AGENDA ITEM No. 4

EAST RENFREWSHIRE COUNCIL

CABINET

27 JANUARY 2022

Report by Director of Environment

CARBON EMISSIONS REPORTING (2019/20 & 2020/21)

PURPOSE OF REPORT

1. To update the Cabinet with the results of the 2019/20 & 2020/21 carbon emissions from the Council's operations and outline how these results will inform the Get to Zero Action Plan.

RECOMMENDATIONS

2. The Cabinet is asked to note:

a) The results of the 2019/20 and 2020/21 carbon baseline report, as provided in Appendix 1.

b) The implications of the report, which requires improvements to data and further analysis of the Council procurement spend.

BACKGROUND

3. The Council has committed to completing a 'Get to Zero' plan that will meet the requirements to achieve net zero carbon-emissions by 2045 with interim targets for 75% (2030) and 90% (2040). Preparations for this plan are underway.

4. Reducing emissions is a statutory requirement. The Climate Change (Emissions Reduction Targets) (Scotland) Act 2019 sets legally binding emissions reduction targets for Scotland as a whole.

5. A carbon baseline exercise was commissioned in Spring 2021 to help understand the current performance and the areas of Council operations that could yield the greatest reductions in carbon. The report was completed by consultants, Accelar and Aether Ltd.

6. The initial focus of the baseline report was on Council operations. However, the role of the wider community in reducing emissions will need to be explored in more detail at a later stage as local authorities require to support the achievement of net zero emissions within their geographic boundaries.

7. The report followed a standard methodology. The scope of the emissions covered as they relate to the Council's operations and spending are shown in *Diagram 1*.

Scope	Definition	Sources
Scope 1	All direct emissions from sources that are owned or controlled by the Council 	• The gas supply and water supply and treatment for: ▪ The council's own buildings ▪ Council owned non-domestic (trust) buildings • Petrol and diesel vehicles in the council fleet
Scope 2	Energy-related indirect emissions from generation of purchased electricity, steam and heating/cooling consumed by the Council 	• Generation of purchased electricity for: ▪ The council's own buildings ▪ Council owned non-domestic assets: ▪ Trust buildings (labelled as "non-domestic buildings" in figures) ▪ Street lighting ▪ Other unmetered supply (traffic signals, CCTV, bollards etc) ▪ Electric vehicles in the council fleet
Scope 3	All other indirect emissions that are a consequence of the activities of the Council 	• Council business travel • Council leased domestic properties (gas and electricity) • Procurement of goods and services (inc. social care contracts and leisure centres) • Waste disposal and processing • Landfill • Recycling • Incineration • Composting

Diagram 1 – Scope 1, 2 and 3 emissions for East Renfrewshire Council Baseline

8. Whilst the methodology is consistent with other local authorities, the baseline report includes a broad interpretation of 'Scope 3' emissions. This ensures the Council is considering the fullest extent of the emissions it can influence. Public bodies are free to interpret their 'Scope 3' emissions, including not reporting these at all. By including Scope 3 emissions East Renfrewshire Council is putting itself in a strong position to meet future reporting requirement. However, it does mean that it is difficult to compare emissions performance against other local authorities.

9. The emission estimates presented for 2020/21 represent a year of reduced operation of the council due to the restrictions in place related to the COVID-19 global pandemic. Observed reductions between the two years should therefore be viewed within that context.

REPORT

Carbon Baseline: Findings

10. The Carbon Baseline Report for 2019/20 and 2020/21 is provided in ***Appendix 1***. To account for the impact of the pandemic, the report authors recommend the Council uses the 2019/20 data as its reference year.

11. The Council's greenhouse gas (GHG) emissions for the financial year 2019/2020 were estimated to be 70.2 $ktCO_2e$. This is equivalent to all ninety-five-thousand residents in East Renfrewshire taking a round-the-world flight. Between 2019/20 and 2020/21 the Council's Greenhouse Gas (GHG) emissions reduced by ~7$ktCO_2e$ (10% reduction).

12. Observed reductions between the two years should be viewed in the context of changes resulting from COVID-19 impacts. Most reductions in emissions between the two years can be attributed to decreased occupation of Council and trust (non-domestic) buildings and decreased activity requiring travel.

13. There has been real progress in GHG reductions from waste being diverted from landfill to energy recovery, with a 49% reduction estimated, as a result of the Clyde Valley (joint contract with neighbouring Councils) residual waste contract.

14. The top source of Council emissions are as follows:

- Procurement (or supply chain emissions) (57%)
- Natural gas supply in council buildings (15%)
- Municipal landfill (12%)
- Electricity use in council buildings (9%)
- Food and garden waste recycling (3%)
- Fuel for vehicles (2%)

15. Comparing local authorities' emissions is challenging due to variations in the scope of reported emissions between Local Authorities. However, comparing data from the Public Bodies Climate Change Reporting 2019/20 shows that Scope 1 and Scope 2 emissions are very slightly lower in East Renfrewshire on a per capita basis.

16. To put the challenge of the net zero target into context, to offset 2019/20 emissions through tree-planting an estimated 163 hectares of land would be required. This equates to the size of 228 football pitches. This would be required each year to offset these emissions if the Council took no action to reduce them. This explains why achieving net zero requires the Council to prioritise reducing its emissions before considering schemes to capture and absorb GHG emissions (e.g. tree planting or industrial processes).

Carbon Baseline: Implications

17. With 57% of emissions embedded in the council's supply chain, the report highlights the potential for significant emission reductions through our procurement activity. This has not been a focus of the Council to date. The baseline report identifies that procurement opportunities will require analysis of emissions hotspots and contract spend and to consider carbon impacts in procurement and contracting. This will be a priority in the Get to Zero Action Plan.

18. Experience from other local authorities and national studies suggest that the following category areas will provide greatest opportunities for emissions reduction via procurement:

- Construction and Infrastructure
- ICT
- Furniture

19. The report highlights the data challenges for the Council in meeting its future obligations to report on its climate change impacts, which is expected to require more detailed understanding of Scope 3 emissions. This will require consideration of more centralised

collection of data; gathering more information on our procurement expenditure; and keeping existing data capture and analysis relevant to changes in recognised practice.

20. Staff resource implications for these actions are yet to be fully understood, however this will be considered further in the Get to Zero Action Plan.

FINANCE AND EFFICIENCY

21. This report was conducted by consultants at a cost of £10,670. The carbon data analysis provided in the report will be required every year to meet statutory requirements on climate change reporting. There is currently no budget identified for completing this report for 2021/22. However, the costs and staff requirements will be given further consideration in the drafting of the Get to Zero Action Plan.

CONSULTATION AND PARTNERSHIP WORKING

22. The report was compiled by consultants who worked with services across the Council to gather data and information. This required input from: Neighbourhood Services; Property and Technical Services; HR; Finance; Procurement; Roads & Planning; Housing and Education.

23. The Council is part of the Sustainable Scotland Network (SSN), Association of Public Service Excellence (APSE) network, and Improvement Service network. These networks will allow sharing of best practice and comparisons in approach.

IMPLICATIONS

24. The implication for staff and finance are outlined in the report section above.

25. There are no equalities, IT implications, property or legal implications associated with this report.

CONCLUSIONS

26. A report showing the carbon emissions for 2019/20 and 2020/21 has been completed, showing that the Council generated an estimated 70.2 $ktCO^2e$ in the baseline year (2019/20).

27. The main sources of emissions are the procurement supply chain, heat and power for Council buildings and landfilled waste. There was a reduction of ~7ktCO2e emissions (10%) between 2019/20 and 2020/21. Most reductions have been attributed to COVID-19 impacts on Council operations. However, a 49% reduction in emissions from landfilled waste will provide a lasting benefit.

28. The carbon emissions report will require to be updated every year. The report may also inform a Council wide approach to carbon budgeting that will allow consideration of GHG emissions associated with future developments to be better understood and managed.

RECOMMENDATIONS

29. The Cabinet is asked to note:

a) The results of the 2019/20 and 2020/21 carbon baseline report, as provided in Appendix 1.

b) The implications of the report, which requires improvements to data and further analysis of the Council procurement spend.

