as part of the Queen's Platinum Jubilee Challenge which is run by The Royal Anniversary Trust and funded by the Department for Education. This guidance has been created by an EAUC Working Group of experts from the sector, chaired by Glasgow Caledonian University, and with pro bono support from Avieco, as well as a sector wide Steering Group including Universities UK, Association of Colleges, AUDE, BUFDG, GuildHE and HESA. This final version includes sector-wide feedback. EAUC would like to thank all those involved in developing this crucial tool for the sector.

This is intended to be a high-level aggregated reporting Framework to develop good practice guidance for the FE/HE sector. We encourage that reporters report emissions that are material to their activities under the appropriate GHG protocol category/scope, with commentary on data and methodology maturity. Individual institutions can have disaggregated data underneath this to help inform understanding and decision making. "Splitting" should only be done where methodologies are considerably different. Whilst we have tried as much as possible to explain in plain English some terms are unavoidable - a [glossary of terms](#) is available in the [Appendix](#) along with the images.

Summary of Standardised Carbon Emissions Reporting Framework (SEF)

The following areas should be included within an institution's reporting. After a full inventory, some areas may be considered not material and an explanation of why you have excluded the area/category will be required. You can click on the area to navigate to the detailed section.



Scope 1 – Direct GHG emissions

- [Natural Gas](#)
- [Fuel](#)
- [Refrigerants & VOC](#)
- [Diesel & Oil](#)
- [Land & Livestock](#)

Scope 2 - Indirect GHG emissions from purchased electricity, heat & steam

- [Purchased electricity](#)
- [Renewable Energy](#)
- [Heat & Steam – District Heating](#)

Scope 3 – Other indirect emissions

- [Procurement & Supply Chain & Water](#)
- [Capital Goods](#)
- [Fuel & Energy used to transport to the institution](#)
- [Transportation of goods to the institution](#)
- [Waste](#)
- [Business Travel](#)
- [Staff Commuting & Working from Home](#)
- [Leased Buildings & Vehicles \(Upstream\)](#)
- [UK Student Travel & International Student Travel](#)
- [Student Accommodation](#)
- [Sold Products](#)
- [Leased Buildings & Vehicles \(Downstream\)](#)
- [Franchises](#)
- [Investments](#)

Standardised Carbon Emissions Reporting Framework Guidance

This document is to provide guidance to institutions on how to interpret the Reporting Framework. This document includes the GHG Protocol areas, a plain English interpretation and methodologies and guidance on how to collect and report carbon emissions data. The data collection process for the reporting will be developed by the Department for Education and is not part of this work. The outline Framework provides a guide on how the reporting could be presented but the final data collection method may differ from this. If you require further guidance or clarification please refer to the [GHG Protocol](#). EAUC is working with the DfE on a support package to further help institutions in their reporting – more details will be made available soon.

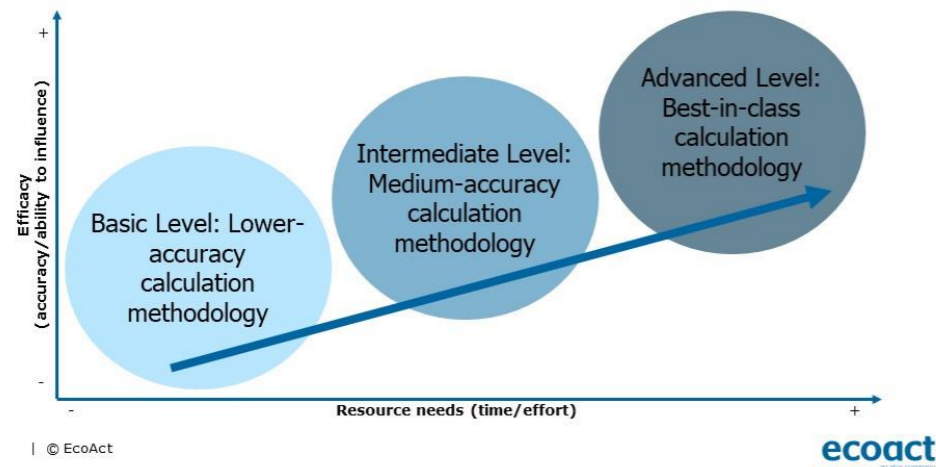
Organisation & Emission Inventory Boundaries & Materiality

All *relevant* Scope 1, 2 and 3 categories must be included and be part of the core reporting requirement. A Scope 3 screening must be conducted to ascertain the magnitude of Scope 3 emissions. This screening, in line with SBTi, covers the “minimum boundary of each scope 3 category per the GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard”. It can be done relatively quickly using tools such as the Scope 3 Evaluator (<https://quantis-suite.com/Scope-3-Evaluator/>).

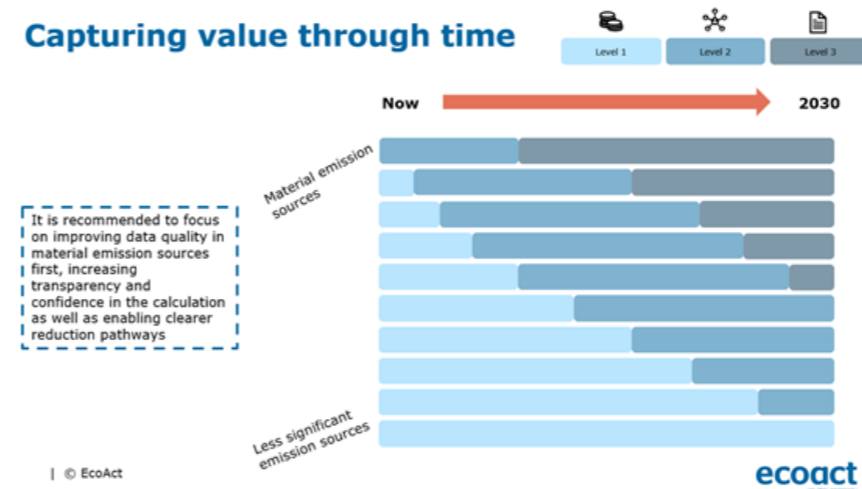
Once you have agreed your boundaries collect Basic Level data to start and work towards improving data in successive reporting periods. Sometimes it is tempting to define a minimum emissions accounting threshold (often referred to as a materiality threshold) stating that a source not exceeding a certain size can be omitted from the inventory. Technically, such a threshold is simply a predefined and accepted negative bias in estimates (i.e., an underestimate). Although it appears useful in theory, the practical implementation of such a threshold is not compatible with the completeness principle of the GHG Protocol Corporate Standard. In order to utilize a materiality specification, the emissions from a particular source or activity would have to be quantified to ensure they were under the threshold. However, once emissions are quantified, most of the benefit of having a threshold is lost. Once an approach for calculating emissions for the various sources has been established it is much quicker and simpler to redo these on an annual basis. Defining a certain threshold potentially enables institutions to qualitatively judge that certain sources are immaterial and therefore exclude and excluding relevant sources of emissions is not allowed by SBTi. Institutions should not exclude substantial quantities of indirect emissions and any exclusions need to be justified.

The Reporting Levels have been included to allow institutions that are at the beginning of their reporting journey with a starting point with a lower accuracy calculation at Basic Level. This can be achieved with little up-front time spend where easy-to-use calculation tools are available. For institutions there is an opportunity to refine the data and calculation to provide a deeper insight into how to reduce emissions (moving up to Intermediate Level and Advanced Level which reflects a more Science-Based Target approach), which allows institutions to build up their measurement approach over time and over time to further develop their accuracy with the aim of reporting to be improved over time. An institution will need to review ease/cost/time implications of achieving more accurate data as it may well not be achievable and carbon reduction activity must come above improved accuracy. There are different maturity levels for some scopes and categories, the methodology reflects what is currently available and overtime this will be updated as and when improved data calculations and methodologies are made available.

