



energy



GUILDFORD
B O R O U G H

Guildford Borough Council

2022/23 Scope 1, 2 and 3 Carbon Emissions

Report

This report has been prepared in April 2024



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.

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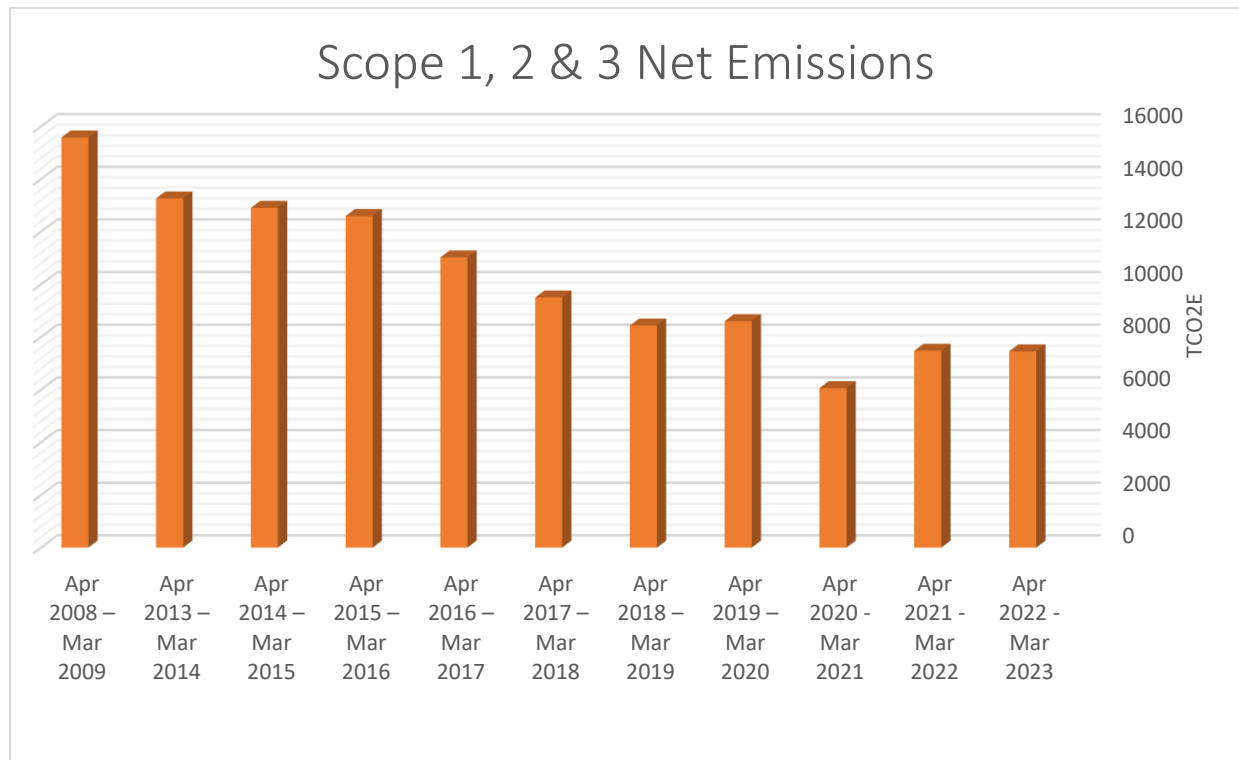
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Executive Summary

This report compares the Scope 1, 2 and 3 carbon emissions of the Council. The 2022/23 net carbon footprint from Scope 1, 2 & 3 emissions within Guildford Borough Council's operations is 7,472 tCO₂e.

The chart below shows the comparison of carbon emissions from 2008/09 to 2022/23 where the emissions have reduced by 8,123 tCO₂e.

Chart showing the Council net carbon emissions from 2008/09 to 2022/23



Guildford Borough Council Carbon Emissions

1 Introduction

This report provides the findings of the carbon footprint calculations for Guildford Borough Council which can be used as a benchmark to record current emissions and to track performance against future emissions. The carbon footprint has been undertaken in accordance with best practise guidance by the Greenhouse Gas Protocol and calculated using 2022 conversion factors for the carbon dioxide equivalent (CO₂e) of greenhouse gasses published by the Department for Energy Security and Net Zero (DESNZ).

The Council has been recording its carbon emissions since 2008/09, which is the baseline year used as a reference point to track performance.

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.

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

Based on the data available in 2022/23, the emissions involved in this reporting include:

<u>Scope 1 - Direct Emissions</u>
Natural gas used in buildings
Transport fuels (Council owned vehicles)
<u>Scope 2 – Indirect Emissions</u>
Electricity used in buildings
<u>Scope 3 – Other Indirect Emissions</u>
Gas – transmission emissions
Fuels – transmission emissions
Electricity – transmission
Water Supply
Water Treatment
Business Travel by car and rail
Waste from Council operations
Recycling from Council operations

The emissions from the above sources represent 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 Carbon Emissions

Appendix A is an Excel spreadsheet that shows a breakdown of the emissions by source. The Council has been calculating its carbon emissions inhouse from 2008/09 (the baseline year) and 2013/14 to 2015/16. APSE Energy have calculated the carbon emissions from 2016/17 to 2022/23. Appendix A shows a summary for the emission for all years and separate tabs showing a breakdown for each source in the most recent year (2022/23).

Emissions are calculated as carbon dioxide equivalent (CO₂e), which is a term used to combine the seven most threatening gases that have the highest Global Warming Potential. This includes carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride and nitrogen trifluoride.

