Selby District Council Consultancy Support – Scope 1, 2 and 3 Carbon Emissions

Report produced on August 2021

APSE (Association for Public Service Excellence) is a not for profit local government body working with over 300 councils throughout the UK. Promoting excellence in public services, APSE is the foremost specialist in local authority front line services, hosting a network for front line service providers in areas such as waste and refuse collection, parks and environmental services, leisure, school meals, cleaning, housing and building maintenance.

APSE Energy is APSE's local authority energy collaboration. The vision for the collaboration is to form an "effective collaboration of a large number of local authorities to enable and facilitate the local municipalisation of energy services. By this we mean the public and community, as well as private, ownership and managerial control of local energy generation, supply networks and delivery of energy efficiency works. Local authorities working together in this way would have great influence and would be able to deliver economies of scale in green energy to promote economic growth and combat fuel poverty.

Association for Public Service Excellence
3rd floor Trafford House
Chester Road, Old Trafford
Manchester, M32 0RS
Telephone: 0161 772 1810
fax: 0161 772 1811
Email: enquiries@apse.org.uk
Web: www.apse.org.uk

SELBY DISTRICT COUNCIL

CONSULTANCY REPORT – ESTABLISHING THE COUNCIL'S CARBON FOOTPRINT FOR SCOPE 1,2 AND 3 EMISSIONS

Contents

1 Introduction

This report provides the results of the carbon footprint calculations for Selby District Council which can be used as a benchmark to monitor future emissions. The carbon footprint has been undertaken in accordance with best practise guidance by the Greenhouse Gas Protocol and calculated using 2018 conversion factors for the carbon dioxide equivalent (CO_2e) published by the Department for Business, Energy & Industrial Strategy (BEIS).

The reporting baseline year is nominated as the financial year of 2018/19.

The carbon footprint is categorised into scopes, which cover:

Scope 1 (direct) emissions are from activities owned or controlled by the Council. Examples of Scope 1 emissions include emissions from combustion in council owned or controlled boilers, furnaces and vehicles.

Scope 2 (indirect) emissions are associated with purchased electricity, heat, steam and cooling. These indirect emissions are a consequence of the Council's energy use, but occur at sources that the Council do not own or control. Examples include grid supplied electricity and heat provided through a heat network.

Scope 3 (other indirect) emissions are a consequence of the Council's actions that occur at sources the Council do not own or control and are not classed as Scope 2 emissions. Examples of Scope 3 emissions include business travel by means not owned or controlled by the Council (grey fleet), disposing of the Council's own waste and purchased goods in the supply chain etc.

The carbon footprint has been calculated based on data provided by the Council. Emissions included within Scope 1 and 2 essentially cover assets where the Council are responsible for paying the fuel bills. Based on the property addresses, it is assumed that this includes the electricity usage for the lighting in several landlord areas in housing blocks but excludes individual dwellings.

2 Carbon Footprint

2.1 Carbon Reporting Boundaries

The organisational boundaries determine what emission are the responsibility of the Council or others. This can be based on who owns, operates, or exerts control over certain assets. The buildings categorised under Scope 1 & 2 within this reporting are those where energy is purchased or acquired and consumed by the Council. The vehicles categorised under Scope 1 are vehicles that the Council own, lease and operate purely for the Council's own operations.

Scope 3 emissions are classified under 15 different categories as detailed under Appendix B. As Scope 3 emissions are under the influence of the Council, but not under its direct control, it can be difficult to obtain the necessary data to calculate the associated carbon emissions from some Scope 3 sources. One of the larger contributors to carbon emissions is purchased goods and services.

Emissions from assets a company owns and leases to another entity, but does not operate, can either be included in Scope 3 or excluded from the inventory.

Table 1 titled shows all of the sources that make up the reporting boundary for the Council.

The emissions from these sources represents a good data set for a Council, as it is not uncommon for councils to only have data available for electricity and gas.

There are sources that are missing from the reporting and the largest contributor is likely to be from purchased goods and services, which is generally very difficult to gather data and calculate emissions. This category includes all upstream (i.e. cradle-to-gate) emissions from the production of products purchased or acquired by the Council in the reporting year. Products include both goods (tangible products) and services (intangible products).