Calculating Scope 3 emissions



Capturing value through time



For the majority of institutions, 'operational control' is likely to be the most appropriate approach to defining their GHG inventory boundary. However, those with more complex operations (e.g. not exclusively, those that operate hospitals, own and rent property, have a stake in other organisations or joint venture/partnerships with other organisations) may wish to refer to GHG Protocol "A corporate accounting standard" for guidance on setting organisational and inventory boundaries for the purposes of GHG reporting. An institution may wish to include influence in specific categories but this should be part of your Net-Zero plan or strategy and is out of scope for GHG Accounting as it informs where and how to address emissions and prioritize.

GHG inventories must include emissions from:

All institution **operations** (e.g. energy, water, waste) regardless of location.

- Activities/services directly **paid** for by the institution (e.g. accommodation and supplies) - if nominated accommodation then do not include as assume that the accommodation provider would account for this.
- Other activities/services that are **material** to university/college operations (e.g. commuting and student travel home) and which they (university/college) can influence.
- Ensure that the GHG Protocol reporting principles (relevance, completeness, consistency, transparency and accuracy) are reflected in the resulting GHG inventory.

For national facilities, shared hospitals etc. that institutions house these should be proportioned and the facility allocated to the funder should be reported under Scope 3 Category 13. The proportion apportioned to the institution should be under Scope 1 and/or Scope 3. The reporting level should be determined by the level of data.

For further guidance on boundaries refer to the [GHG Protocol](#)

Notes on:

- **Emission factors**: With the exception of international air travel, emission factors should be for the country the emissions occur in. For international travel for UK based staff should be that provided by DEFRA. KgCO₂e factors to be used. Emission factors (EF) are highlighted in **green**.
- **Data hierarchy**: activity/consumption data > intensity data. However, intensity data (e.g. HESCET data) can be used to ascertain/gauge the magnitude of emissions from a particular activity before a commitment is made to sourcing activity/consumption data. Data sources are highlighted in **blue**.
- **Data source examples**: Examples are included on where data could be sourced from. Data source examples are highlighted in **grey**.
- **Materiality**: having calculated as full an inventory as possible, where emissions are not material (<1% of total reported), institutions may wish to come to a view on the merits of continually reporting that particular emission category on the balance between increased accuracy and the effort required to source appropriate consumption data (this might be the case for activity with insignificant emissions).
- **Materiality assessment**: While higher-level calculation methodologies take a longer time (resource needed) they also have higher "efficacy" inability to influence and reduce emissions. We recommend to focus on significant (here used to express magnitude) emissions sources first. This means that for significant sources of emissions such as procurement, understanding the scale and main sources of emissions within this category can be done with a "Basic Level" assessment. However, to reduce emissions it is critical to have a more granular calculation approach as "Basic Level" is often using averages and does not reflect the actual situation. Therefore, more refined calculations of Intermediate Level and Advanced Level are needed. Insignificant sources of emissions may therefore potentially not move beyond "Basic Level" assessment in the short term.

Data Collection

The Department for Education (DfE) will be creating a data collection tool which will be available in 2023/24 academic year. This will include the ability to compare previous years data (when available) as well as comparing progress per category. Some institutions may want to report at different levels such as residential and non-residential emissions and it is assumed that this level of detail would be done at an institutional level. Once sufficient data is collected sector benchmarks could be developed to help institutions to make estimates where institutional data is not available. Broader sustainability areas may be reported at an

institutional level, this Framework is for carbon emissions only. The data collection will include commentary for explanations of any major changes such as large-scale construction projects or a change in data accuracy, for example. The data collection will be high level aggregated data and institutions will need to have the detailed disaggregated data separately. For HE in England – HESA’s Estate Management Record (EMR) will be updated to reflect this Framework for the carbon elements and for the non-carbon elements it will be updated to reflect AUDE’s sector feedback. It is recommended that institutions adopt the Framework as soon as possible and continue reporting in the current data collection mechanisms available until the new data collection has been established. Ongoing discussions are taking place with DfE and the devolved nations to align reporting with the aim of having a UK wide approach.

The tables below provide examples of methodologies, with different degrees of accuracy, for estimate GHG emissions from a range of activities typically associated with university/college operations.

Scope 1: Direct GHG emissions

Scope 1: Direct GHG emissions	GHG protocol description	Plain English description for FE/HE	Advanced Level: Best-in-class calculation methodology	Intermediate Level: Medium-accuracy calculation methodology	Basic Level: Lower-accuracy calculation methodology	Observations
1. Natural gas	Combustion in controlled boilers, CHP, furnaces, etc.; emissions from chemical production in owned or controlled process equipment. This must include both owned and rented or leased buildings where the institution has operational control.	Natural Gas Combustion of natural gas in on-site boilers, CHP etc.	Collect metering data (kWh), apply emission factors. All operated buildings must be included (including owned, leased (operated/occupied) and rented buildings – if it is leased out then the tenant should report as their Scope 1). Data: meter readings Data source example: kWh gas (from energy bills) EF: Natural gas		National/Institutional averages (kWh.m2) with relevant emission factor applied. Data: area of buildings (m2) that benefit from use of gas; national/regional intensity factor (kWh.m2) EF: Natural gas	For shared premises without individual meters, consumption may be determined based on the % area occupied. Consumption data also to be used in Scope 3 - 3. Fuel- and energy-related activities.
2. Fleet (owned/operated)	Fuel combustion in controlled vehicles (including watercraft and aircraft). This includes owned and leased vehicles, but excludes rental vehicles/grey fleet (to be included in scope 3 cat. 6: business travel).	Fuel Fuel (e.g. diesel, petrol) combusted in vehicles owned or leased by the organisation. This captures where the organisation purchases the fuel itself. To include any institution owned equipment e.g. tractors and farm equipment.	Fuel records (e.g. fuel card or supply invoices) with appropriate emission factor applied for quantity used of each fuel used. Data: Quantity of fuel/power used Data source example: Fuel card reports. Fuel purchase records (e.g. pump receipts). EF: Fuel/power specific	Distance travelled for particular vehicle type with appropriate emission factor applied. Data: Distance travel by vehicle type (including fuel) Data source example: (for motor vehicles - annual MOT records (which highlight distance the vehicle has travelled). EF: Fuel specific		Consumption data also to be used in Scope 3 - 3. Fuel- and energy-related activities.