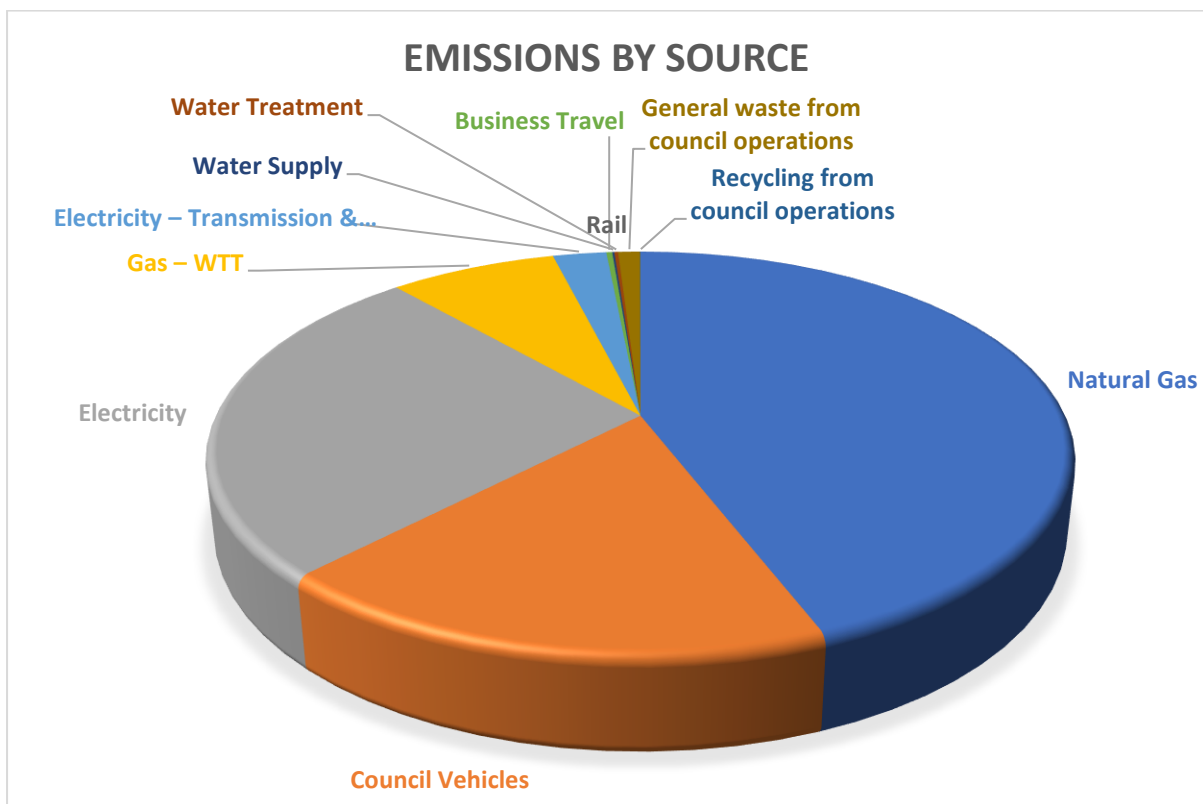
The carbon footprint has been calculated using the best data that was available to the Council during the reporting year and it is the Council's responsibility to confirm the accuracy.

2.3 Emissions for 2022/23

Scope 1, 2 & 3 carbon emissions by source for 2022/23

2022/23			
Emissions Source	Scope	% Split	TonnesCO2e
Natural Gas	1	44%	3,298
Council Vehicles	1	18%	1,354
Electricity	2	26%	1,964
Gas – WTT	3	7.5%	562
Electricity – Transmission & Distribution	3	2.4%	180
Business Travel	3	0.3%	20
Water Supply	3	0.1%	7
Water Treatment	3	0.2%	12
Rail	3	0.001%	0.10
General waste from council operations	3	1.0%	74
Recycling from council operations	3	0.02%	1.4
Total	-	100%	7,472

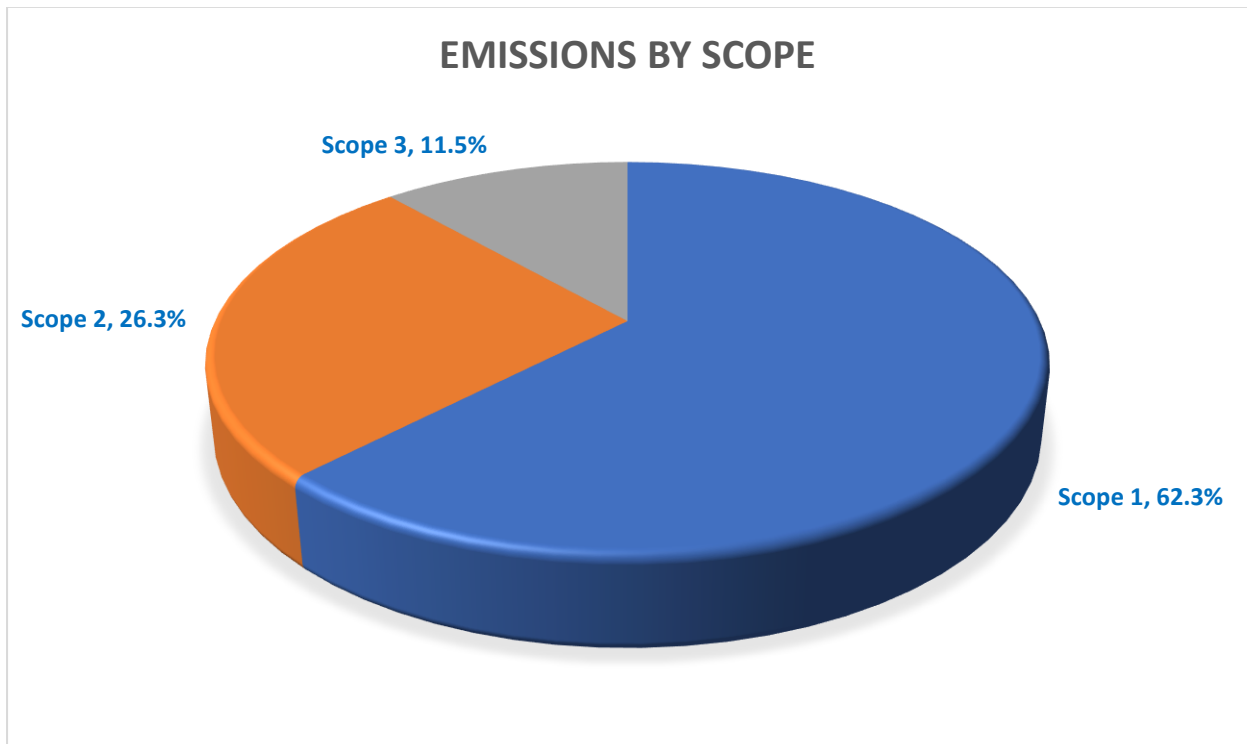
Carbon emissions by source for 2022/23



Carbon emissions by scope for 2022/23

2022/23		
Emissions Source	% Split	TonnesCO2e
Scope 1	62.3%	4,652
Scope 2	26.3%	1,964
Scope 3	11.5%	856
Total	100%	7,472

