Newcastle University
Scope 3: Screening

31/03/2020

Contents

1. Introduction

A high-level scope 3 screening exercise was completed in order to; determine the materiality of scope 3 categories, assess the current quality of data, make a preliminary estimate of emissions, and make reduction and data quality recommendations going forward. The methodology of this document is based on the Greenhouse Gas Protocol: Technical Guidance for Calculating Scope 3 Emissions and the Corporate Value Chain (Scope 3) Accounting and Reporting Standard. Input from various stakeholders within the organisation determined the scoring of the matrix and informed recommendations. Data was assessed according to the criteria of the aforementioned Greenhouse Gas Protocol documents and a high-level estimation of scope 3 emissions was conducted using the data provided.

The results of this exercise may be used to guide the universities efforts towards establishing a scope 3 carbon footprint and to assist in identifying sufficient data collection procedures to formulate a credible scope 3 footprint.

2. Methodology

Materiality Matrix

The materiality matrix used both quantitative and qualitative information to prioritise scope 3 emission categories. This process followed the suggested screening approach from the GHG Protocol Corporate Value Chain Accounting and Reporting Standard. Categories were assessed according to; size, influence, risk, stakeholders and sector guidance.

Size

Size was assessed by evaluating; what portion of expected scope 3 footprint do I anticipate these emissions to account for? A score from 0 – 10 was initially based on stakeholder feedback and then updated using estimated emissions from data sources available.

Influence

Influence was assessed by evaluating; can the organisation implement policies to reduce emissions in operations? Through discussion with Newcastle University stakeholder engagement conversations as well as internal carbon trust insights, a score and rationale were assigned for each category.

Risk

Risk was assessed by evaluating; are these activities contributing to my risk exposure (i.e. climate change related, financial, regulatory, supply chain costs, reputational, or other risks)? Through stakeholder engagement, a score and rationale was assigned for each category.

Stakeholders

Stakeholder pressure was assessed by evaluating; are stakeholders interested in seeing emissions reductions in this area? Through stakeholder engagement, a score and rationale was assigned for each category.

Level of Insourcing

Level of insourcing was assessed by evaluating; to what extent are these activities insourced? This was in order to see where the university's activities are self-governed and where their jurisdiction ends. Through stakeholder engagement, a score and rationale was assigned for each category.

Sector Guidance

Sector was to be assessed by evaluating alignment with sector guidance. In this case, no specific sector guidance on scope 3 emission management for universities was found, so this category was given a weight of zero in this assessment.

Scoring and Weighting

Each category was assigned a weight (Table 2) to reflect its relative importance in determining scope 3 category hotspots. The largest weight was assigned to size of emissions. Influence and risk are considered important factors as well. Influence is a category that assesses the businesses ability to tangibly affect this category with policies or action. Evaluating risk is an important consideration as seeking to reduce risk will ultimately drive business decisions across the organisation and climate related risk is increasingly growing. Finally, stakeholders and level of insourcing were assigned lower weights, as they should be considered when determining scope 3 hotspots, but should not be the determining factors. As mentioned before, sector guidance was not found for educational institutes Scope 3 emissions so no weighting to this category was applied.

Scoring was assigned according to rationale and applicability scoring table (Table 2).

Table 1. Weighting

		Weighting (score 1 - 5)					
Scope 3 Category	Category #	Size	Influence	Risk	Stakeholders	Level of Outsourcing	Sector Guidance
Purchased goods & services	1	5	4	3	3	1	0
Capital goods	2	5	4	3	3	1	0
Fuel- and energy-related activities	3	5	4	3	3	1	0
Upstream transportation & distribution	4	5	4	3	3	1	0
Waste generated in operations	5	5	4	3	3	1	0
Business travel	6	5	4	3	3	1	0
Employee commuting	7	5	4	3	3	1	0
Upstream leased assets	8	5	4	3	3	1	0
Downstream transportation & distribution	9	5	4	3	3	1	0
Processing of sold products	10	5	4	3	3	1	0
Use of sold products	11	5	4	3	3	1	0
End-of-life treatment of sold products	12	5	4	3	3	1	0
Downstream leased assets	13	5	4	3	3	1	0
Franchises	14	5	4	3	3	1	0
Investments	15	5	4	3	3	1	0

Table 2. Scope 3 Materiality Scoring

Scope 3 Applicability Scoring	Score					
Applicability Category	0	1	3	5	8	10
Size	Marginal (< 1%)	1 - 2.5% of scope 3 emissions	2.6% - 15% of scope 3 emissions	16 - 30% of scope 3 emissions	31 - 50% of scope 3 emissions	>50% of total scope 3 emissions
Influence	None	Minimal	Low	Medium	High	Extreme
Risk	None	Minimal	Low	Medium	High	Severe
Stakeholder	None	Minimal	Low	Medium	High	Extreme
Level of Insourcing	Complete	High	Medium	Low	Minimal	None
Sector Guidance	N/A	Low	Low-Med.	Medium	High - Med.	High

Exclusions

Some scope 3 categories were excluded on the basis of the activities that Newcastle University are involved in. These categories are:

- Category 9: Downstream Transportation & Distribution. As the University operates in the education sector and are therefore service based, there are no associated downstream transportation and distribution related emissions that are usually associated with a product.
- Category 10: Processing of Sold Products. As the University operates in the education sector and are therefore service based, there are no emissions associated with processing of sold products that are usually associated with a product.
- Category 11: Use of sold products. As the University operates in the education sector and are therefore service based, there are no emissions associated with the use phase of any sold products.
- Category 12: End of life treatment of sold products. As the University operates in the education sector and are therefore service based, there are no emissions associated with the end of life of any sold products.
- Category 14: Franchises. Newcastle University does not operate any franchises, they have some subsidiaries that operate in Malaysia and London, which have been excluded from this exercise due to data availability (these would be included in investments), therefore emissions associated with this category are not applicable.

Data Quality Assessment

In conjunction with the materiality matrix, the data provided was evaluated on a qualitative basis, highlighting current quality and what efforts can be made on improving data quality. The data was evaluated in line with GHG Protocol data assessment criteria. This focused on whether primary or secondary data (Table 3) was used, the technological representativeness, temporal representativeness, completeness, and reliability (Table 4).

Table 3. Types of Data

Data type	Description
Primary Data	Data from specific activities within a company's value chain
Secondary Data	Data that is not from specific activities within a company's value chain

Table 4. Data Quality Indicators

Indicator	Description
Technological representativeness	The degree to which the data set reflects the actual technology(ies) used
Temporal representativeness	The degree to which the data set reflects the actual time (e.g., year) or age of the activity
Geographical representativeness	The degree to which the data set reflects the actual geographic location of the activity (e.g., country or site)
Completeness	The degree to which the data is statistically representative of the relevant activity. Completeness includes the percentage of locations for which data is available and used out of the total number that relate to a specific activity. Completeness also addresses seasonal and other normal fluctuations in data.
Reliability	The degree to which the sources, data collection methods and verification procedures[2] used to obtain the data are dependable.

Emissions Estimation

Data Format

Newcastle University provided data in the form of:

- Spend data for procurement (£) and emissions (CO_2e) from 2018/2019.
- Scope 1 and 2 energy and fuel consumption by type (kWh and litres) from 2017/2018.
- Waste generated emissions (CO_2e) by end of life treatment method from 2018/2019.
- Business travel emissions (CO_2e) by type from 2018/2019.
- Employee commuting emissions (CO_2e) by type from 2016/2017.
- Apportioned Electricity and gas usage from upstream and downstream leased assets (KWh) from 2017/2018.
- Market value of investments (£) and portfolio footprint/intensity from 2018/2019.

These data were used to form a reasonable, yet rough, approximation of the scale of each scope 3 category.

Estimate Formulation

Categories 1 & 2: Purchased Goods and Services and Capital Goods

These categories were estimated using spend data that was provided by Newcastle University (Figure 1). Spend data was then then converted to emissions by linking each category to Carbon Trusts Environmentally Extended Input Output Database (EEIO). This EEIO conversion approach uses the OPEN IO database originally developed by the Sustainability Consortium at the University of Arkansas and further adapted by the Carbon Trust. The analysis is based on financial spend and Greenhouse Gas (GHG) emission factors, calculated per USD of economic value. The IO database has a collection of economic input-output emission factors for 431 sectors of the economy. These factors are in units of kg CO_2e per USD, allowing the conversion of spend in a given sector to carbon emissions.