Scope 1: Direct GHG emissions	GHG protocol description	Plain English description for FE/HE	Advanced Level: Best-in-class calculation methodology	Intermediate Level: Medium-accuracy calculation methodology	Basic Level: Lower-accuracy calculation methodology	Observations
3. Refrigerants & researched-based f-gas, VOC	Fugitive emissions from refrigerants.	Refrigerants Emissions from leakage of refrigerants where these have a Global Warming Potential (GWP) in their own (e.g. R134a has a GWP (CO ₂ e) 1430 times CO ₂).	Collect consumption data (kg), apply updated DEFRA emission factors. All operated buildings must be included (including owned, leased and rented buildings). For shared buildings, determine occupation % and apply to result (also allocate common areas). Data: Quantity of refrigerants lost (by refrigerant type) - top-up gas data from maintenance team Data source example: F-gas contractor maintenance records (a legal requirement in the UK). EF: Refrigerant specific			In the UK (and EU) organisation working with f-gases must keep adequate records which will facilitate the calculation of the quantity of refrigerant losses. <ul style="list-style-type: none"> Regulation (EU) 517/2014 (OJ: L150/195/2014) on fluorinated greenhouse gases Fluorinated Greenhouse Gases Regulations SI 2015/310
	The major source of man-made volatile organic compounds (VOC) are fossil fuel use, solvents (coatings, paints, inks), compressed aerosol products, biofuel use and biomass combustion.	Volatile Organic Compounds Emissions of volatile organic compounds (VOC) to the atmosphere where they are degraded to CO ₂ or are GHGs themselves.	Determine % of VOC loss as fugitive emission. Apply to quantity used (kg) and apply appropriate EF. Data: Quantity VOC used x fugitive rate (% lost) - from purchasing records EF: VOC specific (refrigerant and other)			AEA Energy & Environment (2007) ' Climate Change Consequences of VOC Emission Controls ' (accessed 17/2022) provides a list of common VOC, example applications and GWP in Annex B (pp.24/27). Use purchase records to ascertain level of use and materiality. DEFRA provide EF for VOC as are "Refrigerant & Other". IPCC for GWPs possible estimate losses of these gases https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WG_I_Chapter07.pdf .
4. Other fuels	Combustion of other fuels (e.g. diesel) in owned or controlled premises e.g. used in generators.	Diesel/Oil Combustion of fuels (e.g.	Collect consumption data (kWh or litres), apply updated emission factors. All operated			Consumption data also to be used in Scope 3 -

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		<p>diesel, fuel oil) in on-site boilers, generators etc.</p>	<p>buildings must be included (including owned, leased and rented buildings). For shared buildings, determine occupation % and apply to result (also allocate common areas).</p> <p>Data: Quantity of fuel used Data source example: Fuel purchase records/receipts. EF: Fuel specific</p>			<p>3. Fuel- and energy-related activities.</p> <p>Biomass and similar bio-based sources of fuel are considered zero carbon in terms of Scope 1 emissions. Upstream “Well-To-Tank (WTT)” emissions for production of the bio-based fuel itself should be captured in Scope 3 Category 3.</p>
<p>5. Land-related emissions & Livestock</p>	<p>Institution owned and managed land (‘non-functional’ estate).</p> <p>Land-related emissions include, but not limited to</p> <ul style="list-style-type: none"> - CO₂ from direct LUC deforestation and forest degradation - CH₄ and N₂O emissions from manure management - Enteric CH₄ emissions (Meat-Beef, Dairy) - Fertilizer: N₂O emissions from soil due to fertilizer application - N₂O emissions from crop residues - CH₄ and N₂O emissions from agricultural waste burning <p>Currently, the GHG protocol does not allow inclusion of removals into the inventory, but currently new guidance is being developed: https://ghgprotocol.org/blog/new-greenhouse-gas-protocol-land-sector-and-removals-guidance</p>	<p>Land & Livestock Direct emissions associated with the use of institution owned land and livestock.</p> <p>These vary depending on the exact use, but can include conversion of nitrogen in fertilizers to N O, methane emissions from waste or manure, and conversion of land to other uses.</p>	<p>The currently best standard EFs for this area is IPCC (2006 and 2013 update): https://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/4_Volume4/V4_04_Ch4_Forest_Land.pdfhttps://www.ipcc-nggip.iges.or.jp/public/2019rf/pdf/4_Volume4/19R_V4_Ch04_Forest%20Land.pdf</p> <p>Quantis guidance can also provide data and approaches: https://quantis-intl.com/report/accounting-for-natural-climate-solutions-guidance/</p> <p>Currently, the GHG protocol does not allow inclusion of removals into the inventory, but currently new guidance is being developed: https://ghgprotocol.org/blog/new-greenhouse-gas-protocol-land-sector-and-removals-guidance. Until this is published only emissions ‘gross’ are to be included, they may be amended to account for removals. In this case, both emissions and removals should be reported separately.</p>	<p>Oxford University Saïd Business School and Oxford University Estates Services (2021) Emission Accounting Report 2019-20 pp. 13-16/57 https://sustainability.admin.ox.ac.uk/files/emissionsaccountingreport.pdf</p>		<p>University/college owned land leased to third parties should be reported under Scope 3 - 13. Downstream leased assets.</p> <p>GHG Protocol guidance on land use is due to be published in June 2022.</p> <p>GHG guidance for trees and forested areas to aid sequestration, available here.</p> <p>Land emissions should align with upcoming standards on agriculture and land emissions.</p>

Scope 1: Direct GHG emissions	GHG protocol description	Plain English description for FE/HE	Advanced Level: Best-in-class calculation methodology	Intermediate Level: Medium-accuracy calculation methodology	Basic Level: Lower-accuracy calculation methodology	Observations
			Land clearance in urban and brownfield settings should as far as feasible be included if biomass stock is present and lost due to land use change.			
	Direct emissions from owned or controlled livestock (e.g. methane).	Direct emissions of methane from livestock (enteric fermentation).	Actual measurements. Data: Emerging techniques		Collect livestock data (number of heads), apply updated DEFRA emission factors. Data: Livestock numbers and manure management practices EF: DEFRA EF for livestock (1990-2000)	Potential methodologies/EF (same principle as DEFRA): McGill University (Canada) 2020 GHG Inventory – detailed Appendix (pp. 17-18) Latest IPCC Global Warming Potentials for a 100-year timeframe (GWP 100) should be used to convert methane into CO2e. The latest data is currently IPCC AR6 https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WG_I_Chapter07.pdf

Scope 2: Indirect GHG emissions from [purchased] electricity, heat and steam

Scope 2: Indirect GHG emissions from electricity consumption	GHG protocol description	Plain English description for FE/HE	Advanced Level: Best-in-class calculation methodology	Intermediate Level: Medium-accuracy calculation methodology	Basic Level: Lower-accuracy calculation methodology	Observations
1. Purchased Electricity	<p>Generation of purchased electricity consumed by the company (market-based). Purchased is defined as electricity that is purchased or otherwise brought into the organisational boundary of the company. This must include both owned and rented or leased buildings where the institution has operational control.</p>	<p>Purchased electricity i.e. fuel is combusted by another organisation but the energy created is purchased by the reporting organisation.</p>	<p>Best practice is to report according to <i>both</i> market and location-based approaches.</p> <p>Location-based approach: collect metering data (kWh), apply updated and country-specific emission factors (DEFRA for UK sites, IEA for others) to get the average emissions intensity of grids in which energy consumption occurs.</p> <p>Market-based approach: collect metering data (kWh), apply specific emission factors sourced directly from suppliers or energy attribute certificates reflecting the true emissions associated with the energy mix purchased. Where supplier mix is unknown or no certificates have been purchased, the residual mix must be used (e.g. https://www.aib-net.org/facts/european-residual-mix) All operated buildings must be included (including owned, leased and rented buildings).</p> <p>Data: meter readings Data source example: kWh electricity (from energy bills) EF: Supplier EF, residual mix EF (UK/country specific)</p>	<p>Location-based approach: collect metering data (kWh), apply updated and country-specific emission factors (DEFRA for UK sites, IEA for others) to get the average emissions intensity of grids in which energy consumption occurs.</p> <p>Data: meter readings. EF: Grid electricity UK/country specific EF</p>	<p>National/Institutional averages (kWh.m2) with relevant emission factor applied.</p> <p>Data: meter readings. EF: Grid electricity UK/country specific EF</p>	<p>For shared premises without individual meters, consumption may be determined based on the % area occupied.</p> <p>Consumption data also to be used in Scope 3 - 3. Fuel- and energy-related activities.</p> <p>The location-based emissions data can be further refined by utilizing half hourly emissions factors and power data. This can help institutional decision-making, but is an optional refinement for level 3 measurement.</p>
	<p>Any type of renewable electricity can be used to lower an organisation's gross market-based scope 2 emissions from purchased electricity. If feasible on-site generation either by the institutions or 3rd party provider should be prioritised. Alternatively, the organisation can engage in a direct contract with a supplier (e.g. Power Purchase Agreement, PPA). Renewable</p>	<p>Renewable Energy REGOs describe credits created by renewable electricity generators, they can be used to lower an organisation's gross market-based scope 2</p>	<p>Data source example: 3 reporting fields for renewable energy. You should list each type that you have – e.g. On-site (solar, wind etc.), PPA & REGO</p> <ul style="list-style-type: none"> - On-site generation (1 & 2 in RE100 guidance): First priority - Power Purchase Agreement – PPA (3 & 4 			<p>It is recognized that renewable electricity as used within the market-based approach have varying influence in increasing societal RE.</p> <p>This field therefore seeks to gather information on these varying types of renewable energy.</p>