Carbon emissions by scope for 2022/23



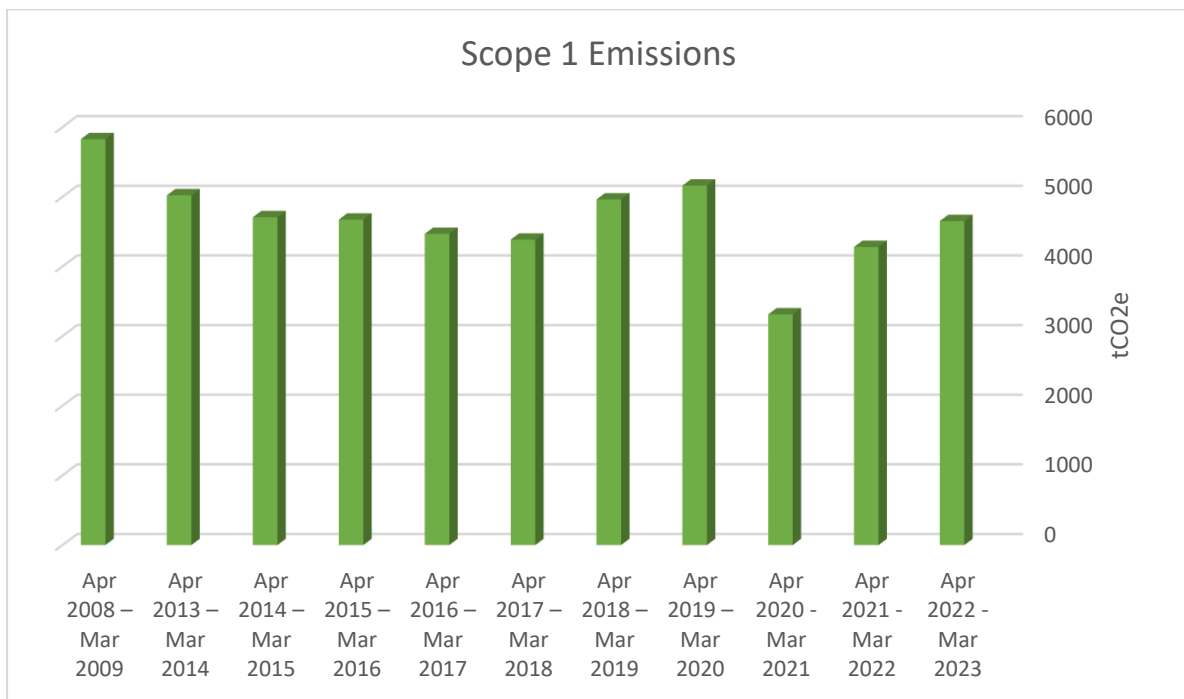
2.4 Carbon Emissions Performance

Emissions	Tonnes CO ₂ e										
	Reporting Year										Baseline Year
	Apr 2022 - Mar 2023	Apr 2021 - Mar 2022	Apr 2020 - Mar 2021	Apr 2019 - Mar 2020	Apr 2018 - Mar 2019	Apr 2017 - Mar 2018	Apr 2016 - Mar 2017	Apr 2015 - Mar 2016	Apr 2014 - Mar 2015	Apr 2013 - Mar 2014	Apr 2008 - Mar 2009
Scope 1 - Direct Emissions	4652	4280	3313	5162	4963	4386	4469	4673	4707	5022	5829
Natural Gas	3298	2973	2393	3607	3378	2781	2811	3052	3063	3340	4161
Transport Fuels (operational)	1354	1307	920	1555	1565	1584	1631	1499	1535	1550	1595
Biomass (CO ₂ outside of scope)	Decommissioned	Decommissioned	Decommissioned	Decommissioned	Decommissioned	2.2	5.0	2.3	1.7	4.5	0
Other Fuels	Decommissioned	Decommissioned	Decommissioned	Decommissioned	19.5	18.1	21.5	120	117.5	127.3	72.6
Refrigerant	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	0	0	Not Available
Scope 2 - Electricity Emissions	1964	2366.8	2115.9	2645.7	2660	4182.3	5548.05	6671.6	6763.4	6771.5	8354.9
Total Scope 1 & 2 Emissions	6,616	6,647	5,429	7,807	7,623	8,568	10,017	11,345	11,471	11,793	14,184
Scope 3 - Indirect Emissions	855.9	861.2	644	806	859	991	1,080	1345.9	1489.4	1556.9	1510.6
Gas - transmission emissions (WTT)	562	509	311	469	443	421	382	414.3	409.8	448.4	363.4
Fuel Oil - transmission emissions	Decommissioned	Decommissioned	Decommissioned	Decommissioned	5.0	4.1	3.9	313.5	364.8	369.9	319.6
Electricity - transmission	180	211	182	225	240	391	502	500.9	591.4	592.1	601.6
Biomass - transmission	Decommissioned	Decommissioned	Decommissioned	Decommissioned	Decommissioned	1.4	3.1	1.4	2.3	6.1	Not Installed
Water Supply	7	12	17	14	31	30	27	57	60.6	58.1	115
Water Treatment	12	20	33	26	60	58	53				
Business Travel by car	20	31	25	49	55	61	64	45	47	67	111
Business Travel by Train	0.1	0.2	Not Available	1.31	2.12	2.22	1.60	2.1	1.9	1.8	Not Available
Business Travel by Underground	Not Available	Not Available	Not Available	0.17	0.33	0.32	0.34	0.3	0.3	0.2	Not Available
Waste from Council operations	73.84	77.21	74.35	20.87	20.88	20.94	41.40	8.5	8.5	recycling & waste 13.3	Not Available
Recycling from Council operations	1.42	1.42	1.43	1.13	1.13	1.15	1.11	2.9	2.8	As above	Not Available
Total Gross Emissions	7,472	7,508	6,073	8,613	8,482	9,559	11,096	12,691	12,960	13,350	15,694
Carbon offset											
Hydro generated and exported	18.8	32.2	15.9	12.0	47.7	59.7	74.6	95.7	55.8	86.7	118.5