To account for the changes in emissions efficiency (for example, grid decarbonisation, and the increasing impact of services as opposed to manufacturing to generate GDP) as well as US inflation since the IO database was created, the EEIO emission factors are updated annually, using changes in kg CO_2/GDP (from IEA), % of GDP made up of services (from World Bank), and US inflation (from OECD). These data points are combined to generate an adjustment percentage (%) to the original 2002 emission factors. For example, EEIO emission factors have reduced by approximately 40% in 2016 compared to 2002 levels. US inflation is used because the original datasets are based on the US economy and all foreign currency are converted to USD equivalents in order to apply the EEIO emission factors.

In order to convert the amount spent into USD, a Purchasing Power Parity (PPP) conversion factor is used. This is a currency conversion factor different to market exchange rates, which not only converts non-USD currency into USD, but also takes inflation of the non-USD currency into account. PPP is preferred over currency exchange as it places two currencies in equilibrium in terms of purchasing power for a representative basket of goods. Once the foreign currency is converted in USD using PPP, the USD amount to purchase the same amount of goods as the foreign currency is in effect calculated. This is then multiplied by the emission factor of the economic sector of spend, which is expressed in kgCO_2e/Currency for the reporting year.

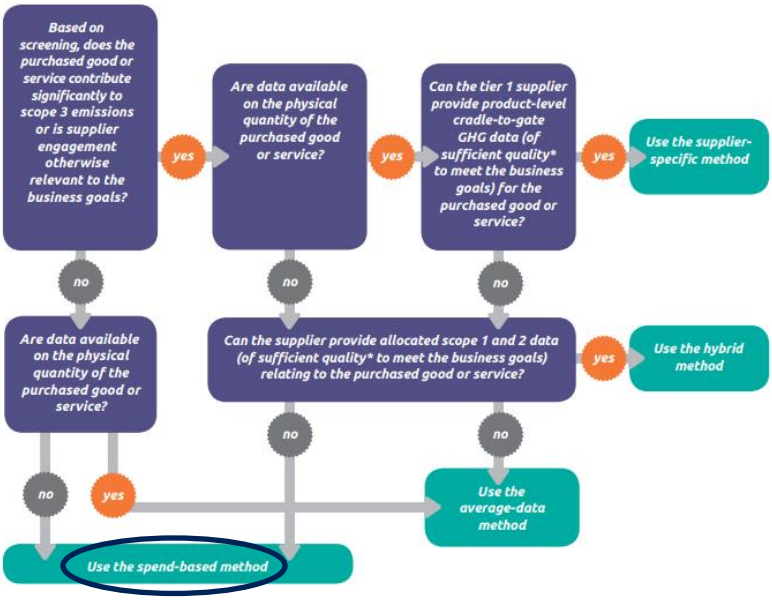

Figure 1. Decision tree for purchased goods and services and capital goods calculation

Category 3: Fuel- and Energy-Related Activities

Emissions from transmission and distribution (T&D) losses and well-to-tank (WTT) emissions were calculated based on the Scope 1 and 2 electricity usage, gas usage, gas oil usage, petrol usage and diesel usage provided. The method of calculation was the average-data method.

Category 4: Upstream Transportation and Distribution

This category was not possible to calculate due to insufficiency of data where neither the fuel based, distance based, or spend based method was viable (Figure 2).

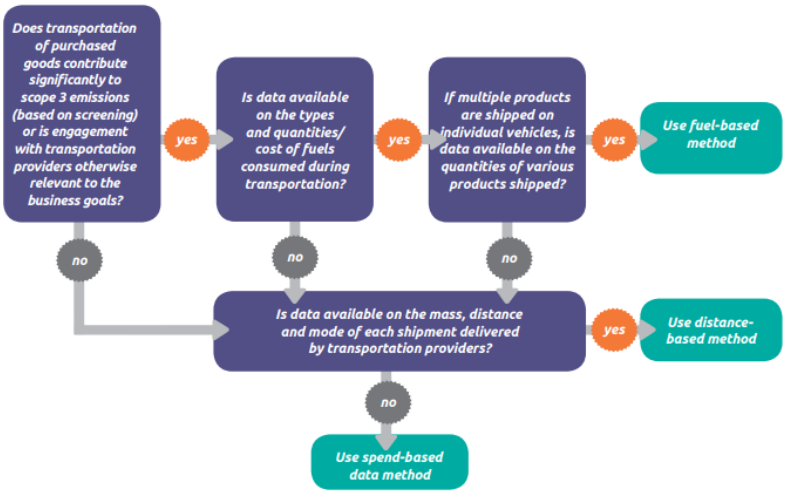

Figure 2. Decision tree for upstream transportation and distribution calculation

Category 5: Waste Generated in Operations

Data on the fate of waste by weight was recorded and was used to calculate based on the waste-type-specific method (Figure 3).

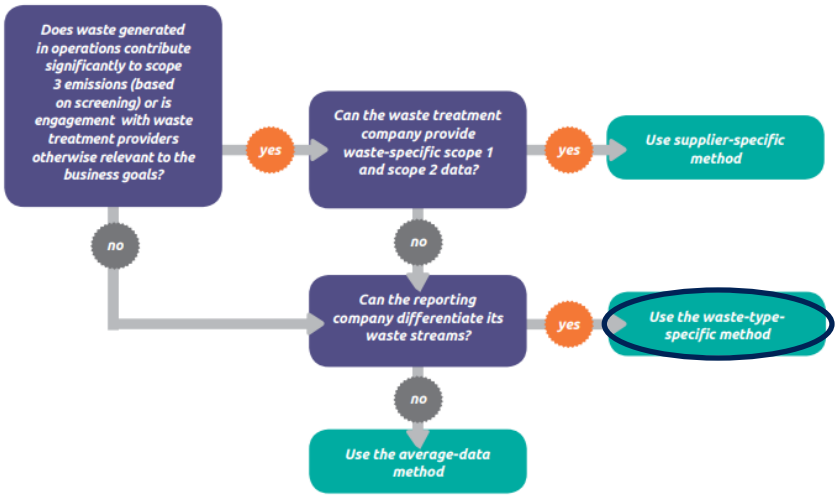

Figure 3. Decision tree for waste generated in operations calculation

Category 6: Business Travel

Activity data was provided in the form of distance data with some extrapolation process based on spend to complete values. Meaning currently a hybrid of the distance and spend based method are being used (Figure 4) with the majority of emissions i.e. flights having distance data provided. It was more consistent to take Newcastle University's total carbon emission values and attribute these toward the total scope 3 footprint rather than recalculation.

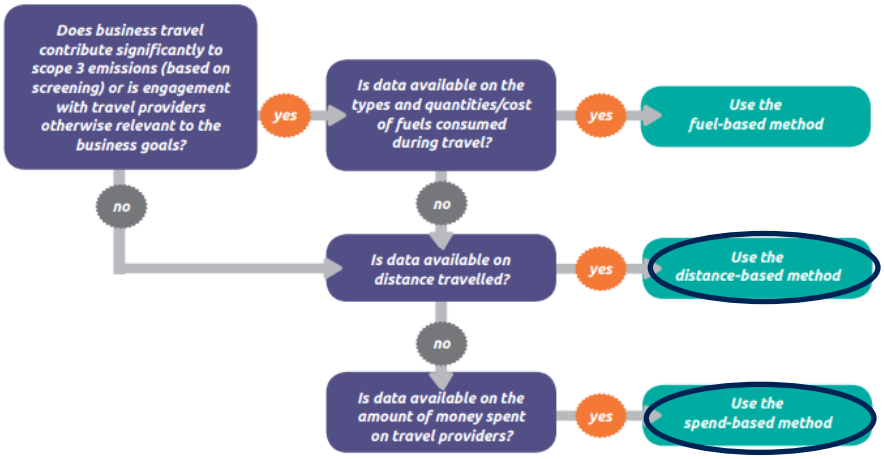

Figure 4. Decision tree for Business Travel calculation

Category 7: Employee Commuting

Distance data Is believed to have been captured by the University as described in the Carbon Management Plan 2019, however this estimation relies on carbon emissions published in this document rather than from calculation of activity data. The CMP approach suggests that Newcastle University would be in the position to use the distance specific method (Figure 5).