Scope 2: Indirect GHG emissions from electricity consumption	GHG protocol description	Plain English description for FE/HE	Advanced Level: Best-in-class calculation methodology	Intermediate Level: Medium-accuracy calculation methodology	Basic Level: Lower-accuracy calculation methodology	Observations
	<p>energy certificate can also be used separately in the form of Renewable Energy Guarantee of Origin (REGO). You should list each type that you have – e.g. For further guidance and description, please refer to RE100 guidance, available here.</p>	<p>emissions from purchased electricity Adapted from: https://www.epa.gov/sites/default/files/2018-03/documents/gpp_guide_recs_offsets.pdf.</p>	<p>in RE100 guidance): Second priority - Renewable energy certificate – REGO (5 & 6 in RE100 guidance): Third priority RE100 Guidance</p>			
<p>2. Purchased heat or steam</p>	<p>Defined as district heating or steam that is purchased or otherwise brought into the organisational boundary of the reporting institution.</p>	<p>Heat & Steam If the institution purchases any district heating or steam.</p>	<p>Best practice is to report according to <i>both</i> market and location-based approaches.</p> <p>Location-based approach: collect metering data (kWh), apply updated and country-specific emission factors (DEFRA for UK sites, IEA for others) to get the average emissions intensity of grids in which energy consumption occurs</p> <p>Market-based approach: collect metering data (kWh), apply specific emission factors sourced directly from suppliers or energy attribute certificates reflecting the true emissions associated with the energy mix purchased. Where supplier mix is unknown or no certificates have been purchased, the residual mix must be used (e.g. https://www.aib-net.org/facts/european-residual-mix) All operated buildings must be included (including owned, leased and rented buildings).</p> <p>Data: meter readings Data source example: heat bills/supply reports. EF: Supplier EF</p>	<p>Location-based approach: collect metering data (kWh), apply updated and country-specific emission factors (DEFRA for UK sites, IEA for others) to get the average emissions intensity of grids in which energy consumption occurs.</p> <p>Data: meter readings EF: UK heat/steam EF</p>	<p>National/Institutional averages (kWh.m2) with relevant emission factor applied.</p> <p>Data: meter readings EF: UK heat/steam EF</p>	<p>Consumption data also to be used in Scope 3 - 3. Fuel- and energy-related activities.</p> <p>Scope 2 emissions should not include Well-To-Tank (WTT) or Transmission & Distribution (T&D) emissions. These should instead be captured in Scope 3 Category 3.</p>

Scope 3: Other indirect GHG emissions

Scope 3: other indirect GHG emissions	GHG protocol description	Plain English description for FE/HE	Advanced Level: Best-in-class calculation methodology	Intermediate Level: Medium-accuracy calculation methodology	Basic Level: Lower-accuracy calculation methodology	Observations
<p>1. Purchased goods and services</p>	<p>Extraction, production, and transportation of goods and services purchased or acquired by the reporting company in the reporting year, not otherwise included in Categories 2 - 8. This may include intermediate goods (e.g., materials, components) and final products for resale.</p>	<p>Procurement & Supply Chain & Water Upstream (supply chain) emissions of goods and services purchased for the operation (operational expenditure - OPEX) of the organisation.</p>	<p>Complete upstream emissions covering all categories of purchased goods & services, including outsourced activities (e.g. catering, professional services):</p> <p>a) Product-based emissions reporting: where actual product consumption or use data is available (e.g. weight for materials used or food delivered, or data centres), use this data to calculate emissions by applying relevant Life Cycle Assessment (LCA)-based emission factors (e.g. CO₂e/kg, CO₂e/unit, CO₂e/kWh).</p> <p>b) Service-based emissions reporting: for services where no product-specific emissions data are available collect and apply supplier-based spend data (i.e. CO₂e/£) based on the suppliers' Scope 1 and 2 and relevant Scope 3 emissions (most commonly Category 1 and 4).</p>	<p>If you use supplier data ensure you remove that spend from HESCET calculations to avoid double counting.</p> <p>Hybrid approach of using spend data and actual.</p> <p>Collect supplier-based spend data (i.e. CO₂e/£) – short term likely this would only be the suppliers Scope 1 & 2, so could use EIO for the Scope 3 part. But as more suppliers will measure complete upstream supply chain footprint, then complete Scope 1-3.</p> <p>This could develop CO₂e at a product level. More details will be made clearer from Purchasing Consortia who are leading this work.</p>	<p>Use the spend of your supply chain to convert to CO₂e using the HESCET tool which already has the latest conversion factors built into it.</p> <p>Spend-based applied to the entire procurement datasets (excluding spending on goods & services that fit in other Scope 3 categories, e.g. capital expenditure (CAPEX), business travel) as well as suppliers' relevant revenue or cost data in certain cases (e.g. outsourced student accommodation and catering).</p> <p>To report the aggregated total CO₂e from the HESCET tool (not each specific line).</p>	<p>Some procurement consortia can provide data through the HESCET tool. However, it should be noted that this dataset includes all institution non-payroll spend and as a result include emissions that would be categorised as Scope 1 and 3 (e.g. utilities, travel, etc).</p> <p>There is currently no tool available for FE – although EAUC are seeking permission for FE to access the HESCET tool.</p> <p>It is therefore good practice to exclude (a) non-scope 3 emissions and (b) all scope 3 emissions for which consumption (i.e. more accurate) data is available (by excluding specific supplier data such as water).</p> <p>Where emissions are material, reporters should calculate or estimate emissions at the highest level of granularity available to them.</p>
			<p>Purchased water - consumption data (meter readings).</p> <p><u>Water:</u></p> <p>Data: Fresh water supply volume Data source example: water bills or meter readings.</p>	<p>Purchased water - consumption data (meter readings).</p> <p><u>Water:</u></p> <p>Data: Fresh water supply volume Data source example: water bills or meter readings. EF: Freshwater (national) EF</p>		<p>In the absence of wastewater meter readings, purchased water volume data is also used to estimate wastewater volume (used to report Scope 3 - 5. Waste generated in operations).</p>