Total Net Emissions	7,453	7,476	6,057	8,601	8,435	9,499	11,022	12,595	12,904	13,264	15,576
Further Information											
Out of Scope											
Biomass (outside of scope)	Decommissioned	Decommissioned	Decommissioned	Decommissioned	Decommissioned	60.1	134.6	62.9	51	133.9	Not Installed
Renewable/CHP CO₂ avoided											
Generated electricity & consumed (CHP)	355	319	1.6	625	754	CHP not operational	CHP not operational	0	101	531	486
Biomass CO ₂ offset								27.4	21.7	56.9	0
Solar PV generated and consumed on site	32.6	43.8	15.1	15.4	17.6	14.1	23.6	35	37	40	Not Installed
Degree Days at 15.5 °C <i>(an indicator of heat demand)</i>	1,835	1,990	1875	1856	1757	1950	1974	1792.7	1885.7	1941.9	2016.8
Summary of energy usage											
Total electricity kWh	10,154,967	11,146,627	9,075,558	10,350,984	9,396,811	11,885,691	13,464,504				
Total gas kWh	18,065,686	16,231,862	13,014,903	19,617,366	18,374,817	15,099,950	15,278,504				
Conversion Factors used above											
Electricity kWh to kgCO ₂ e	0.19338	0.21233	0.23314	0.2556	0.28307	0.35156	0.41205	0.49636	0.49426	0.49426	0.543
Gas kWh to kgCO ₂ e	0.18254	0.18316	0.18387	0.18385	0.18396	0.18416	0.184	0.18407	0.184973	0.184973	0.206
Diesel litres to kgCO ₂ e	2.55784	2.51233						2.661163	2.6024	2.6024	2.63
Gas transmission factor kgCO ₂ e (WTT)	0.0311	0.03135	0.02391	0.02391	0.02413	0.02785	0.02499	0.02499	0.02483	0.02483	0.1799
Electricity transmission factor kgCO ₂ e	0.01769	0.01879	0.02005	0.0217	0.02557	0.03287	0.03727	0.03727	0.04322	0.04322	0.0390982
Fuels - transmission factor kgCO ₂ e (litres)	N/A	N/A	N/A	N/A	0.60122	0.60061	0.58484				
General Refuse to landfill to kgCO ₂ e	446.2	467.0	458.2	99.8	99.8	100.1	199.0				
General Refuse to combustion to kgCO ₂ e	21.3	21.3	21.3	21.4	21.4	21.8	21.0				
Biomass woodchip to kgCO ₂ e	N/A	N/A	N/A	N/A	N/A	6.1	13.5				

*An Excel version of this table is in Appendix A

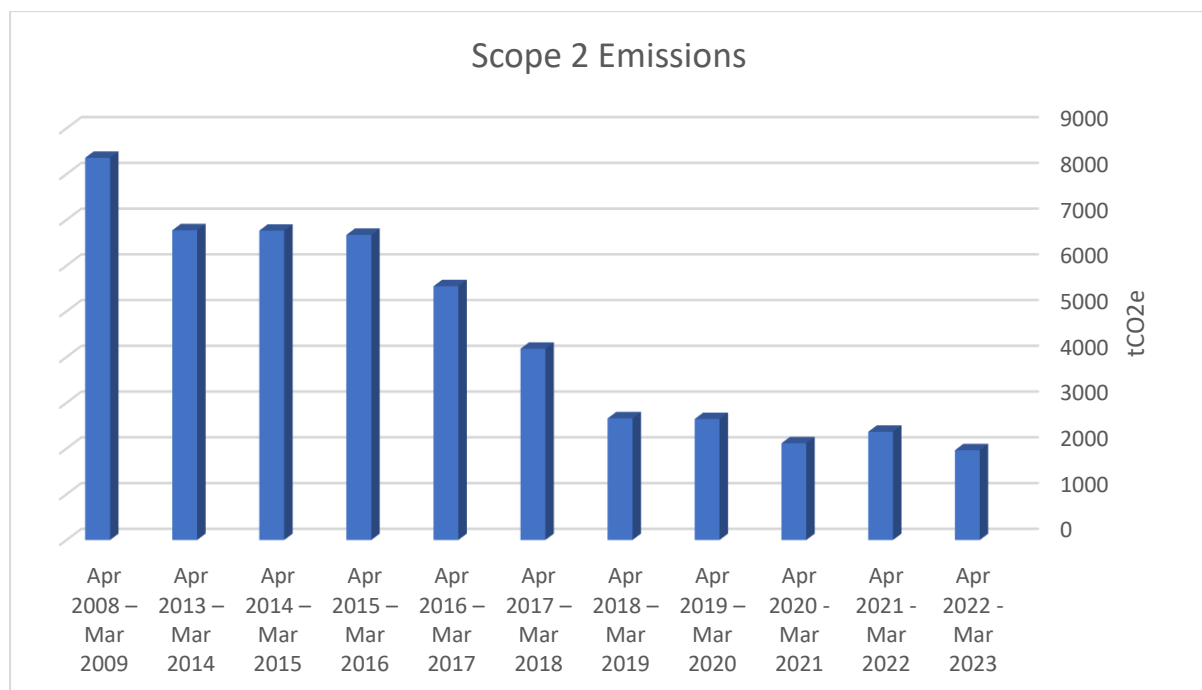
Graph showing Scope 1 emissions between 2008/09 and 2022/23 – This graph shows that there has been an overall reduction in emissions since 2008/09 and emissions have reduced by 20%. There was a significant decrease in Scope 1 emissions in 2020/21 due to covid restrictions causing a decreased usage of the Combined Heat and Power (CHP) plant at the Spectrum Leisure Centre as well as reduced use of other council owned buildings. The emissions have gone up post-Covid.