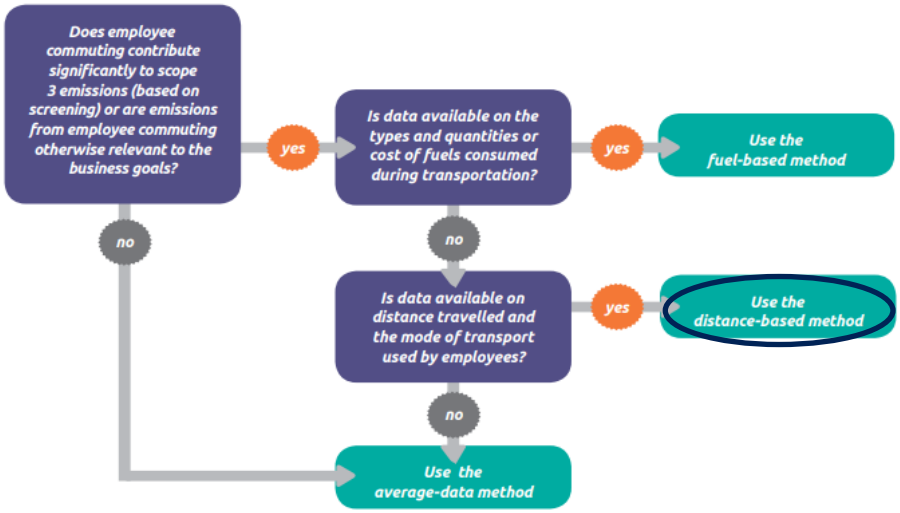

Figure 5. Decision tree for Employee Commuting calculation

Category 8 &13: Upstream Downstream Leased Assets

Activity data from upstream and downstream assets were provided i.e. electricity and gas activity data and this was combined with direct emission factors (excluding upstream).

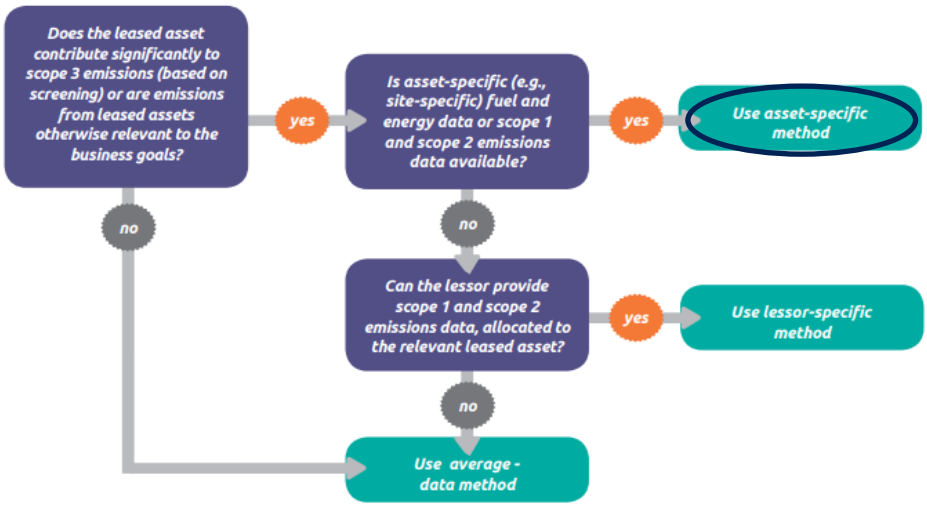

Figure 6. Decision tree for Upstream and Downstream Leased Assets calculation

Category 15: Investments

A high-level view of portfolio investments was provided, for the two of the largest portfolios (representing 86% of all investments) there was a portfolio carbon footprint which had been independently calculated using the Scope 1 & 2 emissions of investment companies, with the second portfolio having an intensity metric calculated based on the emissions per £/invested. The remaining portfolios required average global data to be used. In this respect a hybrid approach of investment specific and average method was conducted (Figure 7).

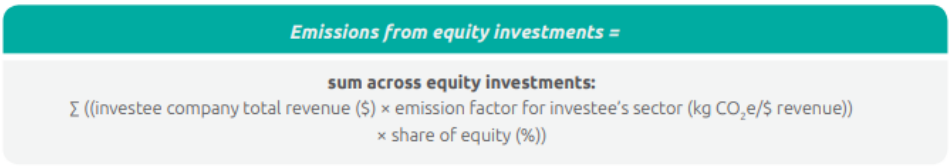

Figure 7. Average-data method

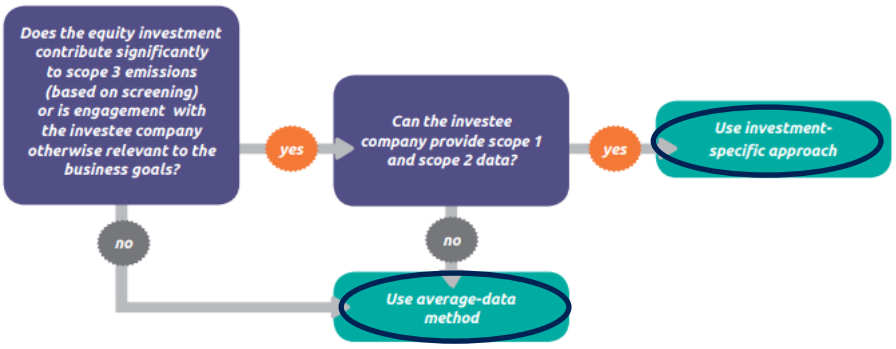

Figure 8.Decision tree for Investments calculation

Stakeholder Calls

Three stakeholder calls were made with persons working in the areas of; investments, procurement, and business travel. These conversations were had in order to develop better insights, and to;

- Discuss with stakeholder's the size, control and stakeholder pressure.
- Discuss how data is collected and in what format.
- Discuss any challenges and/or opportunities relevant to this project.

3. Results

Materiality and Data Quality

The materiality matrix suggests that in terms of size of emissions, the influence the university has, the level of risk, and stakeholder interests that, purchased goods and services, capital goods, Investments, and business travel are the most material categories to manage (Table 5).

In terms of data quality, purchased goods and services and capital goods have the same level of data quality (Table 5). This is due to meeting the same parameters where no primary data was present from suppliers so average data (EEIO emission factors) are required to translate market value into emissions. Similarly, the best data available for each of these three categories was from the 2018/19 period. For investments, the monetary value of investments was available for the 2018/19 reference period, with a portfolio carbon footprint and portfolio intensity metric covering 86% of this category. For business travel data quality was rather good as a large portion of data was provided by distance and transport method from the 2018/19 period.

Table 5. Materiality and Data Quality Overview[1]

			Weighted Scoring	Aggregated Scoring
			(0 - 100)	(0 - 100)
	Category #	Scope 3 Category	Total Materiality	Total Data Quality
Upstream	1	Purchased goods & services	74	52
	2	Capital goods	73	52
	3	Fuel- and energy-related activities	44	64
	4	Upstream transportation & distribution	19	-
	5	Waste generated in operations	49	76
	6	Business travel	58	70
	7	Employee commuting	34	58
	8	Upstream leased assets	13	46
Downstream	9	Downstream transportation & distribution	-	-
	10	Processing of sold products	-	-
	11	Use of sold products	-	-
	12	End-of-life treatment of sold products	-	-
	13	Downstream leased assets	36	40
	14	Franchises	-	-
	15	Investments	66	58

Colour Scale

N/A	
Low	Poor
Medium	Fair
High	Good

[1] *Scorings are largely qualitative, rationale behind these are in the "Newcastle University_Scope 3 Screening_Tool" excel file*

Emissions Estimate

Overview

This initial estimation suggests that Newcastle University's Scope 3 emissions amount to approximately 120,741 tonnes of CO_2e (Figure 9)[2].