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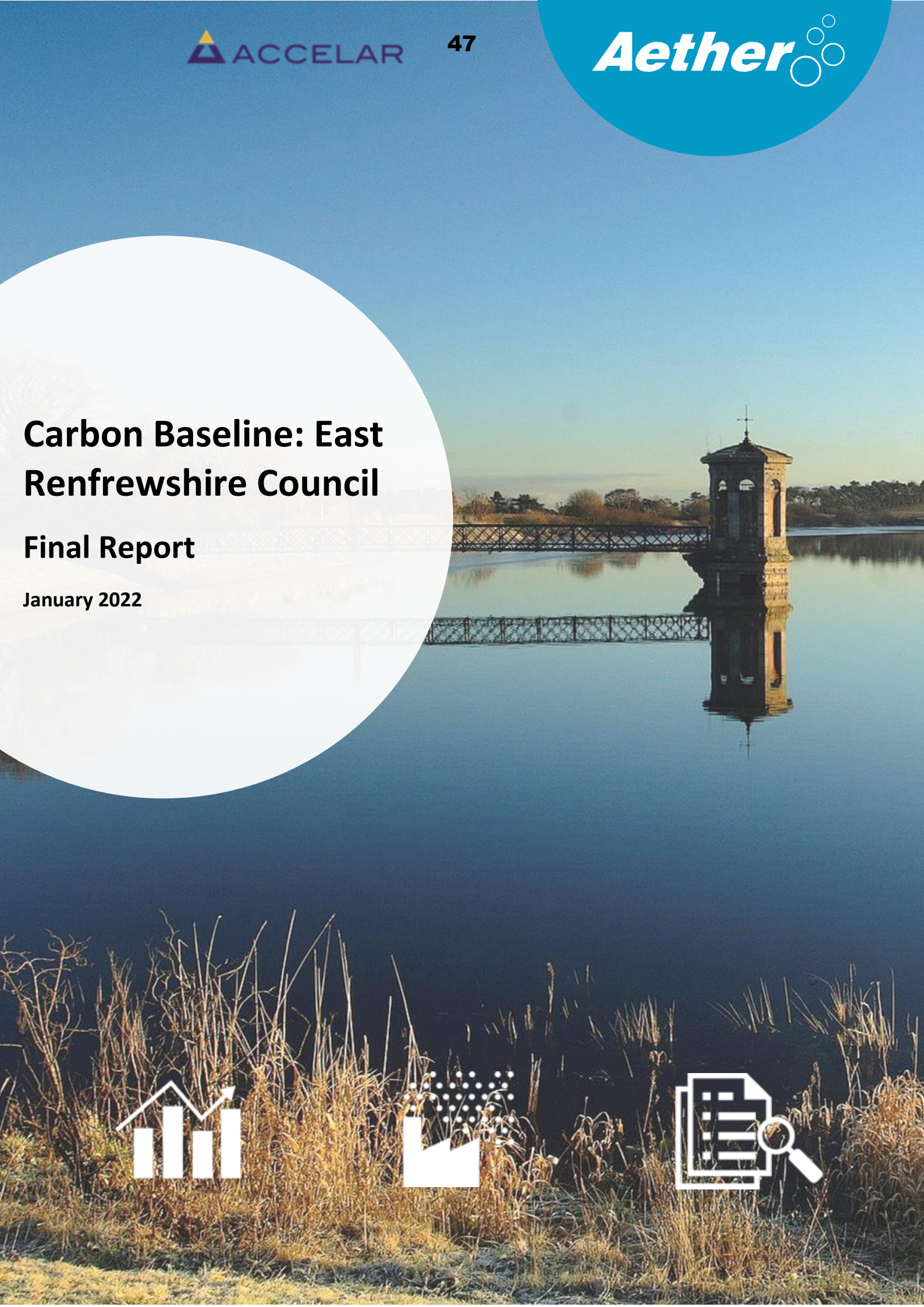
January 2021

Carbon Baseline: East Renfrewshire Council

Final Report

January 2022



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Executive Summary

In 2019, the Scottish Government introduced new legislation committing Scotland to achieving a target of net zero emissions by 2045. In response to this legislation, pressure has increased on both national and local government to outline how they intend to achieve this ambitious target through robust, measurable carbon reduction strategies and actions plans.

East Renfrewshire Council commissioned a carbon footprint baseline of its core activities that will be used to develop a climate change strategy and net zero pathway for the council. A baseline was developed for two financial years to account for normal operations pre-covid (2019/20) and to utilise the most recently available data (2020/21). The scope of the baseline was determined in consultation with the council, further detail is provided in section 2 of this report.

Based on the defined scope, the council's emissions totalled **70.2 ktCO_2e** in 2019/20 and **62.9 ktCO_2e** in 2020/21. A breakdown of the 2019/20 carbon baseline is provided in **Figure 1.** As indicated, procurement (or supply chain emissions) accounts for the greatest proportion at 57% of the baseline in 2019, followed by municipal landfill (12%) and natural gas supply (16%). **Figure 2** presents the breakdown for all sectors excluding procurement.

It should be noted that the emission estimates presented for 2020/21 represent a year of reduced operation of the council due to the restrictions in place due to the COVID-19 global pandemic. Observed reductions between the two years should therefore be viewed within that context.

Emissions accounted for within the scope of East Renfrewshire Council appear to be typical of a Scottish Local Authority, with an analysis of per capita emissions showing only slightly below the Scottish average value (not considering Scope 3 emission sources). However, it should be noted that conclusions drawn from direct comparison of emissions from local authority operations are limited as authorities do not report consistently and East Renfrewshire Council has significant emission sources within Scope 3.

Section 5 of this report outlines five key recommendations that the council can take forward to support the continuous improvement of the carbon baseline. These are:

1. **Consider emissions baseline 2019/20 as the evidence base** for the future climate strategy given the impacts of COVID-19 on council activity in 2020/21.

2. **Engage with the councils' largest suppliers and contractors** to better understand scope 3 emissions.

3. **Establish and maintain data flows** which set out the data requirements from council officers across the different departments.

4. **Undertake improvements to data sets** to allow for greater accuracy in emission calculations in subsequent years – at present there are some data gaps or inconsistencies.

5. **Future tracking and reporting of greenhouse gas emissions** on an annual basis.

Figure 1: East Renfrewshire baseline year 2019/20

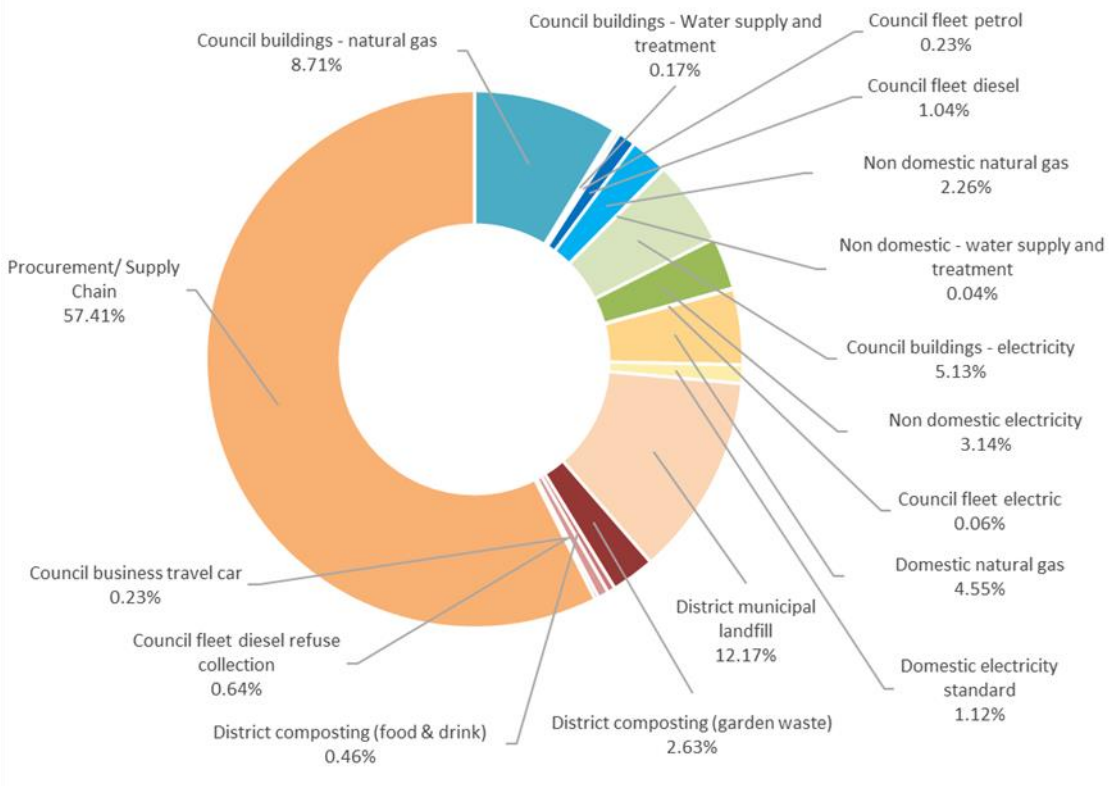
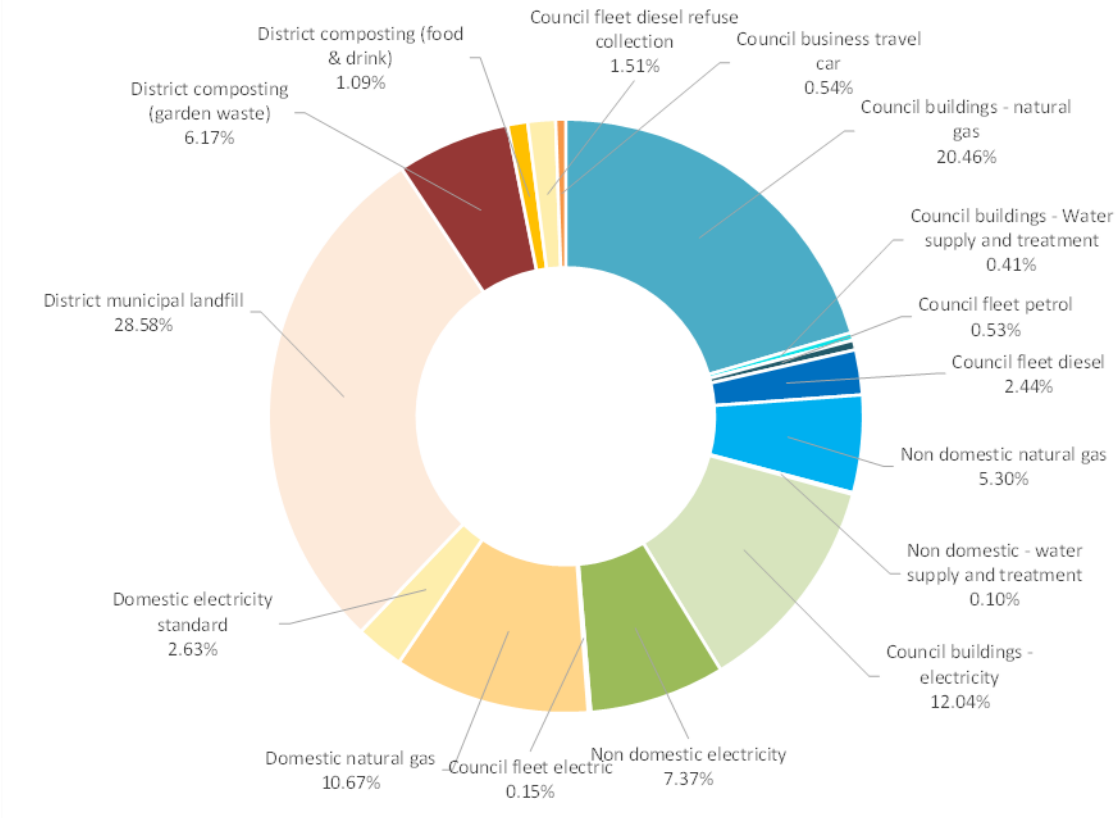