Scope 3: other indirect GHG emissions	GHG protocol description	Plain English description for FE/HE	Advanced Level: Best-in-class calculation methodology	Intermediate Level: Medium-accuracy calculation methodology	Basic Level: Lower-accuracy calculation methodology	Observations
			EF: Freshwater (local/regional) EF			
2. Capital goods	Extraction, production, and transportation of capital goods purchased or acquired by the reporting company in the reporting year. Capital goods are final products that have an extended life and are used by the company to manufacture a product, provide a service, or sell, store, and deliver merchandise. In financial accounting, capital goods are treated as fixed assets or as plant, property, and equipment (PP&E).	Capital Goods Equivalent to category 1, but this focuses on fixed assets (capital expenditure - CAPEX), so captures construction, refurbishment etc. (not continuous maintenance).	Whole-life carbon assessment for each project identify embodied carbon emissions. A UK Net-Zero Carbon Buildings Standard is producing guidance specific to the education sector and is due out later in 2023. Guidance will be updated accordingly.	Extended input-output (EIO) modelling only, applied to the CAPEX spending. Could potentially be project-based emissions calculations, e.g. whole-life carbon for new builds. For construction, Architects should be able to provide the institution with data.	Use the spend of your supply chain to convert to CO ₂ e using the HESCET tool which already has the latest conversion factors built into it.	Theoretically possible with HESCET if supplier name is known, but susceptible the inclusion of non-capital element if spend includes non-capital elements (e.g. installation and commissioning). For big projects, it is recognised that in years with high capital expenditures Category 2 emissions will be high. It is based on current GHG guidance not possible to "amortize" emissions over a period of time (unlike financial accounting). Narrative around the reporting can therefore be created to describe this.
3. Fuel- and energy-related activities	Extraction, production, and transportation of fuels and energy purchased or acquired by the reporting company in the reporting year, not already accounted for in scope 1 or scope 2, including: a. Upstream emissions of purchased fuels (extraction, production, and transportation of fuels consumed by the reporting company) ; b. Upstream emissions of purchased electricity (extraction, production, and transportation of fuels consumed in the generation of electricity, steam, heating, and cooling consumed by the reporting company) ; c. Transmission and distribution (T&D) losses (generation of electricity, steam, heating and cooling that is consumed (i.e., lost) in a T&D system) – reported by end user ; d. Generation of	Fuel & Energy used to transport to the institution Upstream (supply chain) emissions associated with fuels and energy in Scope 1 & 2. This reflects emissions associated with getting fuel/energy to point of use (i.e. well-to-tank, transmission & distribution).	Obtain data from fuel, electricity purchased and energy from steam for all operated sites (including owned, leased and rented buildings). For fuels, apply the suitable DEFRA well-to-tank (WTT) emission factors. For electricity transmission and distribution, apply DEFRA WTT emission factors. Data: Fuel (scope 1) and electricity, heat and steam (scope 2) quantity used (kWh from scope 1 and 2) Data source example: same data sources as those used for Scope 1 and 2 energy emissions. EF: WTT specific for fuel/electricity; T&D losses			Use quantities of energy used to report scope 1 and 2 emissions.

Scope 3: other indirect GHG emissions	GHG protocol description	Plain English description for FE/HE	Advanced Level: Best-in-class calculation methodology	Intermediate Level: Medium-accuracy calculation methodology	Basic Level: Lower-accuracy calculation methodology	Observations
	purchased electricity that is sold to end users (generation of electricity, steam, heating, and cooling that is purchased by the reporting company and sold to end users) – reported by utility company or energy retailer only.		for electricity, steam and heat			
4. Upstream transportation and distribution	Transportation and distribution of products purchased between a company’s tier 1 suppliers and its own operations (in vehicles and facilities not owned or controlled by the reporting company). Including inbound logistics, outbound logistics (e.g., of sold products), and transportation and distribution between a company’s own facilities (in vehicles and facilities not owned or controlled by the reporting company).	Transportation of goods to the institution Transportation of goods to the organisation and transportation services paid for by the organisation.	Process-based emissions reporting: collect actual mileage data (including info on the transport mode). Use generic emission factors where vehicle type and load level are unknown. DEFRA provide average HGV emissions if vehicle type is unknown. Data: Supplier data for distance travelled EF: vehicle class specific EF (under “freighting goods”) - i.e. well-to-wheel) + associated well-to-tank EF	Collecting supplier-based spend data (i.e. kg CO ₂ e/£) – short term likely this would only be the suppliers Scope 1 & 2, so could use EIO for the Scope 3 part. But as more suppliers will get, then complete Scopes 1-3.	If the institution is using the HESCET tool for Category 1 (supply chain) this incorporate the transportation of goods so it is not required to include again to avoid double counting.	Example from NATS (Page 9/32) includes courier services. Would require that proportion of daily distance travelled by couriers/deliveries on behalf of organisation be determined. Suggest that only journeys made exclusively for reporting organisation be included.
5. Waste generated in operations	Disposal and treatment of waste generated in the reporting company’s operations in the reporting year. This category includes emissions from disposal of both solid waste and wastewater. Waste is upstream because a company will typically pay for waste management services.	Waste Disposal and treatment of waste, recycling and wastewater.	Process-based emissions reporting: collect actual tonnage data (including info on the waste destination, e.g. incineration, recycling, landfill), apply appropriate DEFRA emission factors. All waste generated from activities in control of universities (including from student catering and accommodation, even if outsourced) should be included. Waste & Recycling: Data: Waste contractor reports (tonnage data) for different waste streams and treatment routes	Waste & Recycling - Weight based calculation from tonnage reports (by material/treatment option) provided by waste contractor. Apply weight-based emission factor. Waste & Recycling: Data: Waste contractor reports (tonnage data) for different waste streams and treatment routes Data source example: tonnage reports from waste contractor. Service invoices. EF: material and treatment specific EF	Waste & Recycling – volumetric estimate of weight (container size x proportion filled x waste/material density) multiplied by annual number of collections for each waste stream/treatment option. This approach has significant potential to under-/over-estimate emissions. Waste & Recycling: Data: Waste contractor reports (number and size of containers plus collection frequency) for different waste streams and treatment routes Data source example: Service invoices. EF: material and treatment specific EF	Waste Emission Factors include transportation to the treatment facilities and landfill includes decomposition. Institutions can report separately for waste and water if preferred. Report separately for each waste material/source that has a different treatment route as required.

Scope 3: other indirect GHG emissions	GHG protocol description	Plain English description for FE/HE	Advanced Level: Best-in-class calculation methodology	Intermediate Level: Medium-accuracy calculation methodology	Basic Level: Lower-accuracy calculation methodology	Observations
			<p>Data source example: tonnage reports from waste contractor. Service invoices. EF: material and treatment specific EF</p>			
<p>6. Business travel</p>	<p>Transportation of employees for business-related activities. Leased transport must be included in lead assets. This includes student field trips and academic trips regardless of funding source.</p>	<p>Business Travel Emissions associated with transportation (and related, e.g. hotels) of employees for business-related activities.</p>	<p>Process-based emissions reporting: collect actual mileage data (including info on the transport mode), apply appropriate DEFRA well-to-wheel (WTW, i.e. TTW+WTT) emission factors. For flights to include Radiative Forcing (RF) uplift as recommended by DEFRA.</p> <p>Flights/train - TMC reports on distance travelled by mode of transport and class. Flights categorised as Domestic, short-haul, long-haul and international. Train as either National/International.</p> <p>For flights: Data: 'Distance travelled' by 'class' by 'haul' category (dom.; s-haul; l-haul; int.)</p>	<p>Distance travelled for flights/trains but not distinguishing between travel class. Train as either National/International.</p> <p>For flights: Data: 'Distance travelled' by 'haul' category (dom.; s-haul; l-haul; int.) Data source example: TMC flight reports</p>	<p>Collect travel spending data (including info on the transport mode), apply spending-based emission factors (CO₂e/£).</p> <p>Spend data converted to distance for flights/train and relevant emission factor applied. Unlikely to be able to distinguish between travel 'class'.</p> <p>Data source example: spend data. But may require manual calculation to work out £. mile/km flown. Other institutions could potentially provide</p>	<p>Due to data availability and Institutional-level arrangements, it may be necessary to combine methodologies with different degrees of accuracy: e.g. Taxis booked via corporate accounts and taxi journeys booked by staff and claimed as expenses.</p> <p>For transparency, different types of data should be reported separately.</p> <p>EAUC is investigating potential tools to support institutions calculating travel emissions.</p> <p>If institutions use a travel company then they may</p>