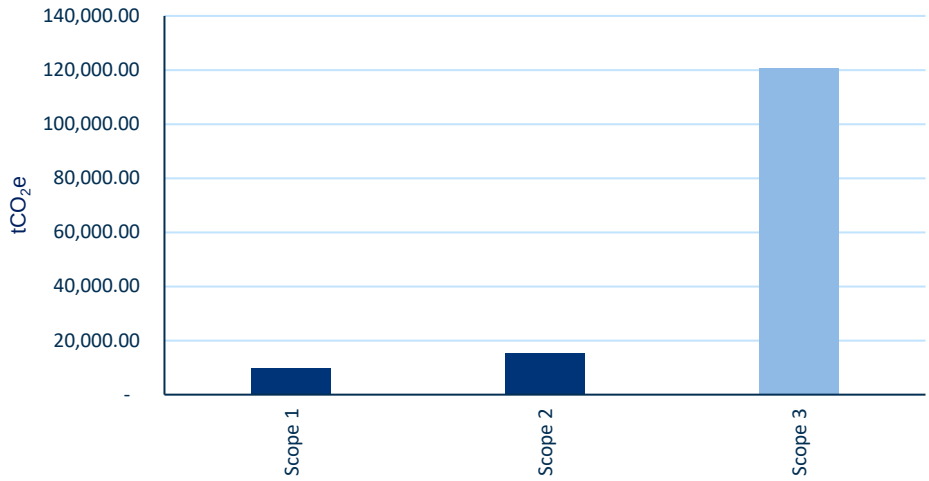

Figure 9. Emissions by Scope 1,2, and 3

Emissions by Scope 3 Category

This estimation also suggests that capital goods are the largest emitting category, followed by purchased goods and services, business travel, and then investments (Figure 10).

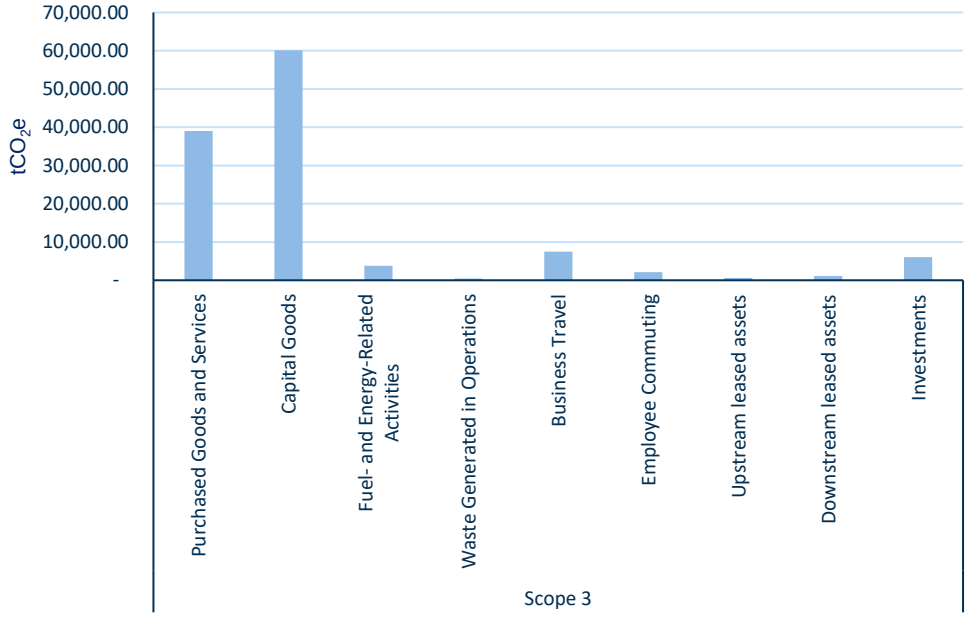

Figure 10. Emissions by included Scope 3 categories

[2] Scope 1 and 2 emissions are based on the activity data provided (Appendix A: Table 7).

Purchased goods and services

Within the purchased goods and services category, the activity data provided had a low level of granularity with spend figures aggregated to these 8 purchase categories. These were linked to the closest EEIO sector available to show the general emissions associated with this spending (Figure 11).

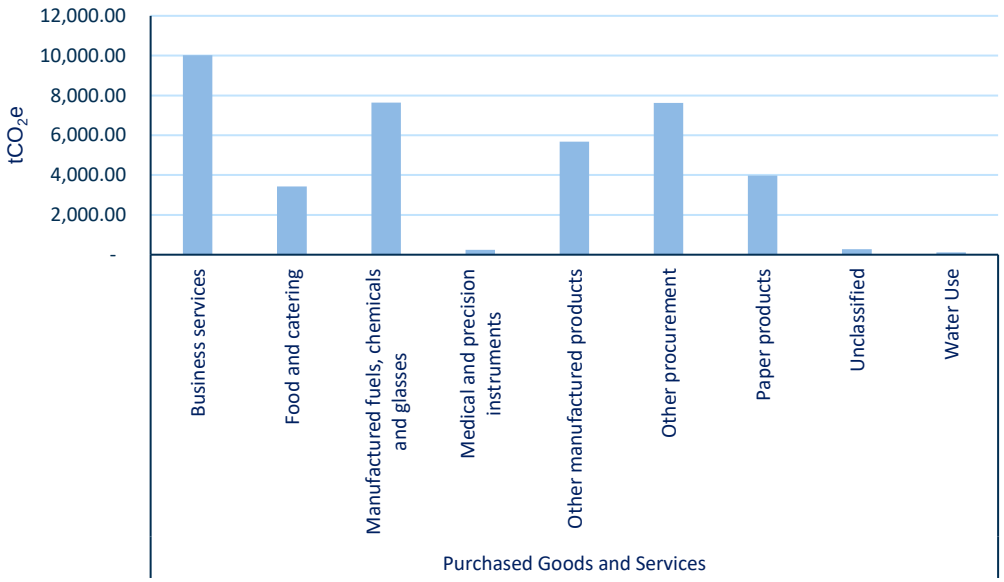

Figure 11. Emissions from purchased goods and services

Capital Goods

For capital goods two spend categories that typically have a large portion of capital goods were selected. These results had similar issues with the granularity of activity data (Figure 12).

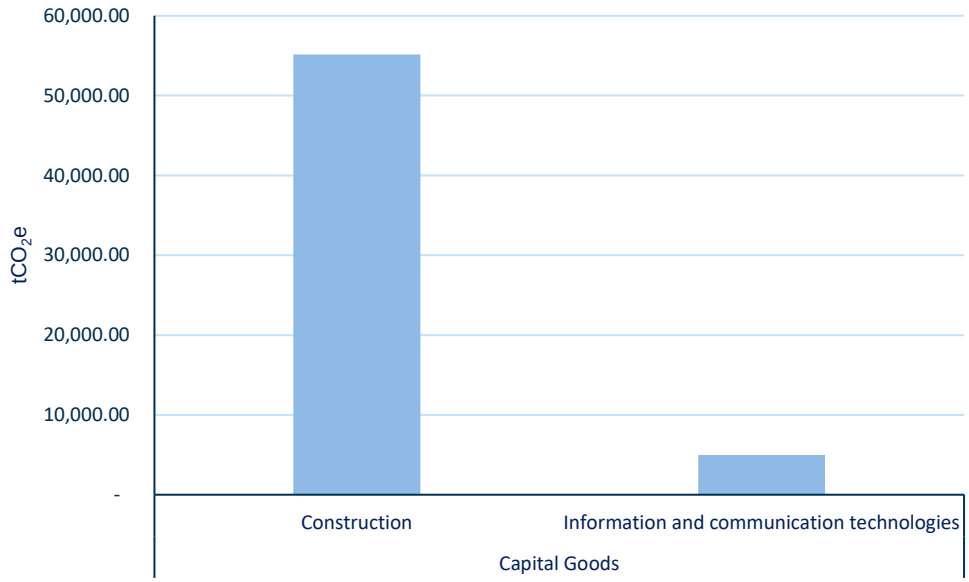

Figure 12. Emissions from capital goods

Fuel- and Energy-Related Activities

The upstream emissions calculated from activity data appeared to be predominantly from electricity and natural gas usage with fuels for mobile combustion having an insignificant impact (Figure 13).