Figure 2: East Renfrewshire baseline year 2019/20, excluding procurement



1 Introduction

1.1 National Policy Context

Scotland has legislated to reduce greenhouse gas emissions (GHGs) to 'net-zero' by 2045 – five years earlier than the broader UK target of 2050. It is acknowledged by the Climate Change Committee that local councils have a fundamental role in delivering this ambition – being well placed to influence emissions in the energy, waste, land use, residential and transport sectors, whilst holding the best knowledge of the needs and opportunities in their area. Through their planning role, local councils can, for example, leverage change by establishing building energy efficiency standards that go beyond national standards, implementing sustainable travel programmes and infrastructure, approving renewable energy projects, pursuing heating programmes and implementing sustainable waste management programmes.

Climate change mitigation actions may also have many positive wider impacts or co-benefits, including improved air quality, greater biodiversity, potentially lower energy bills, creation of local jobs, and improved resilience and adaptation responses to climate change impacts.

As a local authority, East Renfrewshire Council is statutorily required to provide an annual update report to the Scottish Government on carbon reduction progress and priorities (Public Bodies Climate Change Reporting Duties). It is anticipated that future reporting duties will take a much broader approach to reporting and managing a broader scope of emissions. There will be benefits to organisations who have recognised this need and start developing effective inventory tools and portfolios of projects that will deliver change at the rate required.

1.2 East Renfrewshire Local Context

East Renfrewshire Council requires good data on emissions from existing assets, and from operations within the Council's direct control if it is to meet these carbon reporting requirements. At present, data for some assets and spending profiles (e.g. domestic properties, water supply and the council's supply chain) are not as robust as they will likely need to be in the future.

1.3 Baseline Emissions

In order for East Renfrewshire to pursue ambitious climate action effectively, a clearly defined target and scope is required. This paper outlines the scope of the emissions included and quantifies the baseline emissions for the agreed scope. The scope was discussed and agreed with East Renfrewshire council officers based on the principles outlined in Section 2.

The approach adopted follows standard methodologies to ensure consistency with estimates made at the national level by other local authorities as far as possible. However, it should be acknowledged that beyond the Public Bodes Climate Change Duties reporting, there is no defined guidance on which emission sources should (or should not) be included in a local authority's baseline calculations and so direct comparison between differing authorities' performance has limited value and is discouraged at this time.

A list of the key terms and definitions can be found in Appendix A.

2 Scope of the Baseline

The most widely used set of standards for local carbon accounting are those produced under the Greenhouse Gas Protocol. Of relevance to this project is the Global Protocol for Companies and Organizations[1]. Under the 'control' method a company accounts for 100 percent of the GHG emissions from operations over which it has operational control. The corporate standard[2] also sets the operational boundary, and describes the emission sources and 'scopes' which should be considered as part of an organisations own estate for the accounting process. Emission sources are divided between three scopes, the definition of which are given in **Table 1**.

Emission sources for East Renfrewshire Council have been identified in line with those outlined in the Greenhouse Gas Protocol. **Table 1** below summarises the emission sources included in CO_2e estimates for East Renfrewshire Council for the financial years 2019/20 and 2020/21.

Table 1: Emission sources within East Renfrewshire Council's estate by Scope definition

Scope	Definition	Sources
Scope 1	All direct emissions from sources that are owned or controlled by the Council 	• The gas supply and water supply and treatment for: ▪ The council's own buildings ▪ Council owned non-domestic (trust) buildings • Petrol and diesel vehicles in the council fleet
Scope 2	Energy-related indirect emissions from generation of purchased electricity, steam and heating/cooling consumed by the Council 	• Generation of purchased electricity for: ▪ The council's own buildings ▪ Council owned non-domestic assets: ▪ Trust buildings (labelled as "non-domestic buildings" in figures) ▪ Street lighting ▪ Other unmetered supply (traffic signals, CCTV, bollards etc) ▪ Electric vehicles in the council fleet
Scope 3	All other indirect emissions that are a consequence of the activities of the Council 	• Council business travel • Council leased domestic properties (gas and electricity) • Procurement of goods and services (inc. social care contracts and leisure centres) • Waste disposal and processing • Landfill • Recycling • Incineration • Composting

[1] https://ghgprotocol.org/companies-and-organizations
[2] https://ghgprotocol.org/sites/default/files/standards/ghg-protocol-revised.pdf

The GHG Protocol Accounting and Reporting standard also sets out a series of principles which are intended to guide GHG accounting towards a fair and accurate account of GHG emissions. These are:

- **Relevance**: Ensure the GHG inventory appropriately reflects the GHG emissions of the company and serves the decision-making needs of users – both internal and external to the company
- **Completeness:** Account for and report on all GHG emission sources and activities within the chosen inventory boundary. Disclose and justify any specific exclusions.
- **Consistency:** Use consistent methodologies to allow for meaningful comparisons of emissions over time. Transparently document any changes to the data, inventory boundary, methods, or any other relevant factors in the time series
- **Transparency:** Address all relevant issues in a factual and coherent manner, based on a clear audit trail. Disclose any relevant assumptions and make appropriate references to the accounting and calculation methodologies and data sources used.
- **Accuracy:** Ensure that the quantification of GHG emissions is systematically neither over nor under actual emissions, as far as can be judged, and that uncertainties are reduced as far as practicable. Achieve sufficient accuracy to enable users to make decisions with reasonable assurance as to the integrity of the reported information.