Cradle-to-gate emissions include all emissions that occur in the life cycle of purchased products, up to the point of receipt by the Council. Relevant purchases to the Council may include capital goods, such as office supplies, office furniture, computers, telephones, travel services, IT support, outsourced administrative functions, consulting services, janitorial, landscaping services, maintenance, repairs and operations.

The Council should set up procedures to record all emission sources related to its operations for future reporting.

2.2 Scope 1, 2 & 3 Carbon Emissions

The carbon footprint has been calculated using data that was available to the Council during the reporting year.

Table 1: Carbon emissions by source for 2018/19

Emissions Source	Scope	% Split	Tonnes CO2e
Natural Gas	1	2%	64
Council Vehicles	1	34%	873
Leased Vehicles	1	6%	153
Electricity	2	9%	245
Heat	2	0.5%	12
WTT Gas	3	0.3%	9
WTT Electricity	3	2%	39
Transmission & Distribution Electricity	3	1%	21
WTT Heat and Steam	3	0.1%	2
Water Supply	3	0.01%	0.3
Water treatment	3	0.02%	0.6
Waste from council buildings	3	0.1%	3
Business Travel	3	2%	45
Leased Assets	3	43%	1,125
Total		**100%**	**2,592**

Chart 1: Carbon emissions by source for 2018/19

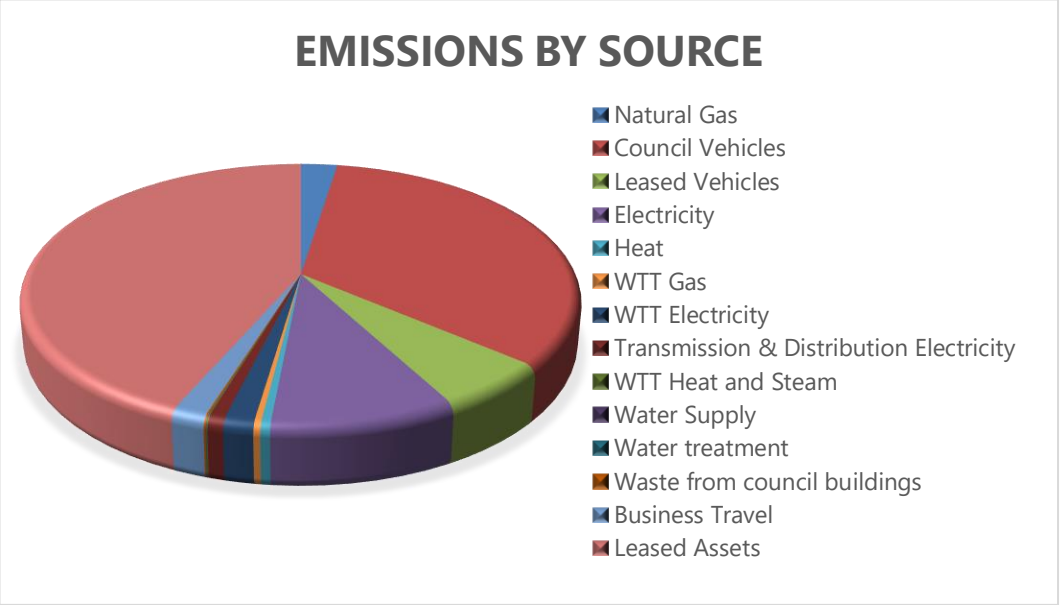

Table 2: Carbon emissions by scope

Emissions Source	% Split	TonnesCO2e
Scope 1	42%	1,090
Scope 2	10%	258
Scope 3	48%	1,244
Total	**100%**	**2,592**

Appendix 1 is an Excel spreadsheet that shows a breakdown of the emissions by source. This can be used to develop a carbon strategy by identifying and approaching sources with the highest emissions.

3.1 Notes and Observations - Scope 1 & 2

Scope 1 and 2 emissions were initially calculated in June 2020. The emissions data for gas and electricity remains the same, but emissions data for vehicles has increased as more vehicles have been added to include council owned vehicles and leased vehicles. Although the council does not own the leased vehicles, these are categorised under Scope 1 as the Council has financial and operational control of the vehicles.

In following years, vehicle size (tonnage) and/or volume of fuel should be recorded for each vehicle to allow for more accurate carbon conversion factors.

It is unknown what exact period is covered for the consumption data for electricity as most sites are billed quarterly. Going forward, the consumption period should be included so that calculations ensure that the emissions are captured during the reporting year i.e. 1st April to 31st March.