Scope 3: other indirect GHG emissions	GHG protocol description	Plain English description for FE/HE	Advanced Level: Best-in-class calculation methodology	Intermediate Level: Medium-accuracy calculation methodology	Basic Level: Lower-accuracy calculation methodology	Observations
			<p>Data source example: TMC flight reports EF: EF for specific 'class' and 'haul'</p> <p>Comparable approach for train.</p>	<p>EF: EF for 'average passenger and specific 'haul'</p> <p>Comparable approach for trains.</p>	<p>intensity factor (e.g. £. mile/km).</p>	<p>be able to provide carbon data (check their methodologies however!).</p> <p>Defra has emission factors for hotel stays for many (not all) countries, depending on the institution this may not be a material source and could be included within the HESCET tool.</p>
			<p>Taxi/coach – Operator reports with distance for journeys booked.</p> <p>Data: 'Distance travelled' (operator records) x number of passengers (booking records) mode of travel (taxi type/coach). individuals' 'class' by 'haul'</p> <p>Data source example: Taxi operator reports (might not be available for all taxi bookings). EF: EF for specific mode of transport</p>		<p>Above methodology could also be applied to taxi/bus travel. However, low accuracy due to differences in local/regional intensity factors.</p>	
			<p>Car hire – Hire supplier provides booking reports 'fuel used' per hire or distance travelled by vehicle size/emission class.</p> <p>Data: Hire company records of quantity of fuel used, distance travelled and vehicle size Data source example: car hire summary report (type of car, distance travelled, fuel type, CO₂e emissions). EF: Either EF for fuel used/distance travelled for specific vehicle size</p>	<p>Car hire – Hire supplier provides booking reports with total distance and assumptions made about vehicle size and fuel.</p> <p>Data: Hire company records of distance travelled Data source example: car hire summary report (distance travelled, fuel type). EF: EF for distance travelled for 'average' vehicle</p>		
			<p>Grey fleet – expense claims system (detailing distance/mileage payment and, vehicle size and fuel type).</p>	<p>Grey fleet – total mileage claim value paid by institution divided by mileage rate. Assumptions made about vehicle size and fuel.</p>		

Scope 3: other indirect GHG emissions	GHG protocol description	Plain English description for FE/HE	Advanced Level: Best-in-class calculation methodology	Intermediate Level: Medium-accuracy calculation methodology	Basic Level: Lower-accuracy calculation methodology	Observations
			<p>Data: Expenses claim reports - e.g. payment amount on mileage claims; mileage rate; vehicle fuel type/size</p> <p>Data source example: Expenses claims systems (to include distance travelled, vehicle fuel/CO₂e class) and mileage rate.</p> <p>EF: Either EF for fuel used/distance travelled for specific vehicle size</p> <p>NB.: Different mileage rates may apply to different types of vehicles. Tiered mileage rates may also be in operation.</p>	<p>Data: Expenses claim reports - e.g. payment amount on mileage claims; mileage rate</p> <p>Data source example: Total mileage payment (from Finance), mileage rate. Assume "unknown" vehicle type.</p> <p>EF: EF for distance travelled for 'average' vehicle</p> <p>NB.: Different mileage rates may apply to different types of vehicles. Tiered mileage rates may also be in operation.</p>		
<p>7. Employee commuting</p>	<p>Transportation of employees between their homes and their worksites during the reporting year (in vehicles not owned or operated by the reporting company)</p> <p>Even though employee commuting is not always purchased or reimbursed by the reporting company, it is categorized as an upstream scope 3 category because it is a service that enables company operations, similar to purchased or acquired goods and services. Companies may include emissions from teleworking (i.e. employees working remotely) in this category.</p> <p>Student travel is to be included under Category 9 and are not to be included as employees.</p>	<p>Staff Commuting</p> <p>Emissions from transportation of employees between their homes and their worksites.</p>	<p>Process-based emissions reporting: collect actual information on staff commuting (through a commuting survey: distance travelled by each transport mode), apply appropriate DEFRA well-to-wheel (WTW, i.e. TTW+WTT) emission factors.</p> <p>Data: Actual distance travelled (Institution specific survey) by mode of transport by staff in reporting period</p> <p>Data source example: organisation specific travel survey.</p> <p>EF: EF for specific mode of transport</p> <p>Measuring Scope 3 carbon emissions for transport Methodology paper available from here.</p>		<p>Process-based emissions reporting: take assumption on staff commuting habits (taking national average distance travelled by each transport mode), multiply by number of staff, apply appropriate DEFRA WTW emission factors.</p> <p>Data: Estimate distance travelled (national/regional) by mode of transport by staff in reporting period</p> <p>EF: EF for specific mode of transport</p> <p>Sample representativeness should be determined by the institutions reporting/data maturity and materiality of emission activity. Tools to determine sample size.</p>	<p>NB: the same survey can be used for student and staff commuting.</p>
	<p>Working from home (staff)</p>	<p>Staff homeworking</p>	<p>Homeworking emissions whitepaper enhanced</p>	<p>Homeworking emissions whitepaper enhanced</p>	<p>From SSN Guidance on Completing Public Bodies</p>	

Scope 3: other indirect GHG emissions	GHG protocol description	Plain English description for FE/HE	Advanced Level: Best-in-class calculation methodology	Intermediate Level: Medium-accuracy calculation methodology	Basic Level: Lower-accuracy calculation methodology	Observations
		<p>This also includes emissions associated with remote working.</p>	<p>methodology available from here.</p>	<p>methodology available from here.</p>	<p>Climate Change Duties Annual Report - 2020/21 Reporting Period (Published July 2021) p 10/28 "Recording Homeworking Emissions" (derived from a Carbon Trust report).</p> <p>A default emission factor of 0.3 tCO₂e/FTE/annum is suggested to calculate homeworking emissions.</p> <p>Data: Staff FTE Data source example: human resources records on staff nos. EF: 0.3 tCO₂e/FTE/annum</p>	
<p>8. Upstream leased assets</p>	<p>Operation of assets leased by the reporting company (lessee) in the reporting year and not included in scope 1 and scope 2 – reported by lessee. For example, if the university/college uses another organisation's assets. In the case of building or cars, their use would already be accounted for in scope 1 and 2, but the university/college could report here emissions from the asset production (as opposed to its use).</p>	<p>Leased Buildings & Vehicles Emissions from use <i>by</i> the institution (lessee) of leased buildings and vehicles.</p> <p>Institutions would need to determine if they are "lessors" (who leases or lets a property to another, a landlord), "lessee" (who holds the lease of a property, a tenant) or both (who can lease out assets whilst at the same time lease assets from others).</p> <p>Institutions that pay for energy use on leased buildings should include this under Scope 1 & 2 as within operational control</p>	<p>To be defined on case-by-case basis, only if applicable.</p>			<p>Current GHG protocol guidance only specifies the required collection of Lessor's Scope 1 & 2 emissions. Embodied carbon emissions are therefore not a requirement, however if the collection helps in the institution's decision-making and reinforcing emissions reduction inclusion is encouraged.</p> <p>Emissions that are appointed according to use/access/ownership, it is dependent on the reporter to agree with who they share assets on how they will apportion emissions.</p> <p>For empty offices and hubs assets to include until transfer date and to include any emissions under control even if the building is empty.</p>
	<p>Transportation and distribution of products sold between the</p>	<p>Transportation of produced goods</p>	<p>To be defined on case-by-case basis, only if applicable</p>			<p>Likely only to apply if the institution owns a</p>