Complying with these principles will provide a very high standard of GHG accounting. However, it is not always possible to account for all emissions and there may be justifiable reasons for excluding sources from the accounted scope of emissions. The principles adhered to for this emissions baseline are given in **Table 2.**

Table 2: Principles for data inclusion and exclusion for the council inventory

Reasons for including data within the GHG boundary	Reasons for excluding data from the GHG boundary
The emission source is under the operational control of the organisation	The emission source has no available dataset and estimation methods will not benefit the decision-making
The quantity of activity data for the emission source is controlled by an organisation/individual within the operational control of the organisation	The emission source clearly belongs to a different organisation and they are better placed to account for it
An organisation/individual has a significant level of control over the emission source even though it occurs outside the operational control	The emission source makes up a very small proportion of overall emissions AND it is very time consuming or difficult to collect activity data

East Renfrewshire Council has taken a wide view on what to include in their council target, including several large scope 3 emissions. This is in line with the 2020 CCC 6th Carbon Budget policies report[3], which states that "Corporations should increase their focus on Scope 3, and even go beyond these measured emissions by addressing actions

[3] https://www.theccc.org.uk/wp-content/uploads/2020/12/Policies-for-the-Sixth-Carbon-Budget-and-Net-Zero.pdf

within Scopes 1-3 that can impact wider systemic changes in the UK and abroad even if there is no measured impact on the corporation's own accounted emissions".

In anticipation of future reporting requirements, East Renfrewshire Council has chosen to include, as far as possible, Scope 3 emissions within the Council's inventory. It should be noted that guidance for public bodies reporting of Scope 3 emissions is not fully developed and as such many local authorities do not include Scope 3 either in their statutory reporting or carbon baselines. In this respect, East Renfrewshire Council is forward-thinking and accepts that measurement of Scope 3 emissions may require future refinement. As a result of this broader approach, East Renfrewshire Council's total carbon emissions may appear greater than other equivalent local authorities where scope 3 emissions are not included.

Including these sources will help prevent "carbon leakage" where services are outsourced (or brought back in-house) in the future. To include emissions from all outsourced scope 3 emissions sources would require the collection of data from contractors who may not be contractually obliged to provide such data and may regard it as commercially sensitive. Some scope 3 emissions sources which are not currently included in the council inventory include emissions from staff commuting, staff home working and activities funded by pensions and investments. If data are obtained on such activities in the future, estimates can be included in the inventory. To ensure time-series consistency, any additions to the inventory should be added in for historical years as well. If historical data is not available, extrapolation or proxy methods could be used.

3 Emissions Baseline

3.1 Data Collection

In order to compile the emissions inventory for the selected baseline years data was collected from across the council. As this is the first iteration of the baseline emissions inventory for East Renfrewshire in the scope outlined above, data flows are not currently established to support the compilation. Therefore, engagement with the following council service areas was required to collect the data with correspondence required for clarifications:

- Finance team as part of the Chief Executive's office
- Corporate and Community Services Department
- Environment Department
- East Renfrewshire Culture and Leisure Limited
- Neighbourhood Services Support Manager – Transport
- Environment Department (Housing Service)
- Maintenance services.

More information on data collection is given in the annex to this report.

3.2 Emission Estimates

2019/20

East Renfrewshire's greenhouse gas emissions for the financial year 2019/2020 were estimated to be **70.2 ktCO_2e**, with the estimate for procurement (or supply chain emissions) accounting for 40.3 ktCO_2e (57%). Emissions for all sectors are presented in **Figure 1** below, and for all sectors but excluding procurement in **Figure 2**.

Note that in these figures the sectors are ordered and coloured according to scope, as outlined in **Table 1**. The sources of emissions in East Renfrewshire are numerous, the largest source is procurement, which is discussed further in Section 4. Other significant sources include municipal landfill (12%), natural gas supply (16%) and electricity use in council buildings (5%).

It should also be noted that procurement emissions, despite being the most significant sector, are likely underestimated as it was not possible to match all council spend codes to emission factors due to lack of clarity on what spend from certain categories involved.

Figure 1: East Renfrewshire baseline year 2019/20

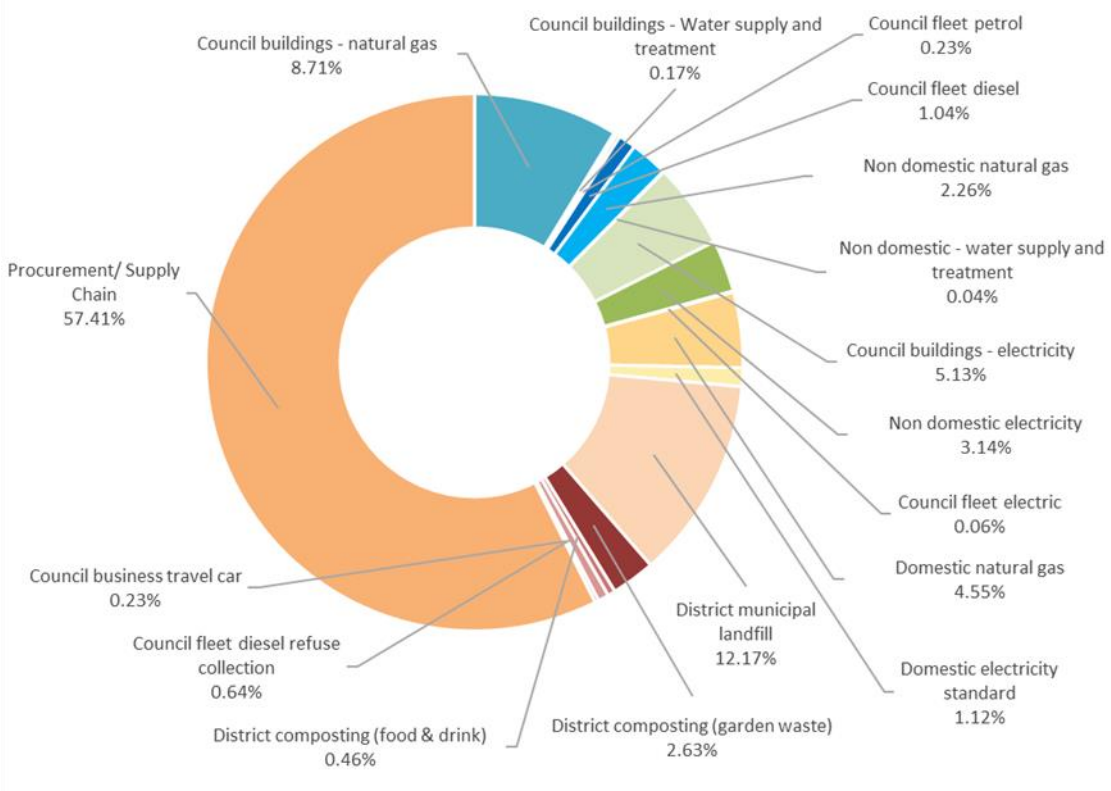
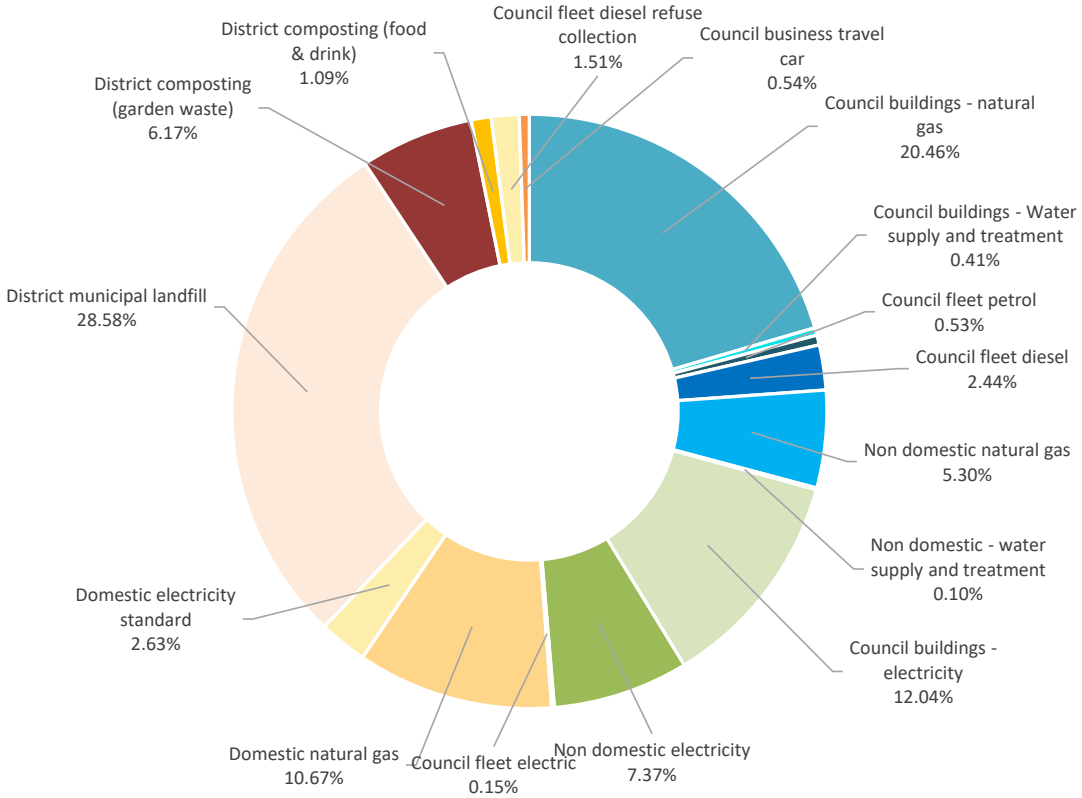


Figure 2: East Renfrewshire baseline year 2019/20, excluding procurement



2020/21

East Renfrewshire Council's greenhouse gas emissions for the financial year 2020/2021 were estimated to be **62.9 ktCO₂e** (compared with 70.2 ktCO₂e the previous year). Procurement emissions have been assumed to be the same in both years, based on the data analysed for 2019/20, because finalised accounts are not yet available for 2020/21.