The increase in recent years is largely due to the Spectrum Leisure Centre consuming much more gas than previously. It is recommended to investigate why the gas usage has gone up so much.

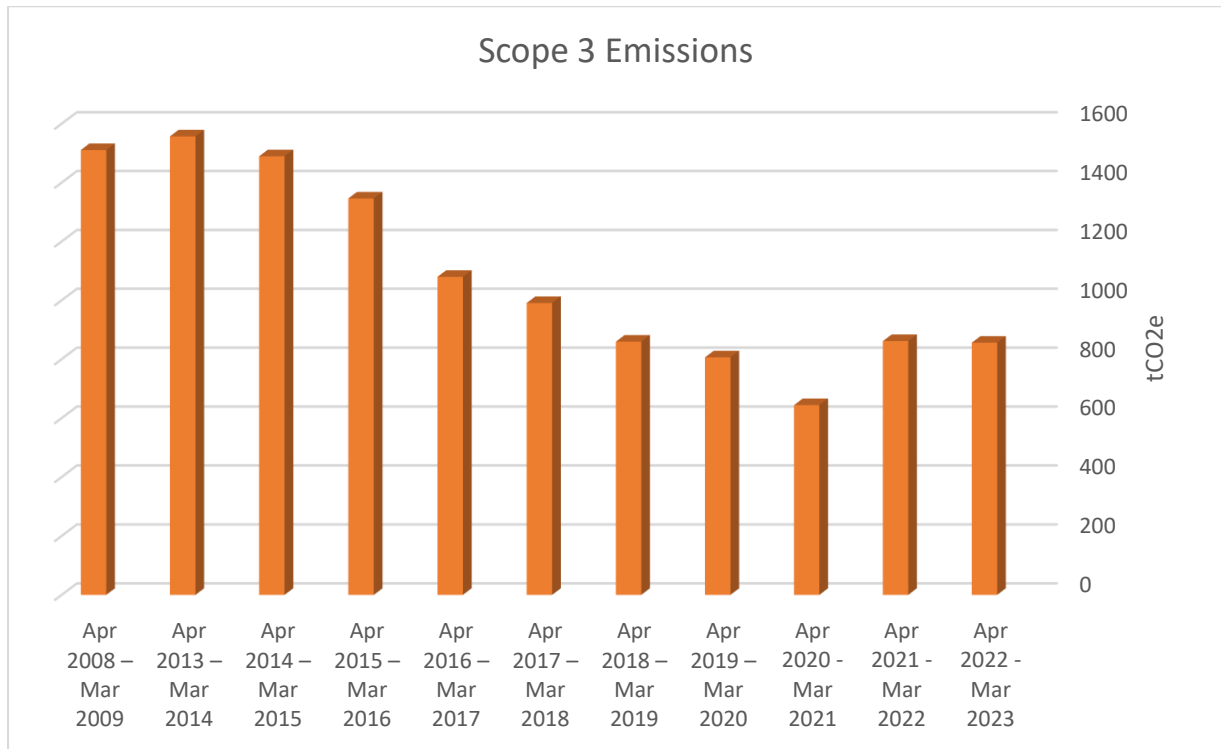


Graph showing Scope 2 emissions between 2008/09 and 2022/23 – This graph shows that there has been a steady decrease in emissions since 2008/09 and emissions have reduced by 76%. The emissions carbon factor of grid supplied electricity has decreased by 61%, so if the electricity usage had stayed the same over the term, the carbon emissions would reduce by this value.

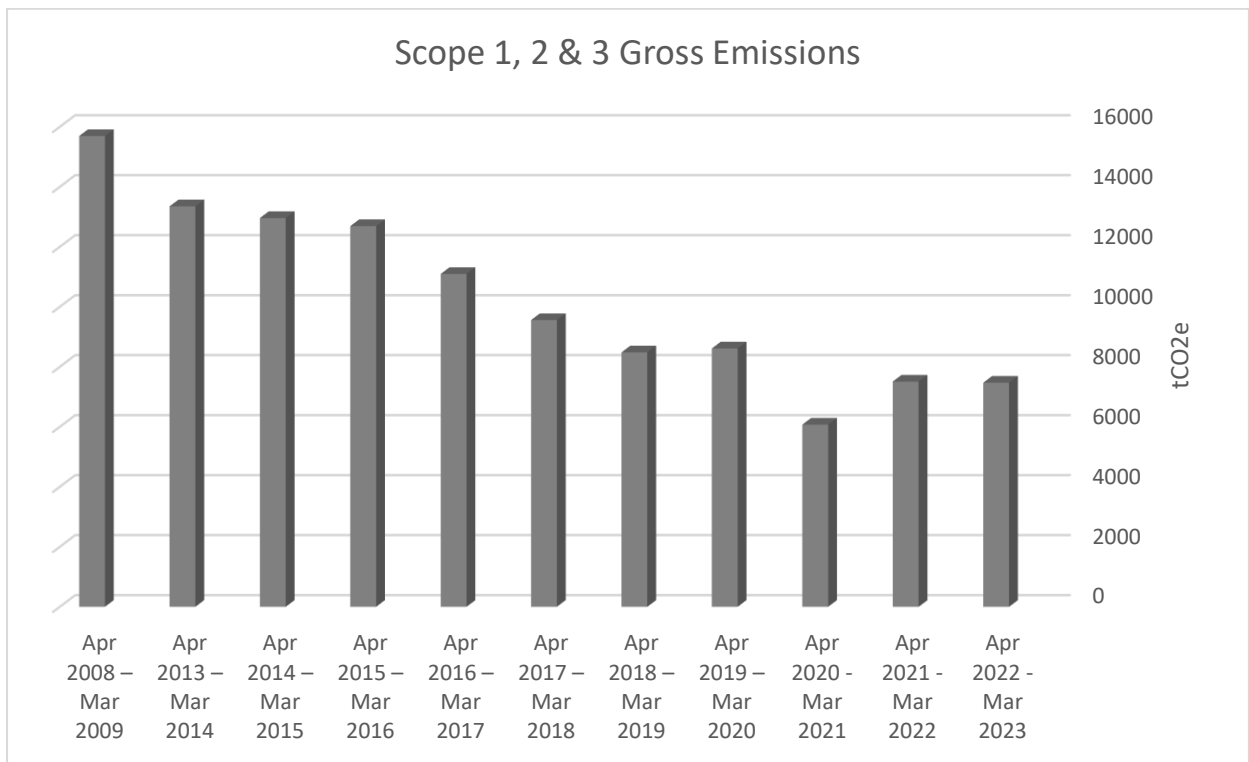
The reduction in Scope 2 emissions in 2022/2023 is due to the reduction of electricity consumption over the Council’s assets, particularly the reduction of 1,014,781 kWh at Spectrum Leisure Centre from the previous year. Spectrum Leisure is the largest consumer of electricity in the council and accounts for 48.6% of the Council’s electrical consumption. Another factor in the reduction is the carbon conversion factor for electricity from the UK National Grid has lowered by 8.9%, meaning if the same amount of electricity was consumed this year as last year, the amount of tCO₂e would have decreased by 8.9%.