More information is required on the source of generating the electricity and heat for the Civic Offices. Monthly data has been provided which shows that heat and electricity is recharged from Selby War Memorial Hospital however, the heat consumption is the same every month at 8,237.6kWh. It is highly unlikely that the Civic Centre will use the same amount of heat every month and this is assumed to be an error. Also, a CHP is present at the hospital and it is unclear if the CHP contributes towards providing the heat and electricity at the Civic Offices. Carbon reporting calculations assume that the electricity is grid supplied and the heat is generated from gas boilers with an applied efficiency factor 0.85 to allow for boiler efficiency and distribution losses. Going forward, more favourable carbon conversion factors could be applied if evidence is provided on the proportion of heat and electricity that is provided by the CHP.

A sense check should be carried out on the asset list provided to ensure that all council owned vehicles and buildings have been accounted for. The electricity supplier shows that the Council are responsible for 81 electricity meters which gives a good indication for the number of assets under the control of the Council. A review should be carried out of each asset to determine if the Council are responsible for paying the electricity and gas usage and taking ownership for the associated carbon emissions. It is not uncommon for assets to be sold, leased or decommissioned yet the Council continue to pay for the utilities. Similarly, the sense check should identify if any other assets are missing from the list that should be included.

3.2 Notes and Observations - Scope 3

3.2.1 WTT and T&D

The gas, electricity and heat supplied to council buildings all have scope 3 emissions associated with them. The Well-to-Tank (WTT) emissions are the CO_2e emissions resulting from the extraction, refining and transportation of the raw fuel to the site and gas, electricity and heat all have these associated emissions. Electricity also has losses through the Transmission and Distribution (T&D) which are the CO_2e emissions associated with grid losses from the power station to the end user.

3.2.2 Business Travel

For business travel the CO_2e was calculated for two modes of transport (car and rail). As there was not enough data provided for vehicles used, the CO_2e for car transport was calculated by assuming all vehicles were averaged sized petrol cars.

For rail, the average cost per mile was calculated assuming the total price was attributed to rail at 15p/km (source for data: UK rail industry financial information 2018-19 | Office of Rail and Road (orr.gov.uk).

Data has been provided for business mileage but has not been split into vehicle or fuel type. The carbon emissions have been based on calculations for an average sized petrol car.

3.2.3 Water Supply and Treatment

For many of the council owned buildings there was a lack of water data given so the total CO_2e for water supply and treatment could only be calculated with the data available. From the data given the data was split into 3 separate tables for supply and treatment. This was done based on account number and whether there was water data given. For one of the account numbers no specific address was supplied and the only data supplied was for water usage in the months of June 2018 and March 2019. Information was not provided on the building name and, based on the Bill Account Number there appears to be consumption data available only for June 2018 and March 2019. There are only two Bill Account Numbers for St James Street and a consolidated statement.

For subsequent reporting it is recommended to gain a breakdown off all sites separately and ensure that this covers a 12 month period. It is likely that the carbon emissions from water will increase once the data quality improves.

3.2.4 Leased Assets

Energy data for the 3no. leisure centres were taken from the Display Energy Certificates (DEC) and energy data for Leased Operational/Non-Operational Assets were taken from the Energy Performance Certificates (EPC's) which only included 6no. buildings. The tables were divided into buildings that had been provided with and EPC rating and those without. Actual energy consumption data should be provided in subsequent years for all leased assets which will result in an increase in carbon emissions due to improved data quality.

The energy usage of the Selby Leisure Centre seems particularly high, and it is advised to check if the energy usage is accurate.

3.2.5 Waste from Council Buildings

Data was provided for 2018/19 and 2020/21, however the data appears to be duplicated so only CO_2e values for 18/19 have been calculated.

Refuse and recycling data was provided for 11no. sites.

It is likely that the emissions from waste will increase as data quality improves in subsequent years.

3.2.5 Operations Waste

Data has been provided for all waste streams for the whole district. The Energy from Waste plant is owned by North Yorkshire County Council and the City of York and operated by a third party waste operator. As the Council does not have any financial or operational influence over the facility it is deemed that these emissions are not within the boundary of reporting under Scope 3.

However, the carbon emissions have been calculated as being 780tCO_2e and the breakdown is included in Appendix B for reference purposes.