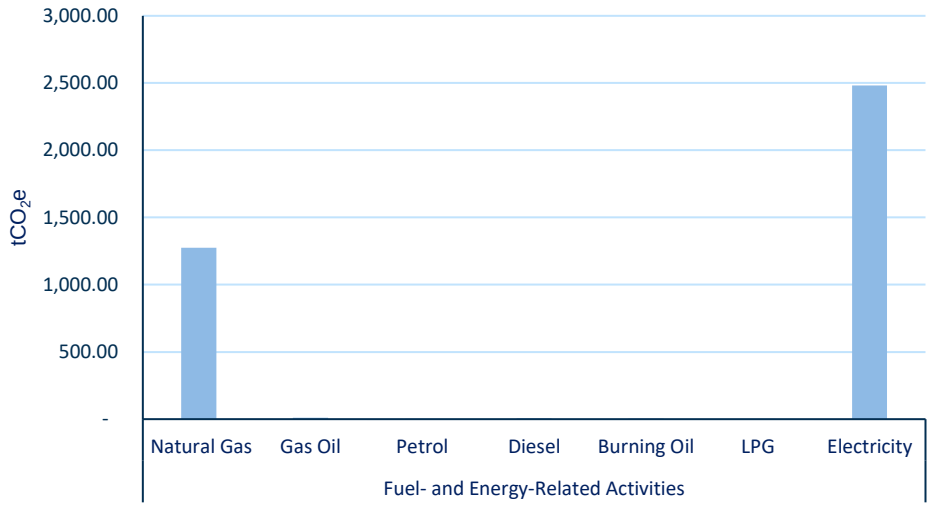

Figure 13. Emissions from fuel and energy related activities

Waste Generated in operations

For waste generated in operations the majority of emissions came from waste water treatment followed by recycling of waste (Figure 14). Recycling emissions were high due to the majority of solid waste being treated by this method. However, with landfill treatment accounting for only 873 tonnes of waste out of 9,131 tonnes of solid waste this contributed rather significantly to this emission category.

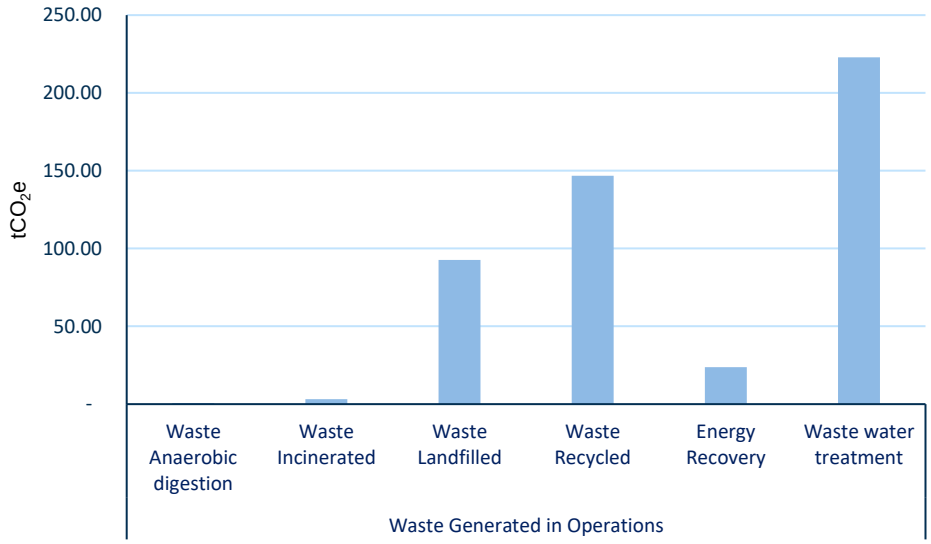

Figure 14. Emissions from waste generated in operations

Business Travel

For business travel emissions associated with flights were seen to be the most significant contributor to this scope 3 category (Figure 15)

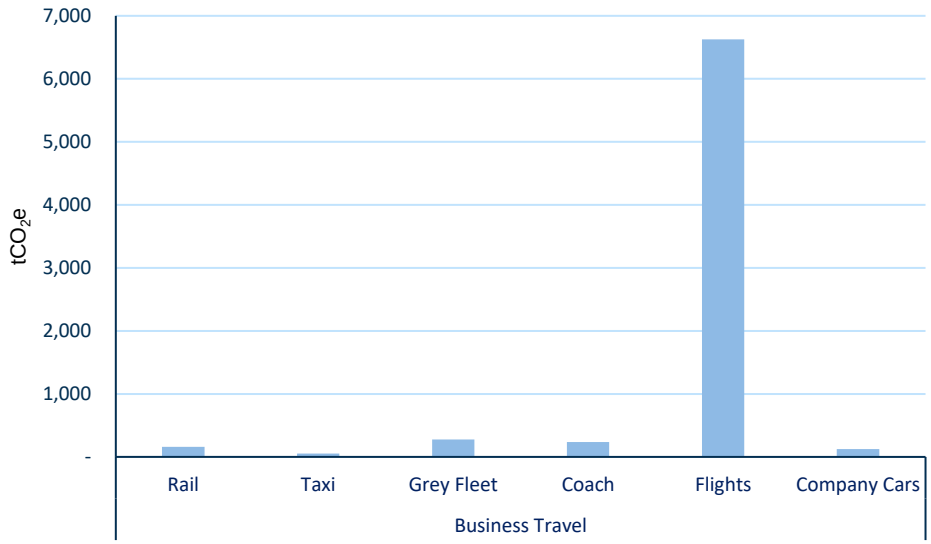

Figure 15. Emissions from business travel

Employee commuting

For the employee commuting category, the largest contributor to emissions was from employees travelling by car (Figure 16).

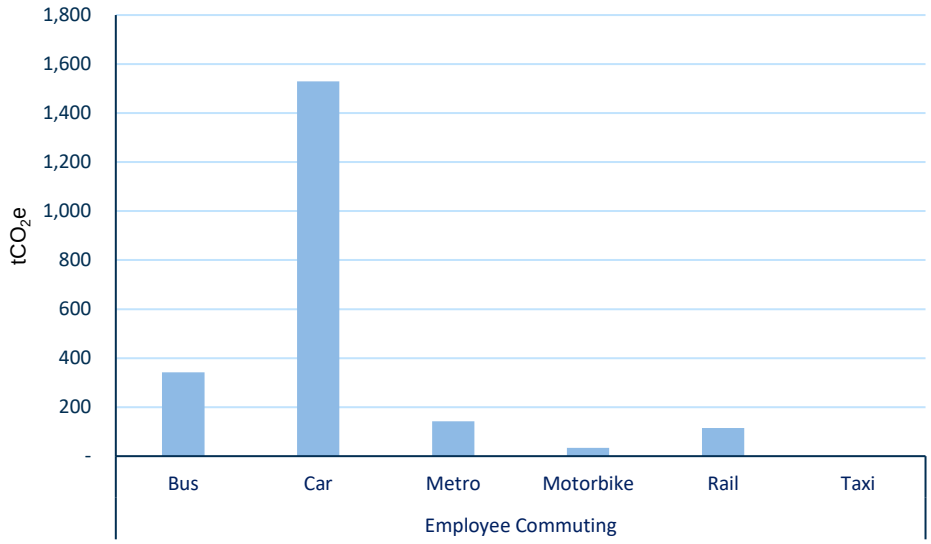

Figure 16. Emissions from employee commuting

Upstream Leased Assets

For the category of upstream leased assets, the business school contributed most significantly to this category from emissions associated with electricity and gas usage (Figure 17).

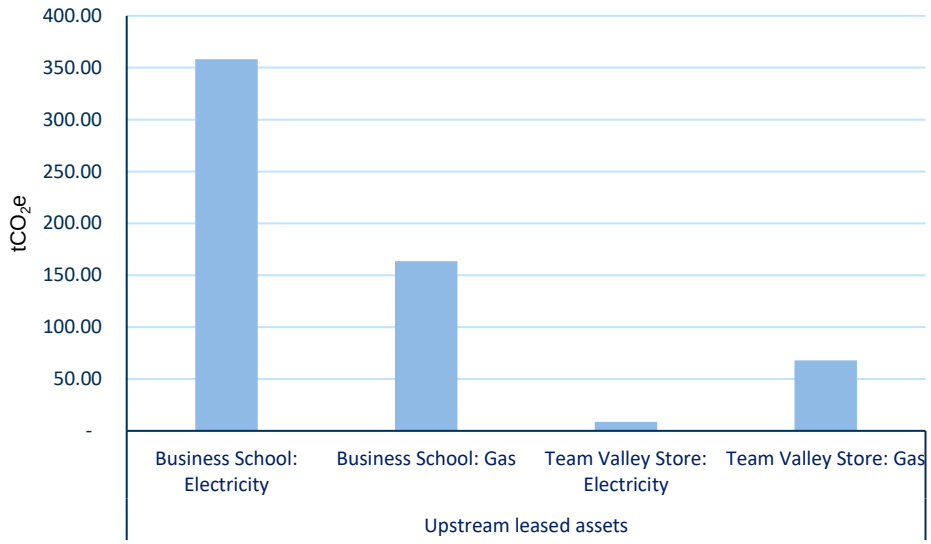

Figure 17. Emissions from upstream leased assets

Downstream Leased Assets

For downstream leased assets the granularity of data was low but the apportioned electricity and gas values were used to estimate the emission from this category with gas contributed the most to this (Figure 18).