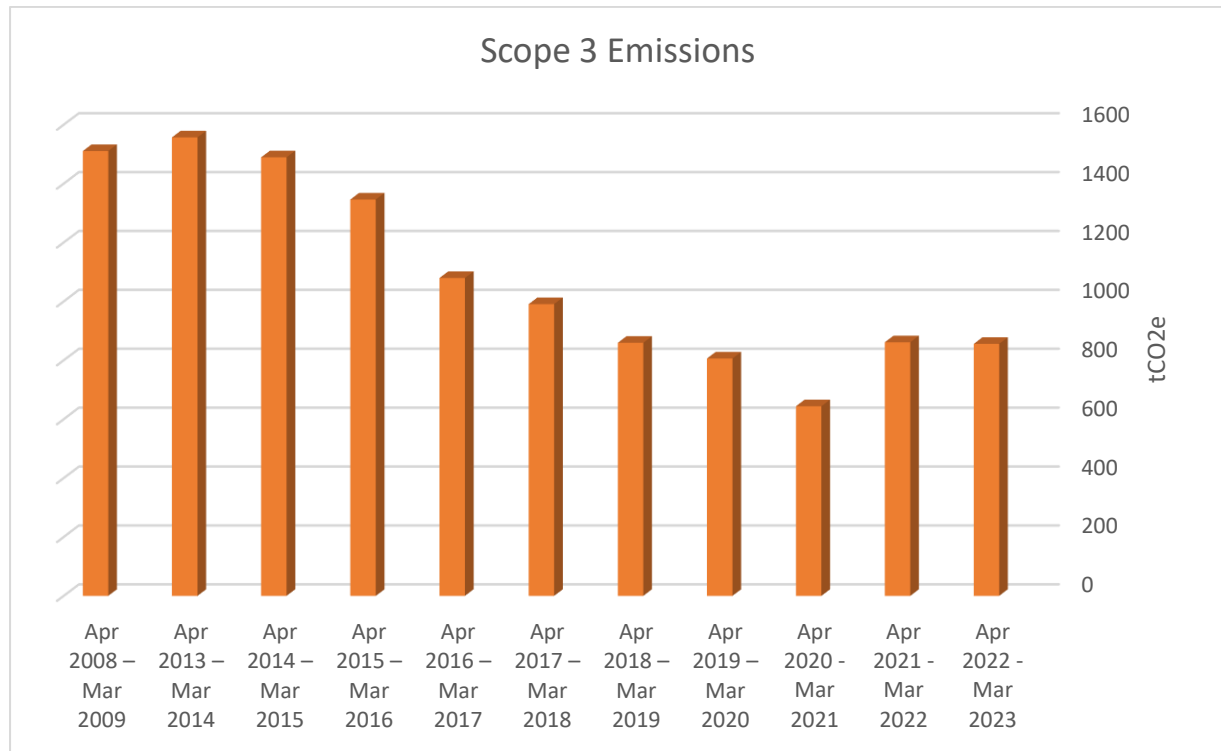
Graph showing Scope 3 emissions between 2008/09 and 2022/23 – This graph shows that there has been a steady decrease in emissions since 2008/09 and emissions have reduced by 43%.



Graph showing Scope 1, 2 & 3 gross emissions between 2008/09 and 2022/23 – This graph shows that there has been a steady decrease across Scope 1, 2 & 3 emissions since 2008/09 where emissions have reduced by 52%.



Graph showing Scope 1,2 & 3 net emissions between 2008/09 and 2022/23 – This graph shows that there has been a steady decrease across Scope 1, 2 & 3 net emissions since 2008/09 where emissions have reduced by 52%. The net emissions are the gross emissions minus the carbon offset measures.



3 Notes and Observations

Scope 1

Mains Gas

Gas usage data was taken from SystemsLink.

Biomass

The biomass boiler was decommissioned in 2018.

Combined Heating and Power (CHP)

The data provided shows the CHP used 513,173 m³ of gas to generate 1,834,577 kWh of electricity during the period of 01/04/2022 to 31/03/2023. There is no information on whether this energy was exported back to the grid so it has been assumed that it has all been used on site. Over the same time period, the CHP generated 2,224,083 kWh in heat.

Council Owned Vehicles

Data has been provided for the total miles travelled by each vehicle and the volume of fuel consumed in litres. The volume of fuel was used to calculate emissions as this is more accurate.

Scope 2

Electricity

Carbon emissions were calculated from the electricity usage data as provided by LASER, who procure the Council's energy on their behalf, and extracted from SystemsLink.

In the data provided in 2021/2022, there were 324 electricity meters listed as used, but this reduced to 298 meters in 2022-2023.

Scope 3

Water

Consumption data has only been provided for the water supply and not the Return to Sewer (water treatment) element. The volume of water that is supplied and returned to the sewer is typically estimated to be 95%. However, this is not always the case if the premises uses water for other purposes such as irrigation, etc.

As water treatment data was not available, an assumption has been made that this element is 95% of the water supply volume. For future reporting, the Council should source data directly from the wastewater company to get more accurate data. This is particularly prominent, as the carbon emissions associated with wastewater are twice as high as water supply.