4 Carbon Offsetting

A "net zero" target refers to reaching net zero carbon emissions by a nominated year, as chosen by the Council, but differs from zero carbon, which requires no carbon to be emitted at all.

Net-zero refers to balancing the amount of emitted greenhouse gases with the equivalent emissions and a carbon offset is a reduction in emissions of CO_2e made to compensate for emissions made elsewhere. There are several ways of offsetting carbon emissions such as carbon capture and storage however, this is not deemed financially or technically feasible to the Council. More typical options available to the Council to directly offset emissions include renewable energy generation projects and rewilding/tree planting. However, the effectiveness of tree planting to quickly offset emissions can be questioned as it can take many decades for trees to reach maturity.

Based on the 2018/19 baseline data the emissions that need to be offset are:

Emissions Source	% Split	TonnesCO2e
Scope 1	42%	1,090
Scope 2	10%	257
Scope 3	48%	1,244
Total	**100%**	**2,592**

Scope 3 emissions can be reduced through policy changes, but it is more difficult to reduce Scope 3 emissions as these are not under direct control of the Council.

The two main offsetting options available is to install offsite renewables and sequestration through planting. A full detailed feasibility study is required to identify the potential generation capacity for renewables, but for referencing purposes it is possible that the Council could install 1MW of solar PV generation capacity (a solar farm) on available land and as a canopy above car parking spaces.

Electricity that is generated locally and exported to the gird is considered a carbon offset as the Council do not directly benefit from using the electricity onsite. Power generation would be a direct carbon saving if it were used on site as this will mean that less grid supplied electricity will be used.

The offsetting from PV is by way of generating electricity and exporting it to the electricity grid. The carbon offsetting savings are equivalent to the carbon emissions of grid supplied electricity at that point in time. As grid supplied electricity is decarbonised over time it means that the carbon offsetting of PV will proportionally reduce and the carbon offsetting of 1MW of PV in 2018/19 will be 269tCO_2e and will be 121tCO_2e in 2030.

Tree planting can then be introduced to offset the remaining emissions however, the extent of tree planting will be dependent of the carbon emissions in that year.

The table below shows the requirements based on the 2018/19 baseline data and no reductions up to 2030:

	2018	**2030**
Scope 3 Emissions (tCO2e)	1,244	1,244
Carbon Offsetting from 1MW PV (tCO2e)	269	121
Carbon offsetting required from planting (tCO_2e)	975	1,123
Cost for 1MW PV	£900,000	£900,000
Cost for offsetting from planting	£24,375	£28,075

*The costs provided are based on 2021 costs

The offsetting required from planting is to bring emissions to net zero. The Woodland Trust states that it costs £25 to offset 1 tonne of CO_2 in British woodlands.

There are other schemes that provide carbon offsetting through international planting schemes such as One Carbon World which contributes funding towards large scale forestry schemes for as much as £1.20/tCO_2e.

A detailed feasibility study is required to determine the impact that planting will have to act as a carbon sink to gauge an understanding of the stages that the planting will need to take place so that mature trees are in place to absorb the appropriate amount of CO_2 by 2030.

4 Recommendations for Gathering Data Going Forward

The Council should develop a procedure for gathering and storing data as it is made available. The benefit of this is that the carbon reporting process is streamlined and progress towards targets can be tracked. This can help smooth out any gaps in the data.

APSE Energy can support by gathering data on behalf of the Council and storing it on energy management software. The Council will be provided with password protected access to the cloud-based database so it can access the data and generate cost and carbon reports. APSE Energy can use this data to provide streamlined reporting to the Council in subsequent years.

5 Conclusion and Recommendations

- Use carbon footprint data and Appendix A to develop a strategy to become net zero carbon. APSE Energy can provide a desktop investigation to provide a trajectory up to the zero carbon target year and give an indication of what measures could be taken and their potential capital cost and cost/carbon savings.
- Sense check all data to confirm accuracy.
- Provide a more detailed description of the vehicle type.
- Develop policies and procedures for improving the capturing of data going forward to report on Scope 3 emissions.
- Develop policies to request emissions data from suppliers to gather Scope 3 data.