Table 3 and **Figure 3** show the emissions estimated by sector for 2019/20 and 2020/21. Most sectors do not change significantly between years, aside from district municipal landfill where emissions decreased from 8.5 ktCO2e in 2019/20 to 2.9 ktCO2e in 2020/21. This is due to a reduction in tonnage of waste to landfill from 14.5 kt in 2019/20 to 4.9 kt in 2020/21. It should be noted that the emission estimates presented for 2020/21 represent a year of reduced operation of the council due to the restrictions in place due to the COVID-19 global pandemic. Observed reductions between the two years should therefore be viewed within that context. It is likely that reductions in emissions between the two baseline years can predominantly be attributed to decreased occupation of Council and trust (non-domestic) buildings and decreased activity requiring travel as opposed to any concerted effort to reduce emissions. This is likely the case for the significant reductions seen in council business travel, trust (non-domestic) water supply and electricity.

On the other hand, some reductions are from implemented changes, such as the reductions seen in waste routed to landfill. Waste has instead been diverted to other waste management processes, incineration and recycling, that are not accounted for in the council's baseline. Emissions from incineration at waste-to-energy plants is accounted for in the emission factor used for grid electricity supply. Emissions from recycling are accounted for in the emission factor used for the manufacturing of the recycled product, for whoever buys the resulting recycled products from the plant, these emissions would be counted under their procurement.

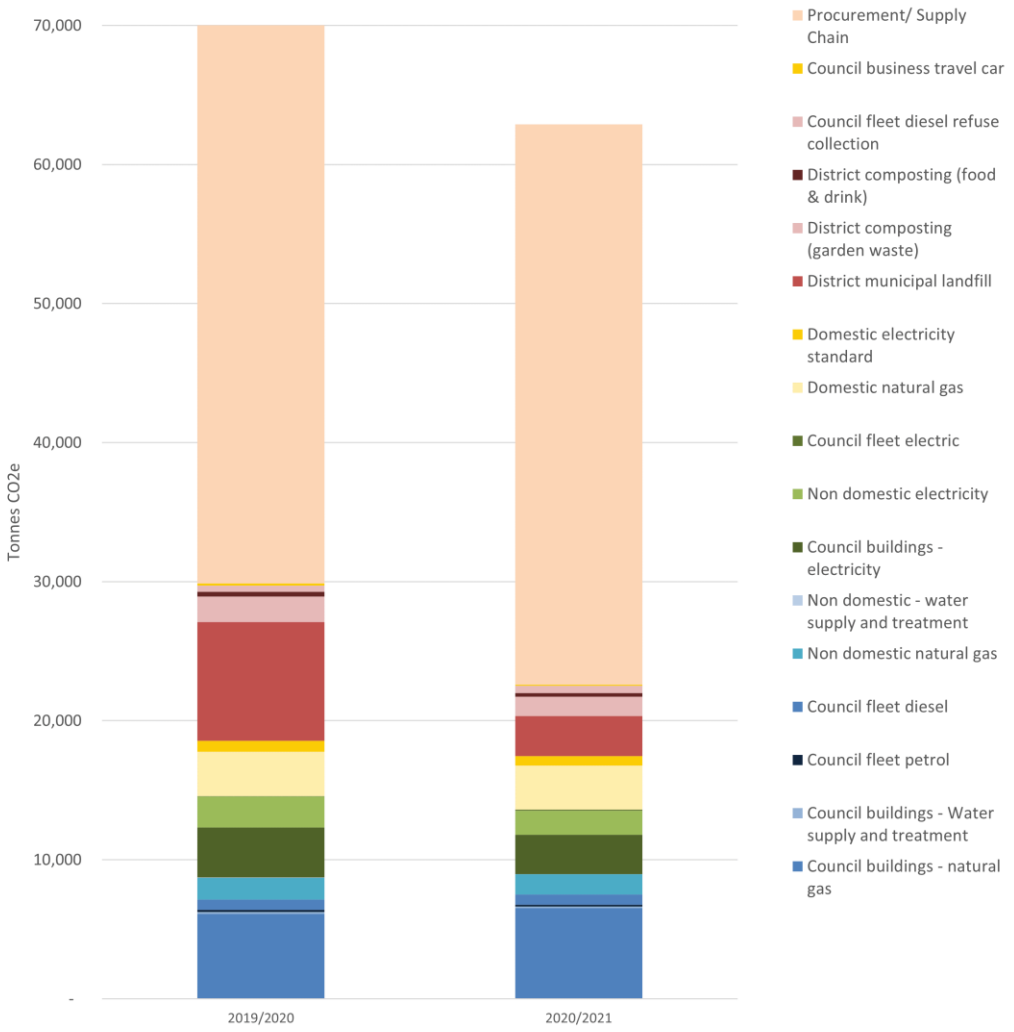
Overall, it is advised that East Renfrewshire Council consider the 2019/20 emissions profile as the more representative baseline of council activities and therefore should be used as the evidence base for any future climate strategy. This is to avoid any assumptions that observed decreases in emissions in 2020/21 will be sustained in the following year.

Table 3: Baseline emission estimates (tCO₂e) and change for each sub-sector in the carbon baseline between 2019/20 and 2020/21

Scope	Sub-sector	tCO₂e			% change in emissions 2019/20 to 2020/21
		2019/2020	2020/2021	change	
Scope 1	Council buildings - natural gas	6,113	6,539	426	7%
	Council buildings - Water supply and treatment	123	91	-32	-26%
	Council fleet petrol	159	146	-13	-8%
	Council fleet diesel	730	726	-4	-1%
	Trust (Non domestic) natural gas	1,584	1,458	-126	-8%
	Trust (Non domestic) - water supply and treatment	29	16	-13	-43%
Scope 2	Council buildings - electricity	3,596	2,827	-769	-21%

	Trust (Non domestic) electricity	2,203	1,729	-475	-22%
	Council fleet electric	44	62	18	41%
Scope 3	Domestic natural gas	3,189	3,185	-4	0%
	Domestic electricity standard	785	689	-97	-12%
	District municipal landfill	8,540	2,861	-5679	-67%
	District composting (garden waste)	1,843	1,401	-442	-24%
	District composting (food & drink)	325	247	-78	-24%
	Council fleet diesel refuse collection	451	532	81	18%
	Council business travel car	163	96	-66	-41%
	Procurement/ Supply Chain	40,278	40,278	n/a	
	Total	**70,156**	**62,884**		

Figure 3: East Renfrewshire council tCO_2e emissions in 2019/20 and 2020/21



It is acknowledged above that comparing local authorities' emissions is challenging due to variations in the scope of reported emissions between Local Authorities. However, it

is felt that it is important to provide some context for current performance and the scale of the challenge to meet net zero.

With this is mind, **Table 4** presents a comparison with total Scope 1 and 2 emissions as reported by Scottish Local Authorities in 2019/20. Data is taken from the Public Bodies Climate Change Reporting 2019/20[4] which analyses data submitted by Public Bodies under the Climate Change (Duties of Public Bodies: Reporting Requirements) (Scotland) Order 2015. While reporting varies between authorities for all emissions' scopes in terms of what they choose to include, it is likely that there is less variation in Scope 1 and Scope 2. Reporting of scope 3 (indirect emissions such as procurement, supply chain, business travel and domestic energy use in social housing), however, is likely to vary significantly and therefore has not been included.

The comparison shows that emissions within East Renfrewshire on a per capita basis are lower than those arising from the operations of Scottish local authorities in total. Given the inconsistencies in reporting outlined here and the further exclusion of Scope 3 emissions altogether, this comparison should be interpreted with that in mind.