Scope 3: other indirect GHG emissions	GHG protocol description	Plain English description for FE/HE	Advanced Level: Best-in-class calculation methodology	Intermediate Level: Medium-accuracy calculation methodology	Basic Level: Lower-accuracy calculation methodology	Observations
<p>9. Downstream transportation and distribution</p>	<p>reporting company's operations and the end consumer (if not paid for by the reporting company), including retail and storage (in vehicles and facilities not owned or controlled by the reporting company). Only includes transportation- and distribution-related emissions that occur after the reporting company pays to produce and distribute its products.</p> <p>NB: Student travel has been placed here rather than other categories due to specific definition and requirements of categories – such as Sold Products.</p>	<p>and services <i>if not</i> paid for by the institution.</p>	<p>(see decision tree in appendix).</p>			<p>commercial entity producing goods.</p>
		<p>UK Student Travel & International Student Travel Transportation of students to the institution including daily commuting and return to home – This includes both UK based students and international students and should include out-of-term as well.</p>	<p>Process-based emissions reporting: collect information on student commuting (through a student travel survey: Survey to understand origin, stop-overs and destination, mode of travel and frequency of travel), apply appropriate DEFRA well-to-wheel (WTW, i.e. TTW+WTT) emission factors to include start and end term travel.</p> <p>Data: Student travel survey data (as above); Student numbers (country for international, postcode/outcode for UK domiciled); modal distribution (UK) Data source example: organisation specific travel survey. EF: EF for specific mode of transport</p>	<p>Survey to understand origin and destination, mode of travel and frequency of travel.</p> <p>Data: Student travel survey data (as above); Student numbers (country for international, postcode/outcode for UK domiciled); modal distribution (UK) EF: Mode of transport specific EF</p>	<p>Process-based emissions reporting: take assumption on student commuting habits (taking national average distance travelled by each transport mode) and for international students' assumptions on travel frequency based on a minimum of 2 return trips per year, multiply by number of students, apply appropriate DEFRA WTW emission factors.</p> <p>Data: Estimate distance travelled (national/regional) by mode of transport by students in reporting period</p> <p>Data: Student numbers (country for international, postcode/outcode for UK domiciled); modal distribution (UK) EF: Mode of transport specific EF</p>	<p>Institutions can calculate daily commuting separately to start/end term if preferred.</p>
		<p>Student Accommodation Student accommodation and halls of residence that are on-site but owned/managed by an external organisation.</p> <p>If the institution has agreements in place with providers and can encourage living in efficient organised housing.</p>			<p>CIBSE energy benchmarking tool, available from here.</p>	

Scope 3: other indirect GHG emissions	GHG protocol description	Plain English description for FE/HE	Advanced Level: Best-in-class calculation methodology	Intermediate Level: Medium-accuracy calculation methodology	Basic Level: Lower-accuracy calculation methodology	Observations
10. Processing of sold products	Processing of intermediate products sold in the reporting year by downstream companies (e.g. manufacturers).	Sold Products The emissions created when creating the sold product.	To be defined on case-by-case basis, only if applicable (see decision tree in appendix).			Likely only to apply if the institution owns a commercial entity producing goods.
11. Use of sold products	End use of goods and services sold by the reporting company in the reporting year. The direct use-phase emissions of sold products over their expected lifetime (i.e., the scope 1 and scope 2 emissions of end users that occur from the use of: products that directly consume energy (fuels or electricity) during use; fuels and feedstocks; and GHGs and products that contain or form GHGs that are emitted during use). Optional: indirect use-phase emissions of sold products over their expected lifetime (i.e., emissions from the use of products that indirectly consume energy (fuels or electricity) during use).	Sold Products The emissions created when using the sold product.	To be defined on case-by-case basis, only if applicable (see decision tree in appendix). If an institution owns a commercial entity producing goods, the decision tree below should be used to determine the relevant/inclusion of Category 11. Use of sold products in the reporting institutions' GHG inventory. (See appendix for image).			Likely only to apply if the institution owns a commercial entity producing goods.
12. End of life treatment of sold products	Waste disposal and treatment of products sold by the reporting company (in the reporting year) at the end of their life.	Sold Products Waste of any sold products at the end of their life.	To be defined on case-by-case basis, only if applicable (see decision tree in appendix).			Likely only to apply if the institution owns a commercial entity producing goods.
13. Downstream leased assets	Operation of assets owned by the reporting company (lessor) and leased to other entities in the reporting year, not included in scope 1 and scope 2 – reported by lessor. For example, if the university/college leases some of its assets to another organisation. In the case of building or cars, their use would already be accounted for in scope 1 and 2, but the university/college could report here emissions from the asset production (as opposed to its use).	Leased Buildings & Vehicles Emissions from use of buildings and vehicles <i>leased out by</i> the institution (lessor).	To be defined on case-by-case basis, only if applicable.			Emissions from production only need to be added once for each asset. If owned by the institution they should be under Capital Goods.
	Land-use	Land-use		Oxford University Saïd Business School and Oxford University Estates Services		University/college owned and managed land should

Scope 3: other indirect GHG emissions	GHG protocol description	Plain English description for FE/HE	Advanced Level: Best-in-class calculation methodology	Intermediate Level: Medium-accuracy calculation methodology	Basic Level: Lower-accuracy calculation methodology	Observations
				(2021) Emission Accounting Report 2019-20 pp. 13-16/57 - https://sustainability.admin.ox.ac.uk/files/emissionsaccountingreport.pdf		be reported under Scope 1.
14. Franchises	Operation of franchises in the reporting year, not included in scope 1 and scope 2 – reported by franchisor.	Franchises If the institution has any franchises that are not already included in the reporting of the organisation that it is franchised to. This should not include subsidiaries as they should be within your boundary.	To be defined on case-by-case basis, only if applicable.			
15. Investments	Operation of investments (including equity and debt investments and project finance and pensions) in the reporting year, not included in scope 1 or scope 2.	Investments To cover any stocks, shares or investments & endowments an institution has as well as pension schemes. To include any break-out companies which have resulted from research activities.	To be defined on case-by-case basis, only if applicable PCAF: https://carbonaccountingfinancials.com/standard		This is an emerging area and guidance will be added once it is available. The extent of 'operational control' will determine what is reported. Investment funds held by the institution should be reported because the institution can direct what they are invested in. Fund managers should have access to tools to estimate carbon emissions associated with the investments they hold on behalf of the institution.	PCAF: https://carbonaccountingfinancials.com/standard Emissions involved in pensions and endowment is an evolving area with little guidance available to date. Updates to the guidance once they have been released.

Glossary

Additionality	A criterion for assessing whether a project has resulted in greenhouse gas (GHG) emission reductions or removals in addition to what would have occurred in its absence.
Baseline	A hypothetical scenario for what GHG emissions, removals or storage would have been in the absence of the GHG project or project activity.
Base year emissions	The GHG emissions in the first year of reporting.
Boundaries	The boundaries determine the core direct and indirect emissions and optional emissions to include associated with operations owned or controlled by the institution.