Emissions from water consumption is not included within the GHG Protocol, but emissions from wastewater are. Following the principle that as much data should be collected as possible, APSE Energy recommends that emissions from water should be included within the reporting for the Council as water consumption has associated carbon emissions and an environmental impact. Including water consumption helps to keep it on the environmental agenda and prioritise it with other categories by converting usage into a standardised unit of CO₂e.

Business Travel by Staff Owned Car

In previous years, this was recorded in Excel as distance travelled by vehicle. In 2022/2023 the data was provided as total distance travelled in each month separated by the two categories below:

- Mileage - Casual/Essential;
- Mileage - Public Transport rate ;
- Mileage - Lease Car.

However, this reporting year (2022/2023) just mileage data for casual/essential and lease car was provided, with the Public Transport rate removed. It is recommended to record this data set in a consistent format so that any discrepancies can be identified when comparing years.

Business Travel by Rail

The data for business travel by rail for 2022 was provided only as total distance each month, rather than a breakdown of the routes that were used and how frequently used as given in previous years. There were no units given to the values each month. For the purposes of

calculating the carbon produced, it has been assumed that the units are miles. Further clarification and units should be provided in the future for more accurate conclusions. In addition, the data was provided for over the calendar year of 2022/01 to 2022/12 rather than financial year of 04/22 to 03/23.

Waste

Specific waste data is not available and an average and equal volume of waste has been applied across all years based on a sample of weekly collection figures. The carbon emissions of waste across years changes because of the carbon emissions factor, rather than the volumes of waste.

Refuse waste has been categorised under 'Commercial and Industrial Waste' for carbon conversion purposes. This has been assessed assuming that 5% of the refuse waste goes to an Energy from Waste facility and the remaining 95% goes to landfill.

Carbon Offsetting

Electricity that is generated locally and exported to the grid 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.

Exported electricity is accounted as an emissions reduction against the gross figure to report a net figure in tonnes of CO₂e. This net figure is additional to the gross figure and does not replace it.

Hydroelectric

All the electricity generated from the hydro-electricity plant is exported to the grid. The grid average emissions factor is used to calculate the emissions which are considered as an offset as the generated electricity is not used by any Council owned assets. It is understood that consideration is in place to provide a private wire to connect the hydroelectricity to Council owned buildings which should reduce electricity costs and carbon emissions.

There is an outstanding issue regarding the data recorded by Stark. This has been the case since September 2023 which was the time of the last meter reading, so the generated energy wasn't recorded online correctly. Kevin Hopkins from the Facilities Assets & Property Department of the Council states in an email on 09/04/24 that the figure for hydroelectric generation over the timeframe of 01/04/2022 to 31/03/2023 was 97,386.2kWh.

Solar Photovoltaics (PV)

The total generation from solar panels includes sheltered housing blocks. It was highlighted that these sites were excluded from previous GHG (CRC) reporting as these are classed as domestic.

The Solar PV information was downloaded from the Council's solar PV portal.

In a typical setup where PV is installed on the roof of a building, the generated power would be used by the buildings day-to-day operations and any excess generated electricity (when the generated electricity is higher than the building load) is exported to the grid. For most commercial premises, the exported electricity is minimal or nothing as the building typically uses more electricity than is generated.

If 100% of the electricity is used on site, and not exported to the grid, then this is not counted as a carbon offset and should not contribute towards the net emissions as this is already taken into account from the buildings electricity usage and this would be double counted.

There is a line on the Carbon Summary table under 'Renewable/CHP CO₂ avoided' which shows the carbon emissions that have been avoided by having PV generated electricity on site.

There is no evidence that an export meter is present at these sites to record how much electricity is exported. Based on the size and age of the PV it is assumed that a payment is made under the Feed in Tariff (FiT) for a 'deemed export' payment. Deemed export payments are part of the FiT scheme where it is assumed that 50% of the generated electricity of systems under 30kWp is exported regardless of whether it is or not. This means that export meters were not normally installed so the actual export is unknown. For the purpose of the carbon reporting it assumed that no electricity is exported.

The 2021-2022 data for Farnham Road Car Park 1 was 79,320 kWh over the year, and the 2022-2023 data was 36,740 kWh over the full year. This is a reduction of 42,580 kWh from the previous year. This translates to a loss of approximately £12,774 over the year and it is recommended that it is investigated further to identify why there has been such a drop in performance.

Further Notes and Observations

The bottom section of the Carbon Summary shows further information that was used in each reporting year such as a summary of annual energy usage (kWh), avoided CO₂ from renewables, degree days (see Glossary) in each year and a summary of conversion factors.

The carbon savings associated with the CHP at The Spectrum are taken from the offset of producing electricity on site and does not include the heat. This is because the heat produced is associated with the gas used by the CHP. The CO₂ savings are shown for information and have not been included separately under the gross or net emissions as this is already accounted for under the sites main metering consumption.

As the carbon factor of electricity has reduced and the spark gap has closed (the cost difference between using electricity and gas), the question arises over the carbon and financial benefits of using CHP. It is recommended to carry out a detailed analysis of the CHP to determine if it is still beneficial to use.

In this report, the degree day data used was sourced from a weather station located in the Crawley area.

Billing from the suppliers shows that the Council are responsible for 298 electricity meters, (a reduction from 331 the previous year) which provides a reasonable representation of how many assets the Council operate. 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.

There is a line in the Carbon Summary table for 'Biomass CO₂ Offset', which has been populated between 2008/09 and 2015/16. After much deliberation with the Council, it was inconclusive about what this was reference to as emissions from biomass are identified under Scope 1 and the Council has not engaged in any planting schemes that could be considered an offset.

4 Recommendations for Gathering Data Going Forward

4.1 Scope 1 and 2 Emissions

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. The Council already has SystemsLink software in place which should be utilised to store all energy data so it is readily accessible.

4.2 Scope 3 Emissions

Scope 3 emissions can account for 70-80% of a council's total footprint (Carbon Trust), given the use of contractors for waste collection, construction, social services and other services.

Appendix B shows the 15 different categories of Scope 3 emissions and what data should be gathered to report on emissions in future years. Where applicable, the Council should develop policies/procedures to gather the data from third parties. This should be incorporated into the procurement process and contracts with suppliers.