Table 4: East Renfrewshire estate emissions within Scotland Local Authority context

tCO_2e	East Renfrewshire	Total – Scotland LAs
Total Emissions (Scope 1 + 2)	14,582.0 *(2.2 % of Scotland total)*	848,569.7
Per Capita emissions[5]	0.15	0.16

To put the challenge of the net zero target into context, **Table 5** presents the land requirement for tree planting (carbon sequestration) that would be required to offset 2019/20 annual emissions from East Renfrewshire Council's estate and operations. This illustrative calculation is built on the assumption that 1 hectare of trees is estimated to capture around 430 tonnes of carbon across its lifespan[6]. Therefore, to offset 2019/20 emissions of 70,156.4 tCO_2e approximately 163 hectares of land would be required. In subsequent years, more land would be needed to offset the council's emissions. For example, a further 163 hectares would be required if the council's annual emissions remained constant at 70,156.4 tCO_2e. 163 hectares equates to the size of 228 football pitches.

Table 5: Land requirement for tree planting offset of baseline emissions

	Emissions (tCO_2)	Estimated Land required (Ha)
Scope 1 & 2	14,582	34
Scope 3	55,574.4	129
Total	**70,156.4**	**163**

[4] Public Duties Climate Change Reporting 2019/20 https://sustainablescotlandnetwork.org/uploads/store/mediaupload/1343/file/SSN_AnalysisReport_2021.03.15.pdf

[5] Population statistics taken from https://statistics.gov.scot/atlas/resource?uri=http%3A%2F%2Fstatistics.gov.scot%2Fid%2Fstatistical-geography%2FS12000011&inactive=false

[6] Broadleaf trees in a temperate climate at 20 years old. Estimated using IPPC methodology (Vol 4, Ch. 4): https://www.ipcc-nggip.iges.or.jp/public/2006gl/vol4.html

It is worthwhile to highlight that this figure relates only to the land requirement for Council emissions, estimated to be only 2-5% of an area's overall emissions[7]. The 2045 net zero target covers total emissions from the geographical area.

[7] Climate Change Committee, Local Authorities and the Sixth Carbon Budget, 2020 https://www.theccc.org.uk/publication/local-authorities-and-the-sixth-carbon-budget/

4 Targeting emissions from procurement of goods and services

4.1 Context

This section focuses on Scope 3 (indirect) emissions arising from the procurement of goods and services. As Scope 3 emissions are generally larger than those arising from Scope 1 and 2 emissions, as is the case for East Renfrewshire, it is getting increasingly important to develop robust evidence bases on which climate action can be based.

A study by the Ellen MacArthur Foundation demonstrated that reducing energy use and moving to renewable energy can reduce our emissions by 55%. The remaining 45% come from the production of the products we use everyday including cars, clothes, buildings and food[8] which are scope 3 emissions.

Whilst it is more challenging to get an accurate picture of scope 3 emissions, as compared to scopes 1 and 2, analysis can show an order of magnitude of emissions that can aid the prioritisation of activity. Action in this space can demonstrate leadership to other large organisations in the Council's geographical area to reduce carbon emissions and play their part in the journey to net zero carbon.

4.2 Low carbon and circular procurement

Low carbon procurement looks to circular economy opportunities (including business models) to increase levels of re-use, remanufacturing and product life extension to reduce the amount of virgin materials used and therefore carbon emissions created.

A first step in low carbon and circular procurement is to identify procurement hotspots i.e. where spend and carbon impacts are high and there are opportunities to reduce carbon through innovative procurement. As a small pilot, this project has undertaken a high-level analysis of the Council's spend combined with DEFRA's sectoral carbon factors[9]. The procurement hotspots, those identified with the highest contribution to emissions from the supply chain, are listed in **Table 6**, alongside opportunities for carbon reduction for each category.

Table 6: Procurement hotspots for East Renfrewshire Council

Procurement type	Category	% of procurement emissions 2019/20	Carbon reduction opportunities
Services	Architectural and engineering services	17 %	Circular economy design principles, planned maintenance schedules, re-use and repair
	Food and beverage serving services	4 %	Reducing avoidable food waste, reducing single use plastics, use of re-usable crockery and cutlery

[8] Completing the Picture, Ellen MacArthur Foundation, 2019

[9] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/404542/Table_13_Indirect_emissions_from_supply_chain_2007-2011.xls

Goods	Computer, electronic and optical products	3 %	Durability, repairability, ability to be remanufactured, end of life re-use/disposal, circular business model
	Furniture	3 %	Durability, repairability, ability to be remanufactured, end of life re-use/disposal, circular business model
	Other food products	3 %	Re-usable packaging, recyclable packaging, circular business model

The services and goods detailed in **Table 6** are examples of those that have some of the highest spend/carbon emissions alongside suggested carbon reduction opportunities that could be included (by using suitable clauses) in procurements documentation. The Scottish Government have sustainable procurement resources[10] already referenced in the Council's Corporate Procurement Strategy. A call out in procurement documentation for innovative carbon reduction approaches could also be used.

This hotspot activity would need to be run alongside a review of the council's procurement pipeline and identification of upcoming procurements that could act as pilots/case studies for reducing scope 3 emissions within the Council.

4.3 Supplier engagement

The Council could also undertake a survey of suppliers to assess their current net zero carbon position and their ambition over the next five years. This gives the Council the opportunity to signal their direction of travel on carbon reduction that ultimately their suppliers will need to meet. Face to face supplier events to communicate carbon reduction ambitions might also be a useful approach.

4.4 Procurement strategy

The Council's Corporate Procurement Strategy[11] has a focus on 'environment and economy' which is a useful hook for low carbon and circular procurement.

The Council's Sustainable Procurement Policy[12] gives useful high-level guidance. It could be developed further in any update to give a more detailed description of what procurers should be seeking in terms of low carbon goods and services. The Greater London Authority Group Responsible Procurement Policy has a section on improving environmental sustainability, which includes reference to low carbon and circular procurement, as an example[13].

4.5 Resources

The Scottish Sustainability Network in partnership with Zero Waste Scotland have a current workstream to support the reduction of public sector scope 3 emissions. This includes training, case studies and tools. Zero Waste Scotland have produced a video explaining circular procurement.

[10] https://www.gov.scot/policies/public-sector-procurement/sustainable-procurement-duty/
[11] Corporate Procurement Strategy 2019 -2022, East Renfrewshire Council
[12] Sustainable Procurement Strategy, East Renfrewshire Council, 2020
[13] GLA Group Responsible Procurement Policy, GLA, 2021

5 Recommendations

The following are the key recommendations for East Renfrewshire Council which aim to support the continuous improvement of the emissions baseline and further establish it as a useful evidence base on which the climate change strategy can be formed.

Recommendation 1: Consider emissions baseline 2019/20 as the evidence base for future climate strategy

Due to the impacts of the COVID-19 pandemic on council activity, it is recommended that the 2019/20 baseline is used as the evidence base on which to inform East Renfrewshire's climate strategy. This ensures that reductions in emissions observed in 2020/21 as a result of national lockdowns are not misrepresented as permanent emission reductions.

Recommendation 2: Engage with the councils' largest suppliers and contractors to better understand scope 3 emissions

As is expected the emissions from the procurement of goods and services are the largest source of emissions from the council's activities. The methodology used in this baseline study gives an indication of the magnitude of the emissions using high level estimates of CO_2e per £ spent. To gain a more accurate representation of emissions from procurement it is recommended that the council:

- Further engage with the finance team to match all spend categories to emission factors to increase the coverage of council spend accounted for within emission calculations
- Improve the accuracy of the emission calculations by engaging with their highest spend sectors to enable suppliers to perform their own carbon baselines. The council may also consider it appropriate to make carbon reporting a requirement as part of supplier contracts.

Recommendation 3: Establish and maintain data flows

This study was informed by a number of key data sources obtained from different departments across East Renfrewshire Council. It is therefore recommended that as follow up to this work that data flows are established within the council which set out the data requirements from council officers across the different departments. This should communicate to all data providers the frequency at which data is required, the preferred format and the reporting period. It is important that this data requirement is established within departments as opposed to with individuals to ensure that institutional memory is retained should individuals move departments/ leave the council.

Recommendation 4: Data set improvements

The period between baseline compilation and data collection for the subsequent year should be utilised to follow up with data providers to discuss further clarification to data sets and to discuss alternative datasets which may allow for improvements in emission calculations. The following datasets have been identified as priority following this baseline compilation due to missing data, anomalies found in the data or because there was significant uncertainty in the data set. Further details can be found in the annex.

- Water supply – Trust buildings and for domestic properties
- Energy consumption from Domestic properties

- Procurement – Council spend

Recommendation 5: Future tracking and reporting of GHG emissions

It will be necessary to produce further GHG inventories of emissions within the scope of this baseline in order to assess realised emission reductions. This will be required at minimum in any target year to verify if the emissions target has been achieved, however it is recommended that inventories are calculated annually to track progress.

Appendix A - Key Terms and Definitions

Activity: an action that leads to emissions of greenhouse gases. Examples include combustion of fossil fuels for heat, generation of electricity and transport, treatment of waste and wastewater, industrial processes. Activity data represent how much of this activity is taking place and has a variety of different units e.g. kWh, passenger kilometres, tonnes of waste etc.