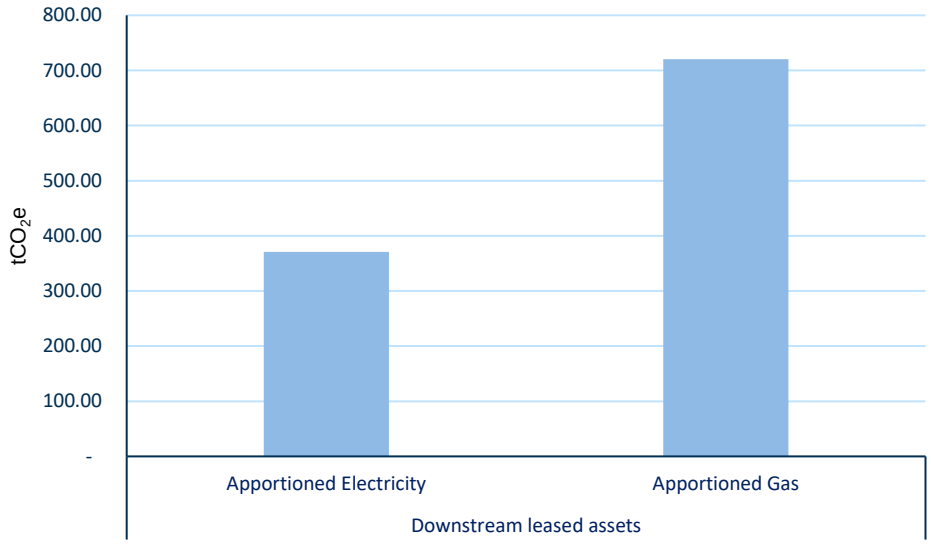

Figure 18. Emissions from downstream leased assets

Investments

Investments were calculated on a high level based on the portfolio (Figure 19a) with an added visualisation using the proportion of investment spend in each sector to distribute these calculated emissions. This visualisation is indicative and allocated based on spend rather emissions specific to these sectors (Figure 19b)

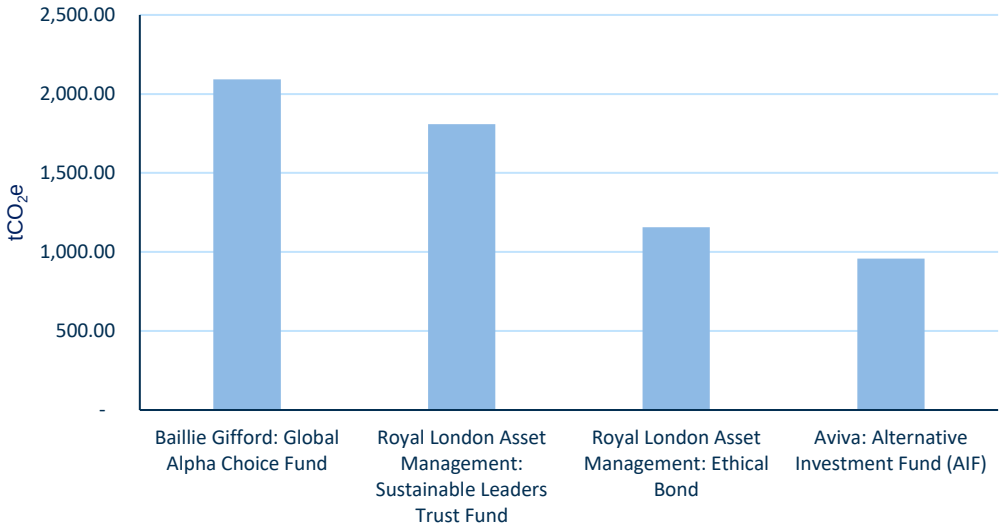

Figure 19a. Emissions from Portfolios

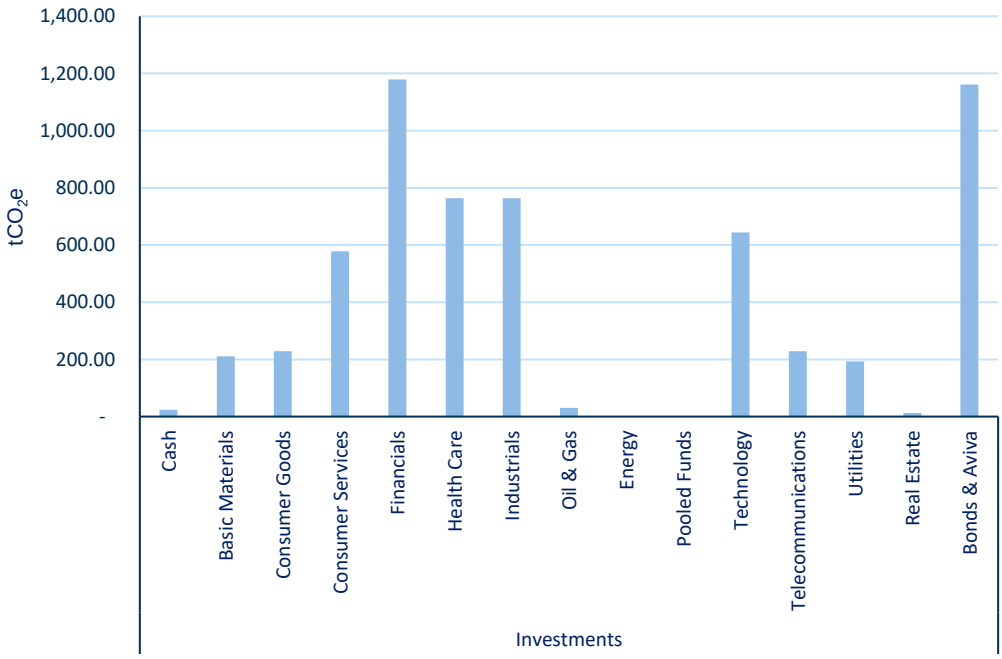

Figure 20b. Footprint allocated to sector based on investment spend

Stakeholder Calls

Stakeholder Call: Investments
Hannah Owens: Sustainability Manager
13/02/2020

Context

- Newcastle University work with an endowment fund of approximately £85 million where they have control over how and where the fund is managed.

- The university has a socially responsible investment policy which details that they only procure investment managers who are signed up to the United Nations principles for Responsible Investment (UNPRI) and give preference to companies that work with low carbon solutions and who will give the university reports on the carbon footprint of the companies within its portfolio.

    - **Baillie Gifford**: The University invests in the Global Alpha Choice Portfolio which is an ethically screened portfolio and excludes tobacco, adult entertainment, gambling, alcohol and armaments. From 1st April 2016, Baillie Gifford added two exclusions to the list, oil/tar sands and thermal coal.

    - **Royal London (RLAM)**: The University invests in the Royal London Sustainable Leaders Trust and Royal London Ethical Bond which avoids tobacco, armaments companies and commodity extractors. RLAM has the highest possible UNPRI rating.

    - **M&G**: The University invests in an ethical bond fund. The screened portfolio excludes alcohol, gambling, thermal coal, adult entertainment, weapons and defence.

    - **Aviva**: The University invests in a multi-sector Alternative Investment Fund. The sectors are: commercial assets (16%), social housing (6%), ground rent (39%) and infrastructure income (39%). The infrastructure sector focuses on renewable energy.

- In May 2016, following a student-led campaign, Newcastle University committed to a partial divestment from fossil fuels. It pledged to remove its investments in coal, tar sands and 'non-progressive' oil and gas companies.