6 Glossary

Term	Definition
Carbon dioxide equivalent (CO_2e)	The carbon dioxide equivalent (CO_2e) allows the different greenhouse gases to be compared on a like-for-like basis relative to one unit of CO_2 and includes the six greenhouse gases with the greatest global warming potential (GWP).
Carbon footprint	A carbon footprint measures the total greenhouse gas emissions caused directly and indirectly by a person, organisation, event or product. A carbon footprint is measured in tonnes of carbon dioxide equivalent (tCO2e).
Council Vehicles	Vehicles that are owned or controlled by the Council. This does not include employee-owned vehicles that are used for business purposes.
Electricity	Electricity used at sites owned/controlled by the Council. This is reported as a Scope 2, indirect emission. The conversion factors used are for the electricity supplied to the grid that the Council purchase - they do not include the emissions associated with the transmission and distribution of electricity.
Gas	Primary fuel sources combusted at a site or in an asset owned or controlled by the Council.

Appendix A – Carbon Footprint Calculations

The above appendix is provided separately as a spreadsheet.

Appendix B – Data that should be gathered to report on Scope 3 emissions

The reporting of Scope 3 emissions is discretionary. The table below provides further guidance on the information required to calculate emissions from Scope 3.

Item	Category	Details Required
1	Purchased goods and services	This category includes all upstream (i.e. cradle-to-gate) emissions from the production of products purchased or acquired by the Council in the reporting year. Products include both goods (tangible products) and services (intangible products). This category includes emissions from all purchased goods and services not otherwise included in the other categories of upstream scope 3 emissions (i.e. category 2 through category 8 below). Cradle-to-gate emissions include all emissions that occur in the life cycle of purchased products, up to the point of receipt by the Council. Cradle-to-gate emissions may include: • Extraction of raw materials • Agricultural activities • Manufacturing, production, and processing • Generation of electricity consumed by upstream activities • Disposal/treatment of waste generated by upstream activities • Land use and land-use change • Transportation of materials and products between suppliers • Any other activities prior to acquisition by the reporting company Relevant purchases to the Council may include capital goods, such as office supplies, office furniture, computers,

		telephones, travel services, IT support, outsourced administrative functions, consulting services, janitorial, landscaping services, maintenance, repairs and operations. For accurate carbon reporting emissions, the Council should request cradle-to-gate emission factors for materials used by suppliers to produce purchased goods such as Environmental Product Declarations (EPDs). It is likely that many suppliers will not be able to provide all the emission data. If an EPD cannot be provided, supplementary information required includes the volume of product (kg) and the carbon emission factor (kg CO_2e). A policy should be developed so that suppliers in the supply chain are required to provide this data as part of the contract, where the volume of goods is noteworthy.
2	Capital goods	Capital goods are final products that have an extended life and are used by the Council to manufacture a product, provide a service, or sell, store, and deliver merchandise. 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. The required information is the same as Category 1 above. A policy should be developed so that suppliers in the supply chain are required to provide this data as part of the contract.
3	Fuel- and energy related activities (not included in Scope 1 or Scope 2)	Transmission and distribution (T&D) losses have been included and calculated from the data provided in Scope 2.

4	Upstream transportation and distribution	Category 4 includes emissions from: • Transportation and distribution of products purchased in the reporting year, between suppliers and its own operations in vehicles not owned or operated by the Council. • • Third-party transportation and distribution services purchased by the Council in the reporting year (either directly or through an intermediary), including inbound logistics, outbound logistics (e.g. of sold products), and third-party transportation and distribution between the Council's own facilities. The Council requires data on: • Quantities of fuel (e.g., diesel, petrol, jet fuel, biofuels) consumed • Amount spent on fuels • Distance travelled • Vehicle type This may include managed assets - Vehicles that are used by the Council but are not owned by the organisation and generally do not appear on the organisation's balance sheet, for example, maintenance contractor vehicles, outsourced refuse and recycling trucks, road sweepers, grounds maintenance mowers etc. A policy should be developed so that suppliers using their own vehicles are required to provide this data as part of the contract.
5	Waste generated in operations	This includes emissions from third-party disposal and treatment of waste generated in the Councils owned or controlled operations in the reporting year. This category includes emissions from disposal of both solid waste and wastewater. The Council should request volume and emissions data from the waste treatment company applicable to **its own waste stream**. If this cannot be provided, the emissions