Carbon dioxide equivalent (CO_2e): carbon dioxide equivalent is a measure used to compare the emissions from various greenhouse gases based upon their global warming potential. For example, the global warming potential for methane over 100 years is 25. Therefore 1 tonne of methane released is equivalent to 25 tonnes of CO_2 (measured on a 100-year time horizon). Therefore, CO_2e works as a single 'currency' for greenhouse gases.

Carbon emissions: often used as a shorthand to refer to greenhouse gas (GHG) emissions that are included in the Kyoto Treaty. Carbon dioxide is the most common GHG and other gases can be measured in relation to it (see CO_2e).

Carbon neutral: the balancing of carbon emissions against carbon removals and/or carbon offsetting with the net result being zero (see also net zero carbon).

Carbon reduction: an activity that reduces carbon emissions compared to a baseline scenario.

Climate change: the large-scale, long-term shift in the planet's weather patterns or average temperatures.

Climate change adaptation: action taken to prepare for, and adjust to, both the current effects and projected impacts of climate change.

Climate change mitigation: action taken to reduce the release of greenhouse gas emissions or increase the removal of emissions by enhancing sinks (e.g. increasing the area of forests).

Decarbonisation: usually refers to the electricity sector and refers to reducing the carbon intensity of electricity generated (emissions per kWh) by increasing efficiency of supply or changing the generation fuel mix from fossil fuel to renewables and low carbon sources.

Emission factor: the average emissions of a given GHG for a particular activity. Emission factors are also expressed as the average combination of GHGs for a particular activity, in units of $kgCO_2e$.

Global warming: refers to the recent and ongoing rise in global average temperature near Earth's surface. It is caused mostly by increasing concentrations of greenhouse gases in the atmosphere. Global warming is causing climate patterns to change. However, global warming itself represents only one aspect of climate change.

Greenhouse Gas (GHG): a gas in our atmosphere that absorbs and emits radiation within the thermal infrared range. There are naturally occurring greenhouse gases in our atmosphere which maintain surface temperatures in a range conducive to life. However,

since the industrial revolution, anthropogenic sources of GHGs have increased hugely, leading to 40% increase in atmospheric concentration of carbon dioxide. This is causing increases in surface temperatures and is the main cause of climate change. There are seven GHGs covered by the Kyoto Treaty, but the main ones are carbon dioxide (CO_2), methane (CH_4) and nitrous oxide (N_2O), and action needs to be taken to reduce emissions of these.

Greenhouse Gas Protocol: a joint initiative of the World Resource Institute (WRI) and the World Business Council for Sustainable Development (WBCSD), the GHG Protocol provides global standard frameworks for the measurement and management of greenhouse gas emissions.

Net zero carbon: the balancing of carbon emissions against carbon removals and/or carbon offsetting with the net result being zero (see also carbon neutral).

Project lifetime: anticipated lifetime of an energy efficiency technology or low carbon behaviour, used to calculate lifetime savings.

Removals: CO_2 removals refer to a set of techniques that aim to remove CO_2 directly from the atmosphere by either increasing natural sinks for carbon or using chemical engineering to remove the CO_2, with the intent of reducing the atmospheric CO_2 concentration.

Scope: a way of categorising emission sources in relation to the reporting organisation, used as a way of providing transparency in emissions accounting, making it clear the type of emission source and the level of control of the reporting organisation over the source. Three levels of scope have been defined and used on a global basis.

Sequestration: a natural or artificial process by which carbon dioxide is removed from the atmosphere and held in solid or liquid form. The uptake of atmospheric carbon by plants and the growth of wood or increase of peat volume are examples of biological sequestration. Also see removals.

Appendix B - Constructing the Baseline

Methodology

The modelling described in this report has been undertaken using the Carbon Scenario Model (CSM), an excel based tool that calculates of a carbon footprint for the council's current activities.

The standard approach to estimate a carbon footprint is by multiplying activity by an emission factor associated with the activity being measured (Equation 1).

Equation 1: Emission factor approach for calculating greenhouse gas emissions.

Greenhouse gas emissions = activity data * emission factor

Emission Factor - This is the emissions per unit of activity, which usually comes from scientific literature. It is typically derived from measurement.

Activity data - This is a measure of the activity which is taking place, such litres of fuel used in a vehicle.

Activity data is a quantitative measure of a level of activity that results in greenhouse gas emissions taking place during a given period of time, in this case one year. An emission factor is a measure of the mass of greenhouse gas emissions relative to a unit of activity. For example, estimating CO_2 emissions from the use of electricity involves multiplying data on kilowatt-hours (kWh) of electricity used by the emission factor ($kgCO_2/kWh$) for electricity, which will depend on the technology and type of fuel used to generate the electricity.

The CSM tool has been developed to contain the carbon footprint for East Renfrewshire Council. An 'UpdatingBaseline` sheet in the workbook contains step-by-step instructions on how East Renfrewshire can update the carbon footprint in the future.

Figure 4 shows a screenshot of the CSM, the sheets within the tool are listed below in **Table 7**.

Waste Methodology

The UK Government GHG Conversion Factors for Company Reporting (referred to in this note as 'BEIS carbon factors') provide annual emission factors for UK based organisations accounting for GHG emissions. Waste disposal emission factors are provided in units of kg CO_2e per tonne of waste. For waste sent to landfill, the BEIS carbon factors cover emissions from the collection, transportation, and landfill processes ('gate to grave'). For waste combustion, recycling, and anaerobic digestion, the factors only cover the transport to an energy recovery or materials reclamation facility, not the processing emissions. This means the carbon factors for these activities are the same, as they have the same mode of collection. To account for these emissions in this study, the fuel consumption from the Council's refuse vehicles has been used and allocated to the waste sector to provide a more accurate estimation of emissions.

As the BEIS carbon factors do not include emissions from the waste management and processing, except for landfill emissions, processing emissions for composting have been included in this study using implied emission factors from the UK national GHG

inventory. Implied emission factors are calculated by dividing the final emissions of a source by the initial activity data.

It is noted here that if East Renfrewshire develop a council area wide inventory, efforts will need to be made to avoid double counting between emission inventories should waste processing emissions be in scope of both accounts.

Procurement of Goods and Services methodology

Estimates of emissions for the procurement of goods and services have been made on a tCO_2e basis per £ spent using emission factors from Defra's 'Indirect emissions from the supply chain[14]'. This table can be used to produce indicative estimates of the Greenhouse Gas emissions relating to the production of goods and services purchased by a company. The estimates can only be indicative as they represent the average emissions relating to each product group, and the emission factors relating to specific products within the group may be quite different.

For example, if £1000 is spent on 'textiles' (in purchasers' prices) in 2011, then the table calculates that 963 kilograms of CO_2e were released during all stages of the production of these goods, including raw material extraction, processing, manufacturing, transportation, packaging etc. As a result, these emissions factors are different from the emission factors used for Scope 1 and Scope 2 of the emissions baseline. The factors are for products supplied for consumption in the UK but do take account of the emissions relating to the production of products imported for intermediate consumption i.e. those products that are used by UK industries in the process of supplying products for consumption in the UK. The estimates do not incorporate any allowance for emissions relating to the formation of capital assets, whether in the UK or overseas.

The emission factors used were first developed in 2011 and expressed in a purchasers' price basis in real terms (i.e. the actual sales price in that year including taxes on products and distribution margins). Therefore, emissions in more recent years may have changed because of subsequent changes in the structure and emissions intensity of the supply chain since 2011.

The methodology used to estimate emissions from the supply chain should therefore be considered as a tool to support a first estimate of supply chain emissions (excluding spend from areas where a more detailed approach is appropriate e.g. fuels and electricity) and not as a tool with which to monitor and report specific procurement actions and contracts. The reasons for that are:

1. The categories are broad and allow for little discrimination between different product options and services within a category e.g. they cannot be used to choose a lower carbon option for delivering social care services because the one category covers all the options available to deliver care.
2. Relationships between spend and carbon emissions are complex; for materials and simple products, the relationships are likely to be reasonably accurate because energy and transport make up a larger proportion of the cost; however, for complex products and services, it is likely that each category represents a much larger range of actual emissions.

14 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/404542/Table_13_Indirect_emissions_from_supply_chain_2007-2011.xls

3. The last time that the government produced annual greenhouse gas and carbon dioxide emissions relating to UK consumption was in 2011 (the factor set was produced by the Centre for Sustainability Accounting for the Government); the factors change over time depending on the industry efficiency and carbon intensity of energy use and therefore these are now out of date.
4. An organisation that has calculated Scope 3 supply chain emissions based on spend can only reduce this footprint by reducing spend or by switching spend to a different lower carbon category. But for the public sector, neither of these options is a viable option. Therefore, this part of their footprint remains unamenable to reduction.
5. These factors are designed to look at the upstream Scope 3 emissions of goods and services but some purchasing decisions will also have potential impacts on the Scope 1 and 2 emissions of the organisation e.g. energy use by IT equipment or significant downstream scope 3 emissions e.g. non-reusable products going to landfill. These carbon/unit of spend factors do not enable easy understanding of these additional emissions.