- This process will continue further as retendering for fund managers is soon to commence with the intention to divest from all “fossil fuel extracting companies”.

Materiality

- It was very challenging to estimate the portion of Newcastle University’s scope 3 footprint that investments would contribute to as this is the first attempt to calculate, but with a value of approximately £85 million this is expected to be rather substantial.
- Newcastle University have control of investments in the sense that they can select pre-defined exclusion categories i.e. alcohol, tobacco, firearms, coal, tar sands and 'non-progressive' oil and gas companies but cannot set parameters that do not already exist as an available option from the fund managers.
- Newcastle University’s risk exposure from this category is very high particularly due to the “student fossil free campaign” as well as the associated media attention.
- Stakeholders, particularly students are interested in seeing emission reductions and for investments to be sustainably managed going forward.

Data collection

- Data is currently collected by fund managers and categorised by them as well, these individual reports are then combined to create the Investments List. Fund manager specific categories are used to define these investments with no universal approach.

- 2018 investment figures were only available online but 2019 investment figures are available internally but withheld for sensitivity reasons. This means that going forward accurate data can be provided for the reporting of the past years emissions as long as absolute figures are not visible.

Challenges

- The area of fossil fuel divestment imposes some minor challenges as some companies have a small percentage of their portfolio involved in fossil fuel extracting, so a threshold for approval may need to be defined. Similarly, some other companies may be involved in the fossil fuel refining process. It appears as though firm definitions would be advantageous going forward.

- There is a delicate balance for Newcastle University who would like to see a return on their investment but when defining too many specific limitations, they are "limiting their universe of investment".

- Once a tender is secured with a fund manager it was estimated that these last for approximately 3-4 years

- Although Newcastle university has complete control over their fund, when dealing with fund managers they do not hold enough financial influence to define their own specific mandate.

Stakeholder Call: Purchased goods and services
Neil Addison: Procurement Manager
14/02/2020

Context

- Emission estimations for procurement have dated back to 2009 or 2012.
- This has long been an area of interest regarding emissions calculation but has been a challenging one to measure.

Materiality

- This is typically Newcastle University's largest emission category based on previous studies.
- Newcastle University has sizeable influence over this category as it selects the suppliers that it chooses to work with.
- There is a growing concern with how the University spends money and as this is a large emitting category this brings an element of reputational risk if mismanaged.

Data Collection

- Newcastle use an SAP system where the current process is to convert purchases to DEFRA material categories, where the value of the spend is multiplied by a designated spend based emission factor selected from a list of 75.
- The SAP system has improved over the years in what it can and can't record but the emission calculation process has remained relatively the same.

Challenges

- A spend or weight-based method carries very similar problems in that direct action to reduce emissions i.e. purchasing products made from recycled content might actually weigh the same and, in some cases, cost more, thus efforts are not recognised in the reporting process.

Stakeholder Call: Business Travel
William Brown: Sustainability Officer
17/02/2020

Context

- Will has been working extensively with travel and transport.
- The university structure is complex and works similar to a conglomerate where different units have their own autonomy and they operate in various locations.
- Investments have been made in teleconferencing with some sites using zoom and Microsoft Teams

Materiality

- From previous analysis, business travel has been considered the third largest contributor to Newcastle's footprint.
- As it stands Newcastle University have more influence than they are currently imposing.
- Current stakeholder pressure is low but is expected to increase going forward as this would be seen a more manageable category and is sizeable in Newcastle University's operations. Considering Newcastle University's climate emergency declaration this may be more scrutinised going forward.

Data Collection

- Approximately 75% of air travel is booked through a travel management company with the remaining 25% selectively booked.
- The travel management companies should in theory provide the best costs and provide the best data for emissions calculations.

Challenges

- The travel management companies are not always transparent on how emissions calculations and transport distance are calculated and this is challenging to determine whether figures are in line with requirements and other similar institutions.
- Currently, separate travel management companies are used to book air travel and rail travel.
- Another challenge is that research grants can sometimes have stipulations where cheapest travel is prioritised and University policy to opt for rail cannot override this if it is the more expensive option.
- It may be challenging to limit the travel of academics as this can be seen as unsupportive of something that is deemed necessary. Curtailing academics abilities could be seen negatively within that community.

4. Recommendations

The results suggest that the most material scope 3 categories for Newcastle University's operations are; capital goods, purchased goods and services, investments, and business travel. As such, the following identified recommendations have been listed in order materiality.

Purchased goods and services & Capital goods

Currently SAP spend data is collected, purchases are manually assigned to one of the 75 DEFRA sectoral EEIO emission factors, and then aggregated to 11 spend categories. This estimates emissions by collecting data on the economic value of goods and services purchased and multiplying it by relevant secondary (e.g., industry average) emission factors (e.g., average emissions per monetary value of goods).There are number of ways to calculate this category with the supplier-specific and hybrid – requiring the reporting company to collect data from the suppliers, whereas average-data and spend-based – use secondary data (i.e. industry average data).

For scope 3 reporting it would be important to differentiate between capital goods and purchased goods and services during the manual categorisation process. Products include both goods (tangible products) and services (intangible products).

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). Examples of capital goods include equipment, machinery, buildings, facilities, and vehicles.

Ideally suppliers would be able to provide a product carbon footprint attached to a product code but this is not necessarily on offer. Engagement with suppliers and prioritisation of purchase categories could drive improvements. It would be recommended to follow the supplier engagement framework[3] as well as prioritising which spend categories are the largest, and most consistently purchased which could be transitioned to supplier specific data.

It was also suggested that this journey may have the potential to be taken as a collective i.e. Newcastle University speaking to Sheffield, Leeds and York for example may help develop ideas, leverage suppliers, or generate a unified methodology for a more consistent approach for educational institutes in the area.

Another alternative is the possibility to record the material category by weight (this option exists in the SAP system and could be provided by suppliers). This weight-based method is considered higher in accuracy than spend based method according to the Greenhouse Gas protocol guidance but has similar issues regarding monitoring progress and uncertainty.

As an interim solution spend based data could be provided in as granular a level as possible and categorised using the Carbon Trust developed EEIO database which has 402 categories adjusted for GDP improvement and inflation rather than the 75 DEFRA categories.

Investments

The university currently has a high-level emissions footprint or intensity metric for 86% of their investment portfolio. Improving on this coverage would be advised. For increased granularity and transparency, it would be beneficial for fund managers to share how they have calculated these footprints and intensity metrics.

In the past tender with investment managers, preference for companies providing an organisational footprint (scope 1 and 2) was preferred, it would be beneficial to strengthen this position and increase this to cover all portfolios as this would lead to more accurate reporting and minimise the use of global averages. Working with

[3] https://sciencebasedtargets.org/wp-content/uploads/2018/12/SBT_Value_Chain_Report-1.pdf Page 21

fund managers to be transparent with how they calculate these portfolio emissions would also be beneficial for reporting purposes.

Continuation in divesting from fossil fuel extracting and refining companies will lower emissions in this category, alongside divestment from other high emission investments such as aviation. Additionally, ESG ratings such as the Dow Jones Sustainability Index could be considered for investments with potential thresholds based on scores.

It was also suggested that discussing and potentially uniting with other educational institutions to define parameters for an investment mandate could be a progressive step.

Business Travel

Business Travel data is of a relatively high standard overall using the distance-based method by transport type. Using a fuel-based method for calculating this emissions category is higher in the greenhouse gas protocol hierarchy of data but this is not a material target as the largest emission category is seen to be flights, where fuel use will not be captured.

The best area for improvement would be to ensure the reliability and completeness of currently collected data. This can be achieved by ensuring that all high emitting travel i.e. flights are accurately recorded, at present the best way to do this appears to be through travel management companies. In order to ensure this, the University's travel and expenses policy should make it necessity to book all flights through travel management options limiting the number of personally booked flights.

Similarly, during the upcoming travel management retendering process, it would be beneficial to work with companies that can provide emissions calculations in more transparent manner (in order to ensure calculations are in line with reporting norms), and with the best data quality i.e. distance from point A to point B, transport type, class of journey, number of stopovers and etc.