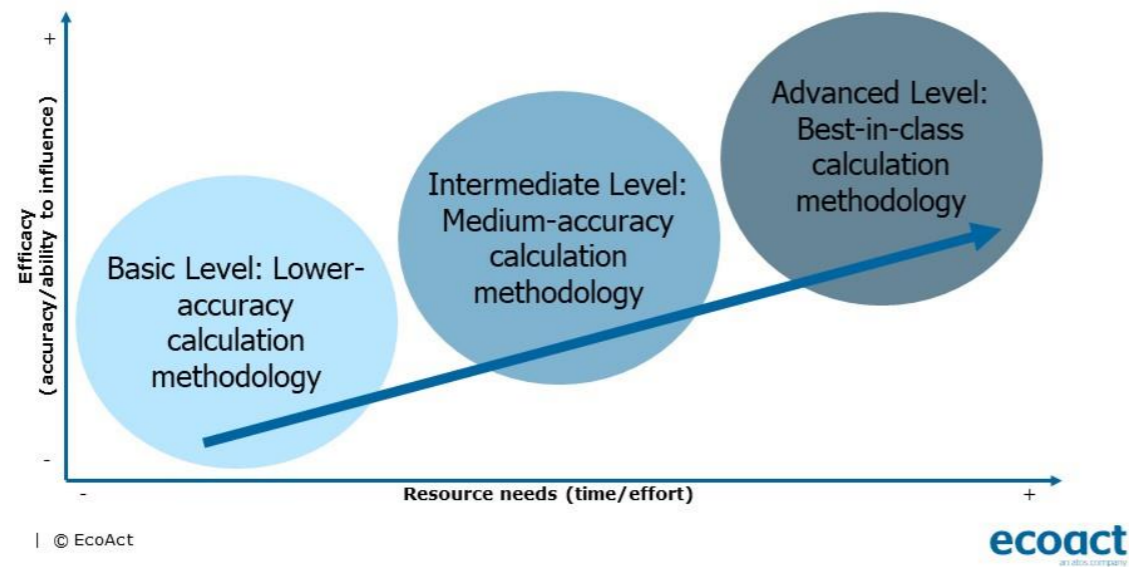
Capital Expenditures (CAPEX)	Capital Expenditures (CAPEX) are institutions' major, long-term expenses (e.g., physical assets such as buildings, equipment's, and vehicles).
Carbon Neutral	GHG emissions are balanced by 'offsetting,' or removing an equivalent amount of carbon from the atmosphere.
Carbon Positive	Carbon positive (climate positive) is used by companies to announce that they have moved beyond carbon neutrality by reducing/removing more GHG emissions than they are generating.
Certificate Emissions Reduction (CERs)	Certificate Emissions Reduction (CERs) is a unit of emission reduction generated by a Clean Development Mechanism (CDM) project.
CO ₂ e	Carbon dioxide equivalent is a standard unit for measuring carbon footprints, including CO ₂ and other greenhouse gases.
Downstream	Downstream emissions are indirect GHG emissions from sold goods and services. Downstream emissions also include emissions from products that are distributed but not sold.
Embodied carbon	All the CO ₂ emitted in producing materials.
Emissions factor	A factor allowing GHG emissions to be estimated from a unit of available activity data (e.g., tons of fuel consumed, tons of product produced) and absolute GHG emissions.
Extended Input-Output Modelling (EIO)	Extended input-output (EIO) modelling identifies the linkage between economic consumption activities and environmental impacts to estimate the GHG emissions resulting from production and upstream supply chain activities.
Global Warming Potential (GWP)	The Global Warming Potential (GWP) index is used to measure the relative warming effects of these gases, using CO ₂ as the baseline.
Greenhouse Gas (GHG) Protocol	The Greenhouse Gas Protocol (GHG Protocol) is a globally recognised standard for measuring and managing greenhouse gas emissions.
Higher Education Supply Chain Emissions Tool (HESCET)	The Higher Education Supply Chain Emissions Tool (HESCET) is a tool that uses the DEFRA categories to calculate Scope 3 emissions based on institutional non-pay spending.
Intensity ratios	A way of defining your emissions data in relation to an appropriate business metric and a way of comparing carbon emissions over time.
Inventory	A quantified list of an institution's GHG emissions and sources.
Inventory boundary	The inventory boundary determines which emissions are accounted for and reported by the institution.
Location-based	Location-based emissions reflect the average emissions intensity of grids on which energy consumption occurs (using mostly grid-average emissions factor data).
Market-based	Market-based emissions reflect the electricity that companies have purposefully chosen (or the lack of choice).
Materiality	The emissions categories that are important to include or not to include will have significance towards your carbon footprint.

Material discrepancy	An error (oversight, omission, or miscalculation) that results in the reported quantity being significantly different to the true value to an extent that will influence performance or decisions. Also known as a material misstatement.
Net-Zero	The balance between all GHG emissions produced and removed from the atmosphere.
Offsetting	Offsetting is a process of the reduction or removal of emissions of carbon dioxide or other greenhouse gases to compensate for emissions made elsewhere.
Operational Control	The operational control approach reports on 100% of anything where you have the authority to introduce and implement an organisation's operating policies.
Operational boundaries	Identifying on-site and off-site activities, shared facilities, processes and services.
Organisational boundary	Organisational boundary helps organisations determine their direct carbon footprint.
Operating Expenses (OPEX)	Operating Expenses (OPEX) are an institution's day-to-day expenses (e.g., employee salaries, rent, utilities)
Power Purchase Agreements (PPAs)	Power Purchase Agreement (PPA) is a long-term agreement between a renewable developer and a consumer for the purchase of renewable energy.
Renewable Energy Guarantees of Origins (REGO)	The Renewable Energy Guarantees of Origin (REGO) scheme provides transparency to consumers about the proportion of electricity that suppliers source from renewable generation.
Science-Based Targets Initiative (SBTi)	The Science Based Targets initiative (SBTi) promotes best practices, and well-defined guidelines to reduce emissions and provides target-setting methods based on climate science. Science-Based Targets (SBTs) focus on the number of emissions that needs to be decreased to comply with the targets set out in the Paris Climate Agreement.
Scope	Defines the operational boundaries in relation to indirect and direct GHG emissions.
Scope 1	Scope 1 reports on direct control over energy generation or uses of fossil fuels in its operations. Direct GHG emissions come from sources that the company owns or controls.
Scope 2	Scope 2 reports on indirect control (generated off-site) over emissions associated with the use of purchased electricity in its own or controlled equipment.
Scope 3	Scope 3 reports on the organisation's suppliers' activities, and emissions related to the supply chain that looks both upstream and downstream.
Significance threshold	The significance threshold is a qualitative and/or quantitative criterion used to define any significant change to the data, inventory boundary, methods, or any other relevant factors
Structural change	A change in the operational boundaries of a company results in the transfer of ownership or control of emissions from one company to another.
Supply Chain	A network of organisations (e.g., manufacturers, wholesalers, distributors, and retailers) involved in the production, delivery, and sale of a product to the consumer.
Tank-to-Wheel (TTW)	Tank-to-Wheel (TTW) emissions refer to the point that consists of the vehicle supply with fuel and the disposal of components from combustion.
Upstream	Upstream emissions are the indirect emissions related to a reporting company's suppliers, from the purchased materials that flow into the company to the products and services the company utilizes.

Value chain	Value chain refers to all of the upstream and downstream activities associated with the reporting organisation’s operations.
Well-to-Tank (WTT)	Well-to-Tank (WTT) emissions factor (upstream or indirect emissions) is an average of all the GHG emissions released into the atmosphere from the production, processing and delivery of a fuel or energy vector.
Verification	An independent assessment of the reliability (considering the GHG protocol 5 principles of relevance, completeness, consistency, transparency, and accuracy) of a GHG inventory.

Appendix

Calculating Scope 3 emissions



Capturing value through time