Therefore, to support monitoring and reporting, a more dynamic approach is required, enabling procurers to identify probable hotspots of carbon emissions within their supply chain (which might be related to the spend, or high carbon categories, or volume of materials) but then using a more collaborate approach with suppliers to identify both key sources of emissions within the specific product or service, and opportunities for reducing these and reporting savings.

Figure 4: Screenshot of the CSM tool used to calculate the carbon footprint of East Renfrewshire Council

Table 7: A list of sheets in the CSM

Sheet type	Sheet name	Description
Instructions	Instructions	A description of the tool.
	UpdatingBaseline	Instructions for adding another data for a new baseline year
Tabs to be updated with new data	Activity Data	Activity data is compiled here.
	BaselineBAU	This tab needs to be manually linked the activity data, to calculates emissions.
	Procurement	A detailed breakdown of procurement data.
Output tables and charts	Outputs – flat format	Tables that aggregate the emissions data.
	Charts	Charts created from the tables in the outputs- flat format sheet.
Factors used for modelling	Emission Factors	A list of emission factors used.
	Lists	Lists of categories used in the model.
	Conversion factors	Conversion factors used in the calculations.

Data assumptions and potential improvements

Table 8 lists the data and assumptions that have been used for each source of emissions, together with suggested improvements to data or methods.

Table 8: Data sources and assumptions

Data	Units	Source file	Assumptions/exclusions	Potential improvements
Council's own buildings gas, water, and electricity supply	Gas: kWh Water: m^3 Electricity: kWh	ALL PROPERTIES Non Domestic Last 4 years.xls	Trust properties are included in (and are subtracted from) the gas and electricity totals, but not the water supply. Water treatment is assumed to be 95% of the water supply and is added as a separate emission source.	
Council owned (non-domestic) trust buildings		Trust only energy last 4 years.xls TRUST ONLY WATER CONSUMPTION_2019-2021 - Water Consumption Summary for AT.xlsx	Some water supply meter readings are incomplete, therefore 6 of the 22 trust buildings were excluded from this calculation. Units not provided but assumed to be m^3.	Complete water supply meter readings for all trust buildings and confirmation of units.
Council owned housing: council houses		ERC All Assets Extract APEX Energy Usage.xls	This data is highly uncertain as it is based on Reduced Data Standard Assessment Procedure (RDSAP) modelling rather than meter readings. RDSAP is the process by which Energy Performance Certificates (EPC) are produced for existing homes. Values from this file are assumed to be monthly. Water heating and space heating are assumed to be gas, lighting is assumed to be electric. Electricity use other than for lighting does not seem to be included in this dataset. Water supply and treatment are not estimated.	Confirmation of the timeframe for this data and the split between gas and electricity. Water supply data.
Council owned housing: sheltered housing		Housing Services Complexes Block Lighting Door Entry systems.xls	Water supply and treatment are not estimated.	Water supply data.

Data	Units	Source file	Assumptions/exclusions	Potential improvements
Council vehicle fleet	Petrol/Diesel: litres Electric vehicles: kWh	Fuel 19-20.xlsx and Fuel 20-21.xlsx plus Fuel List March 20-21.xlsx EVCPs Last 4 years.xls APR 21.xlsx	Refuse collection vehicles are identified, and their emissions assigned to the waste sector using a list of registrations and their associated departments provided by Neighbourhood Service Management (APR 21.xlsx). However, this list does not cover all vehicles in the fuel consumption files, so it is possible that some refuse vehicles are currently being accounted for in the council fleet instead of the waste sector.	Complete set of vehicle registration and department data.
Unmetered supply (including streetlighting)	kWh	ERC UMS 201920 Consumption Spend.xls, ERC UMS 202021 Consumption Spend.xls Street lighting electricity use.pdf	Streetlighting makes up most of the UMS total and is split out.	Confirmation that the street lighting electricity use file is up to date and only includes street lighting.
Council business travel	Km travelled	Business travel_MILEAGE & EXP 1920.xlsx Business travel_MILEAGE & EXP 2021 UP TO NOVEMBER 20.xlsx Business_travel_2021_WK36.xlsx Business_travel_2021_WK40.xlsx Business_travel_2021_WK44.xlsx Business_travel_2021_WK48.xlsx Business_travel_2021_WK52.xlsx	All mileage is assumed to be from cars, an average split between petrol and diesel is used.	A breakdown of mileage by mode of transport, including vehicle fuel type.
Waste disposal	tonnes	SEPA waste statistics Communication from Neighbourhood Service Management	Only emissions arising from landfill and composting are included, as other emissions from the processing of recycling or incineration of waste are not within the scope of the council. Instead, only the emissions for transport of the waste is included. These are accounted for using data on the council refuse collection fleet. Based on expert opinion from Neighbourhood Service Management, a split of 85% garden waste and 15% food waste has been applied to composting.	A finalised thorough breakdown of waste disposal for the district.

Data	Units	Source file	Assumptions/exclusions	Potential improvements
Procurement	£	East Renfrewshire Council – Carbon Baseline 1920 2021 Expenditure.xlsx	The values for procurement from 2019/2020 have been also applied to 2020/21, as the expenditure numbers for the latter year have not been finalised. As emission estimates are made on a CO_2e/£ spent basis, a year on year comparison of emissions would not relate to actual emission changes, but will be proportionate to the amount of spend in a given year by category. For this reason this method of accounting is not recommended as a tracking tool, this is further explained in the methodology section included in the Appendix. It should also be noted that only 65% of the total council spend was accounted for within the baseline. The remaining 35% is not accounted for because it could not be allocated to a SIC code.	Finalised expenditure numbers for 2020/2021. Match residual council spend to SIC codes for complete coverage of council spend.

Appendix C - A detailed breakdown of the emissions baseline

Table 9: Details of the data used in the calculation of East Renfrewshire Council's carbon baseline

Data source	Chart category	Units of activity data	Activity data value		tCO_2e	
			2019/2020	2020/2021	2019/2020	2020/2021
Council buildings - electricity	Council buildings - electricity	kWh	11,705,886	10,194,950	3,596	2,827
Council buildings - natural gas	Council buildings - natural gas	kWh	33,231,696	35,568,167	6,113	6,539
Council buildings - water supply	Council buildings - water supply and treatment	m^3	120,707	89,590	42	31
Council buildings - water treatment	Council buildings - water supply and treatment	m^3	114,672	85,111	81	60
Streetlighting	Non domestic electricity	kWh	4,906,455	4,685,134	1,507	1,299
Other UMS electricity	Non domestic electricity	kWh	1,301	5,818	0	2
Council fleet diesel	Council fleet diesel	litres	271,261	269,771	729	725
Council fleet adBlue	Council fleet diesel	litres	4,881	5,997	1	2
Council fleet petrol	Council fleet petrol	litres	69,183	63,204	159	146
Council fleet electric	Council fleet electric	kWh	142,405	221,916	44	62
Council business travel car	Council business travel car	km	899,772	543,774	163	96
Sheltered housing electricity	Domestic electricity standard	kWh	416,613	344,122	128	95
Sheltered housing natural gas	Domestic natural gas	kWh	2,750,692	2,740,696	506	504
Trust buildings electricity	Non domestic electricity	kWh	2,264,046	1,542,960	696	428
Trust buildings natural gas	Non domestic natural gas	kWh	8,612,105	7,929,771	1,584	1,458

Trust buildings – water supply	Non domestic – water supply and treatment	m^3	28,426	16,109	10	6
Trust buildings – water treatment	Non domestic – water supply and treatment	m^3	27,005	15,304	19	11
Council housing electricity	Domestic electricity standard	kWh	2,139,720	2,139,720	657	593
Council housing natural gas	Domestic natural gas	kWh	14,585,028	14,585,028	2,683	2,681
District municipal landfill	District municipal landfill	tonnes	14,561	4,878	8,540	2,861
District composting (garden waste)	District composting (garden waste)	tonnes	10,715	8,146	1,843	1,401
District composting (food & drink)	District composting (food & drink)	tonnes	1,891	1,437	325.2	247.2
Council refuse collection diesel	Council fleet diesel refuse collection	litres	166,975	197,029	449	529
Council refuse collection adBlue	Council fleet diesel refuse collection	litres	7,856	9,243	2	2
Procurement of goods and services	Procurement	kg CO_2e	40,277,934	40,277,934	40,278	40,278

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