Updating the university's overall travel and expenses policy and guidance could effectively improve governance. A guidance document can for example, define necessary travel and whether videoconferencing is a viable alternative encourage travel within the UK to always use trains, for trips like Newcastle to Amsterdam to use ferry services, if time is not imperative and if viable travel by train. Similarly, improvements may be seen by discouraging the use of taxis and setting emission caps on company and rental cars. From the data quality analysis, it is also unclear if the well-to-tank as well as tank-to-wheel emissions have been accounted for in this category.

Waste generated in operations

For waste, Newcastle have the data to use the waste-type-specific method where the weight of waste by waste treatment method is collected. At present this is a satisfactory data quality level based on the materiality of this category. Going forward if there is potential to get the scope 1 and 2 emissions of the waste management companies that the University work with, these emissions can be allocated based on the proportion of emissions that the University account for.

For reduction potential, emissions could be reduced by lowering the remaining waste that is going to landfill as well as focusing efforts on reducing water consumption; the water treatment process is the largest emitter in this category.

Fuel and energy related activities

Fuel and energy related activities can be accounted for using the most recent Scope 1 and Scope 2 energy consumption, in this case the activity values in Litres and KWh can be used to get the average country, or region emission factors for the extraction, production, and transportation of fuels per unit of consumption of electricity, heating steam or cooling. It is important to ensure that emission factors used to calculate upstream emissions of energy do not include emissions from combustion because emissions from combustion are accounted for in other scopes.

Downstream leased assets

For downstream leased assets Newcastle have the data to provide the electricity and gas usage of sites that they lease to others. In this sense there is little room for improvement in this category other that ensuring the data is from the correct reporting period and that completeness is ensured.

Employee commuting

Some data has been collected on employee commuting which will allow the University to calculate emissions based on the total distance travelled by mode of transport. The data provided for this exercise was the same data used in Newcastle University's Carbon Management Plan 2019 which was based on a 2016/17 survey. So, an updated survey would therefore be required and completeness could be ensured by extrapolating the survey data to cover the total number of staff. From the data quality analysis, it is also unclear if the well-to-tank as well as tank-to-wheel emissions have been accounted for in this category.

Upstream transportation and distribution

The materiality assessment suggests this category has a low impact on the overall footprint and at present no data could be provided for the estimation of this category.

The methods for calculating this include;

• Fuel-based method, which involves determining the amount of fuel consumed (i.e., scope 1 and scope 2 emissions of transport providers) and applying the appropriate emission factor for that fuel

• Distance-based method, which involves determining the mass, distance, and mode of each shipment, then applying the appropriate mass-distance emission factor for the vehicle used

• Spend-based method, which involves determining the amount of money spent on each mode of business travel transport and applying secondary (EEIO) emission factors.

Upstream leased assets

A reporting company's scope 3 emissions from upstream leased assets include the scope 1 and scope 2 emissions of lessors, the university were able to provide data to use the asset specific method which involves collecting asset-specific (e.g., site-specific) fuel and energy use data in the form of electricity and gas usage. In terms of ensuring data quality it is important to ensure that the data is from the current reporting period and that the sites listed are complete

Appendix A: Full materiality and data quality scoring

			Weighted Scoring	Unweighted Scoring					**Aggregated Scoring**	Disaggregated Scoring	
			(0 - 100)	(1-10)	(1-10)	(1-10)	(1-10)	(1-10)	(0 - 100)	(0 - 10)	(0 - 10)
	Category #	Scope 3 Category	Total Materiality	Size	Influence	Risk	Stakeholder Interest	Insourcing	Total Data Quality	Primary Data Quality	Secondary Data Quality
Upstream	1	Purchased goods & services	74	8	8	8	5	8	52	-	5
	2	Capital goods	73	9	7	8	5	5	52	-	5
	3	Fuel- and energy-related activities	44	2	7	5	5	3	64	-	6
	4	Upstream transportation & distribution	19	1	5	1	1	0	-	-	-
	5	Waste generated in operations	49	0	8	8	7	1	76	8	-
	6	Business travel	58	4	8	7	5	5	70	7	-
	7	Employee commuting	34	2	5	1	7	0	58	6	-
	8	Upstream leased assets	13	1	1	1	1	5	46	5	-
Downstream	9	Downstream transportation & distribution	-	-	-	-	-	-	-	-	-
	10	Processing of sold products	-	-	-	-	-	-	-	-	-
	11	Use of sold products	-	-	-	-	-	-	-	-	-
	12	End-of-life treatment of sold products	-	-	-	-	-	-	-	-	-
	13	Downstream leased assets	36	1	5	3	5	8	40	4	-
	14	Franchises	-	-	-	-	-	-	-	-	-
	15	Investments	66	4	6	10	9	5	58	6	3

Colour Scale

N/A	
Low	Poor
Medium	Fair
High	Good

Appendix B: Raw data provided by Newcastle University

Purchased Goods and Services and Capital Goods

Table 6. Purchased goods and services and capital goods data provided

Pound sterling (£)	2018/2019
	Spend
Business services	£55,701,153
Paper products	£3,833,763
Other manufactured products	£7,877,955
Manufactured fuels, chemicals and glasses	£4,550,502
Food and catering	£3,959,521
Construction	£106,937,346
Information and communication technologies	£13,125,919
Waste and water	£1,837,643
Medical and precision instruments	£557,667
Other procurement	£10,582,074
Unclassified	£509,598
Total	£209,473,142

Fuel and energy related activities

Table 7. Fuel and energy related activities data provided

KWh/Litres	2017/18
Electricity	54,494,629
Gas	49,907,671
Gas Oil	169,483
Diesel	1,134,010
Petrol	7,447
Burning Oil	91,846
LPG	76,567

Upstream transportation and Distribution

No data could be provided to support estimation of this category

Waste Generated in Operations

Provided as tonnes of waste by type.

Table 8. Waste generated in operations data provided

Tonnes	2017/18
Landfill	873
Recycling	6,874
Energy from Waste	1,110
Incineration	147
Anaerobic Digestion	70
Total	9,131

Business travel

Provided as tonnes of CO2e from a previous project, some primary data provided but not used.

Table 9. Business Travel data provided

Tonnes of CO_2e	2017/18
Air	6,629
Rail	160
Grey fleet	276
Company cars	122
Taxi	52
Coach	237
Total	7,477

Employee Commute

Provided as tonnes of CO2e from a previous project, no primary data provided.

Table 10. Employee commute data provided

Tonnes of CO_2e	2017/18
Rail	114.4724
Metro	141.8525
Public bus	341.7416
Car	1529.482
Taxi	1.42024
Motorcycle or moped	33.41081

Investments

Market value of investments alongside portfolio specific footprint/intensity metrics were used.

Table 11. Investment portfolio data provided

Fund Manager	Fund	Valuation	Approach
Baillie Gifford	Global Alpha Choice Fund	£34,935,487	Calculate the total footprint (not provided in document) using the value of investment and the relative carbon footprint (tCO_2e/EUR Million invested): Relative carbon footprint 66.5 (tCO_2e/EUR Million invested)
Royal London Asset Management	Sustainable Leaders Trust Fund	£33,634,916	Use the absolute emissions calculated in the document provided: 1,809 tCO_2e
Royal London Asset Management	Ethical Bond	£5,793,093	Global average
Aviva	Alternative Investment Fund (AIF)	£4,794,406	Global Average

Table 12. Investment spend proportion by sector

Sector %	Dec-19
Cash	0%
Basic Materials	4%
Consumer Goods	4%
Consumer Services	10%
Financials	20%
Health Care	13%
Industrials	13%
Oil & Gas	1%
Energy	0%
Pooled Funds	0%
Technology	11%
Telecommunications	4%
Utilities	3%
Real Estate	0%
Bonds & Aviva	19%

Upstream Leased Assets

Table 13. Upstream leased assets data provided

KWh	2017/18
Business School: Electricity	1,265,094
Business School: Gas	889,197
Team Valley Store: Electricity	30,113
Team Valley Store: Gas	369,219

Water

Water used (allocated to purchased good and services) and water treated allocated to (waste generated in operations).

Table 14. Water used and treated

Tonnes of CO_2e	2017/18
Water used	114
Water treated	222.8

Downstream Leased Assets

Table 15. Downstream leased assets data provided

KWh	2017/18
Apportioned Electricity	1,311,316
Apportioned Gas	3,915,454