It is discretionary for an organisation to report on Scope 3 emissions. It should be explained and documented in subsequent carbon reports if the Council is unable to obtain data for any of the items below as it is deemed financially impractical or not significant. The reporting principles should be based on:

- Relevance;
- Completeness;
- Consistency;
- Transparency;
- Accuracy.

Emissions data that should be improved in subsequent years includes waste. Policies should be put in place to start recording waste data. This could be through contractual changes i.e. waste contractor weighing and recording waste type, or the Council can measure its own waste. There are tracking sheets from WRAP to monitor waste streams and these could be used in the short term until the waste contractor can record it.

Purchased goods and services could also be included under Scope 3 as this will represent a high level of emissions down the supply chain. However, obtaining this data from third parties may prove difficult and the Council should assess what relevant goods and services could be recorded in subsequent years.

5. Glossary

Term	Definition
BMS	Building Management System – Automated control for building services.
Carbon dioxide equivalent (CO ₂ e)	The carbon dioxide equivalent (CO ₂ e) 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 (tCO ₂ e).
Council Vehicles	Vehicles that are owned or controlled by the Council. This does not include employee-owned vehicles that are used for business purposes.
Degree Day	A heating degree day (HDD) is a measurement designed to quantify the demand for energy needed to heat a building. It is the number of degrees that a day's average temperature is below a baseline temperature, which is the temperature below which buildings need to be heated.
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 by the grid that the Council purchase - they do not include the emissions associated with the transmission and distribution of electricity.
Employee Vehicles	Travel for business purposes in 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.
[Natural] Gas	Primary fuel sources combusted at a site or in an asset owned or controlled by the Council.
MPAN & MPR	The MPAN (Meter Point Administration Number) and MPRN (Meter Point Reference Number) are unique numbers assigned to the electricity and gas supplies. This information has been provided as a reference and can be used to identify each meter.

Solar PV	Solar Photovoltaic panels to generate renewable electricity from the sun.
Transmission and Distribution	Transmission and distribution (T&D) factors are used to report the Scope 3 emissions associated with grid losses (the energy loss that occurs in getting the electricity from the power plant to the premises).
Wastewater	Water returned into the sewage system through mains drains.
Water Supply	Water delivered through the mains supply network.

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.

Item	Category	Details Required
1	Purchased goods and services	<p>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).</p> <p>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).</p> <p>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:</p> <ul style="list-style-type: none"> • 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 <p>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.</p> <p>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</p>

		<p>Product Declarations (EPDs). It is likely that many suppliers will not be able to provide all the emission data.</p> <p>If an EPD cannot be provided, supplementary information required includes the volume of product (kg) and the carbon emission factor (kg CO₂e).</p> <p>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.</p>
2	Capital goods	<p>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.</p> <p>The required information is the same as Category 1 above.</p> <p>A policy should be developed so that suppliers in the supply chain are required to provide this data as part of the contract.</p>
3	Fuel- and energy related activities (not included in Scope 1 or Scope 2)	<p>Transmission and distribution (T&D) losses have been included and calculated from the data provided in Scope 2.</p>
4	Upstream transportation and distribution	<p>Category 4 includes emissions from:</p> <ul style="list-style-type: none"> • 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. <p>The Council requires data on:</p> <ul style="list-style-type: none"> • Quantities of fuel (e.g., diesel, petrol, jet fuel, biofuels) consumed • Amount spent on fuels • Distance travelled

		<ul style="list-style-type: none"> • Vehicle type <p>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.</p> <p>A policy should be developed so that suppliers using their own vehicles are required to provide this data as part of the contract.</p>
5	Waste generated in operations	<p>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.</p> <p>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:</p> <p>Example of data required:</p> <p>Total weight (kg) of waste type and disposal method e.g.</p> <ul style="list-style-type: none"> • 5,000kg municipal waste to landfill • 500kg organic garden waste to composting • 1,000kg metal recycled • 1,000kg plastic recycled • 1,000kg paper recycled <p>Data is required for the volume of supply and wastewater in cubic metres (m³) from water bills.</p> <p>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.</p>

6	Business travel	<p>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.</p> <p>Require details for:</p> <p><u>Vehicle</u> Fuel type, size of vehicle and distance for:</p> <ul style="list-style-type: none"> • Car • Motorbike • Taxis • Bus • Rail <p><u>Flights</u></p> <ul style="list-style-type: none"> • Airport travelled to/from • Number of passengers • Class type • Distance <p><u>Ferry</u></p> <ul style="list-style-type: none"> • Foot or car passenger • Distance
7	Employee commuting	<p>This category includes emissions from the transportation of employees between their homes and their worksites.</p> <p>Emissions from employee commuting may arise from:</p> <ul style="list-style-type: none"> • Car • Bus • Rail • Other modes of transportation <p>Staff would be required to provide method of transport and distance travelled. It may be difficult and time consuming to collect accurate data.</p>
8	Upstream leased assets	<p>This category is applicable from the operation of assets that are leased by the Council.</p> <p>If the Council procures the energy then this should be considered as Scope 1 and 2.</p> <p>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</p>

		<p>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.</p> <p>Data required include the Scope 1 and 2 data from the leased asset.</p>
9	Downstream transportation and distribution	<p>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.</p> <p>It is assumed that this category is not applicable to the Council as it does not manufacture and sell products.</p>
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	<p>This category is applicable where the Council is the landlord to a lessee.</p> <p>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.</p> <p>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.</p> <p>Data required include the Scope 1 and 2 data from the leased asset.</p>

14	Franchises	It is assumed that this category is not applicable to the Council as it does not operate any franchises.
15	Investments	<p>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.</p> <p>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.</p> <p>The Council's scope 3 emissions from investments are the scope 1 and scope 2 emissions of investees.</p> <p>For purposes of greenhouse gas accounting, this standard divides financial investments into four types:</p> <ul style="list-style-type: none"> • Equity investments • Debt investments • Project finance • Managed investments and client services <p>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 bank's total investments amount to £100million, the Council should report on 1% of the bank's Scope 1 and 2 emissions.</p> <p>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.</p>