		can be calculated by requesting the volume of waste, type and disposal method: Example of data required: Total weight (kg) of waste type and disposal method e.g. • 5,000kg municipal waste to landfill • 500kg organic garden waste to composting • 1,000kg metal recycled • 1,000kg plastic recycled • 1,000kg paper recycled Data is required for the volume of supply and wastewater in cubic metres (m^3) from water bills. Local authorities have an important role in waste prevention and sustainable waste management through awareness-raising campaigns, providing separate collection for recycling and food waste, and implementing waste-to-energy schemes. It is therefore voluntary on whether the Council choose to include the emissions from waste associated with the whole borough, or just the Council's own operation.
6	Business travel	Travel for assets not owned or directly operated by the Council. This includes mileage for business purposes in cars owned by employees, public transport, hire cars etc. Require details for: <u>Vehicle</u> Fuel type, size of vehicle and distance for: • Car • Motorbike • Taxis • Bus • Rail <u>Flights</u>

		• Airport travelled to/from • Number of passengers • Class type • Distance <u>Ferry</u> • Foot or car passenger • Distance
7	Employee commuting	This category includes emissions from the transportation of employees between their homes and their worksites. Emissions from employee commuting may arise from: • Car • Bus • Rail • Other modes of transportation Staff would be required to provide method of transport and distance travelled. It may be difficult and time consuming to collect accurate data.
8	Upstream leased assets	This category is applicable from the operation of assets that are leased by the Council. If the Council procures the energy then this should be considered as Scope 1 and 2. If the landlord is responsible for the Scope 1 and 2 emissions, the Council should include the reporting under Scope 3. An example may include an office that the Council lease from a private landlord. All energy bills may be included as part of the lease and the energy contract is under the name of the landlord. The Council should therefore request the energy data from the landlord and include this under Scope 3.

		Data required include the Scope 1 and 2 data from the leased asset.
9	Downstream transportation and distribution	This category includes emissions that occur in the reporting year from transportation and distribution of sold products in vehicles and facilities not owned or controlled by the Council in the reporting year. It is assumed that this category is not applicable to the Council as it does not manufacture and sell products.
10	Processing of sold products	It is assumed that this category is not applicable to the Council as it does not manufacture and sell products.
11	Use of sold products	It is assumed that this category is not applicable to the Council as it does not manufacture and sell products.
12	End-of-life treatment of sold products	It is assumed that this category is not applicable to the Council as it does not manufacture and sell products.
13	Downstream leased assets	This category is applicable where the Council is the landlord to a lessee. If the Council procures the energy on behalf of a lessee then this should be considered as Scope 1 and 2. An example of this is where the Council may lease a premises to a lessee and include all energy costs as part of the lease. The energy contract is under the name of the Council and is therefore reported under Scope 1 and 2. If the lessee is responsible for the Scope 1 and 2 emissions, the council should include the reporting under Scope 3. An example of this is a shop that the Council own and the occupant pays for the energy bills and the contract is under their name. The Council should request the energy

		data from the shop occupier and report this under Scope 3. Data required include the Scope 1 and 2 data from the leased asset.
14	Franchises	It is assumed that this category is not applicable to the Council as it does not operate any franchises.
15	Investments	This category includes scope 3 emissions associated with the Council's investments in the reporting year, not already included in scope 1 or scope 2. This category is applicable to investors (i.e. organisations that make an investment with the objective of making a profit) and organisations that provide financial services. This category also applies to investors that are not profit driven (e.g. multilateral development banks). Investments are categorised as a downstream scope 3 category because providing capital or financing is a service provided by the organisation. Category 15 is designed primarily for private financial institutions (e.g., commercial banks), but is also relevant to public financial institutions (e.g., multilateral development banks, export credit agencies) and other entities with investments not included in scope 1 and scope 2. The Councils scope 3 emissions from investments are the scope 1 and scope 2 emissions of investees. For purposes of greenhouse gas accounting, this standard divides financial investments into four types: • Equity investments • Debt investments • Project finance • Managed investments and client services An example of the information required is the Scope 1 and 2 emissions from the bank where an investment is in place. This is based on the Council's proportional share of investment in the investee. If the Council has

		£1million invested in the bank and the banks total investments amount to £100million, the Council should report on 1% of the banks Scope 1 and 2 emissions. It is assumed that this information will be difficult to collate from third parties and that the total emissions will be proportionally small compared to other emission sources and these emissions could be excluded from the reporting. •