GREENHOUSE GAS EMISSIONS INVENTORY AND MANAGEMENT REPORT

Toitū carbonreduce programme

Prepared in accordance with ISO 14064-1:2018 and the Technical Requirements of the Programme

Kāpiti Coast District Council

Prepared by (lead author): Matthew Nabney (Sustainability Advisor)

Dated: 29 November 2023

Verification status: Reasonable for all mandatory scopes of programme and Limited for non-mandatory scopes.

Measurement period: 01 July 2022 to 30 June 2023

Base year period: 01 July 2009 to 30 June 2010

Approved for release by:

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AVAILABILITY

Council does not have a policy on availability and methods of dissemination of this report, however this report will be made publicly available on the Councils website and the elected members will be updated on the outcome of the Carbon audit 2021/2022

REPORT STRUCTURE

The Inventory Summary contains a high-level summary of this year's results and from year 2 onwards a brief comparison to historical inventories.

Chapter 1, the Emissions Inventory Report, includes the inventory details and forms the measure step of the organisation's application for Programme certification. The inventory is a complete and accurate quantification of the amount of GHG emissions and removals that can be directly attributed to the organisation's operations within the declared boundary and scope for the specified reporting period. The inventory has been prepared in accordance with the requirements of the Programme[1], which is based on the Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (2004) and ISO 14064-1:2018 Specification with Guidance at the Organization Level for Quantification and Reporting of Greenhouse Gas Emissions and Removals[2]. Where relevant, the inventory is aligned with industry or sector best practice for emissions measurement and reporting.

Chapter 2, the reduction plan and progress report, forms the manage step part of the organisation's application for Programme certification.

See Appendix 1 and the related Spreadsheet for detailed emissions inventory results, including a breakdown of emissions by source and sink, emissions by greenhouse gas type, and non-biogenic and bio-genic emissions. Appendix 1 also contains detailed context on the inventory boundaries, inclusions and exclusions, calculation methodology, liabilities, and supplementary results.

This overall report provides emissions information that is of interest to most users but must be read in conjunction with the inventory workbook for covering all of the requirements of ISO 14064-1:2018.

[1] Programme refers to the Toitū carbonreduce, Toitū net carbonzero and the Toitū climate positive programmes.
[2] Throughout this document 'GHG Protocol' means the *GHG Protocol Corporate Accounting and Reporting Standard* and 'ISO 14064-1:2018' means the international standard *Specification with Guidance at the Organizational Level for Quantification and Reporting of Greenhouse Gas Emissions and Removals*.

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EXECUTIVE SUMMARY

This is the annual greenhouse gas (GHG) emissions inventory and management report for Kāpiti Coast District Council covering the measurement period 01 July 2022 to 30 June 2023.[3]

Kāpiti Coast District Council has measured and verified its emissions since the year 2009/10 under Toitū's Carbon Reduce Programme. In 2009/10 a target was set to reduce emissions from Council's operations with 80% by July 2022 against the baseline year of 2009/10. In the audit years from 2009 to and including the 2018/19 year, the emissions related to the biological treatment of wastewater (WW) emissions were not measured and included in the emissions inventory, the audit results or used for reporting against the reduction target.

In the 2020 and 2021 inventories over the 2019/20 and 2020/21 years, these WW emissions were estimated and included for the first time, significantly increasing Council's gross total emissions. Previously, other emissions relating to wastewater treatment like energy use and disposal to landfill, had already been included. To enable reporting to the 1 July 2022 80% target in the two previous reporting years, these treatment emissions were excluded, and a 78% reduction was reported against the 80% target. This is a significant emissions reduction achievement and one that Council has been recognised for multiple times. If the WW emissions estimate is backdated from 2020 to 2010, Council's achievement would be 64% emissions reductions, still a significant achievement.

Council's work programme is now focused on two new targets set by Council in June 2023, one of which is the overarching aspirational target to be net zero emissions by 2040. For the other 'further' reduction target of 15.5% set for 2032, a new base year of 2022 has been adopted and success will be measured against the 64% achieved in July 2022. This way, Council continues to tell the 'whole' reduction story since 2010 (including the two base year changes in 2019 and now 2022) and 2009/2010 remains the base year in this audit.

In the audit over the 2022/23-year, there has been a change in Council's usual four largest emissions sources. Direct category 1 emissions from Water and Wastewater treatment remains the largest contributor to Council's gross emissions and indirect category 2 emissions from imported energy remains the second largest emissions source. Apart from these emission sources, there has been a change to the other emission sources compared to 2021/22FY. Natural Gas usage (included in category 1 direct emissions) is now the third largest emissions source (fourth last year), of which the majority is used in the three pools that Council operates. Diesel usage across Council is now the fourth largest emissions source. Disposal of screenings and biosolids from the wastewater treatment plants in Paraparaumu and Ōtaki to landfill is now the fifth largest (third last year) emissions source for Council (and are included in category 4, indirect emissions), which is primarily driven by the improved gas capture rate at the Silverstream landfill.

Even though emissions from imported energy remains the second highest emissions source for Council, the actual emissions have reduced dramatically over the 2022/23 year, mostly due to a reviewed and newly published emissions factor for energy (by the Ministry for the Environment).

Council has had some efficiency gains as well; the renewal of the blowers that aerate the wastewater treatment process has provided a good reduction in energy use in this area.

[3] Throughout this document "emissions" means "GHG emissions".

Table 1: Inventory summary

Category (ISO 14064-1:2018)	Scopes (ISO 14064-1:2006)	2010	2022	2023
Category 1: Direct emissions	Scope 1	7,480.63	2,668.86	2,743.83
Category 2: Indirect emissions from imported energy (location-based method*)	Scope 2	1,749.59	1,225.99	623.56
Category 3: Indirect emissions from transportation	Scope 3	20.54	28.36	43.11
Category 4: Indirect emissions from products used by organisation		3,219.70	682.82	526.45
Category 5: Indirect emissions associated with the use of products from the organisation		0.00	0.00	0.00
Category 6: Indirect emissions from other sources		0.00	0.00	0.00
Total direct emissions		**7,480.63**	**2,668.86**	**2,743.83**
Total indirect emissions*		**4,989.83**	**1,937.17**	**1,193.11**
Total gross emissions*		**12,470.46**	**4,606.03**	**3,936.94**
Category 1 direct removals		0.00	0.00	0.00
Purchased emission reductions		0.00	0.00	0.00
Total net emissions		**12,470.46**	**4,606.03**	**3,936.94**

*Emissions are reported using a location-based methodology. See section.1.2.1 for details.

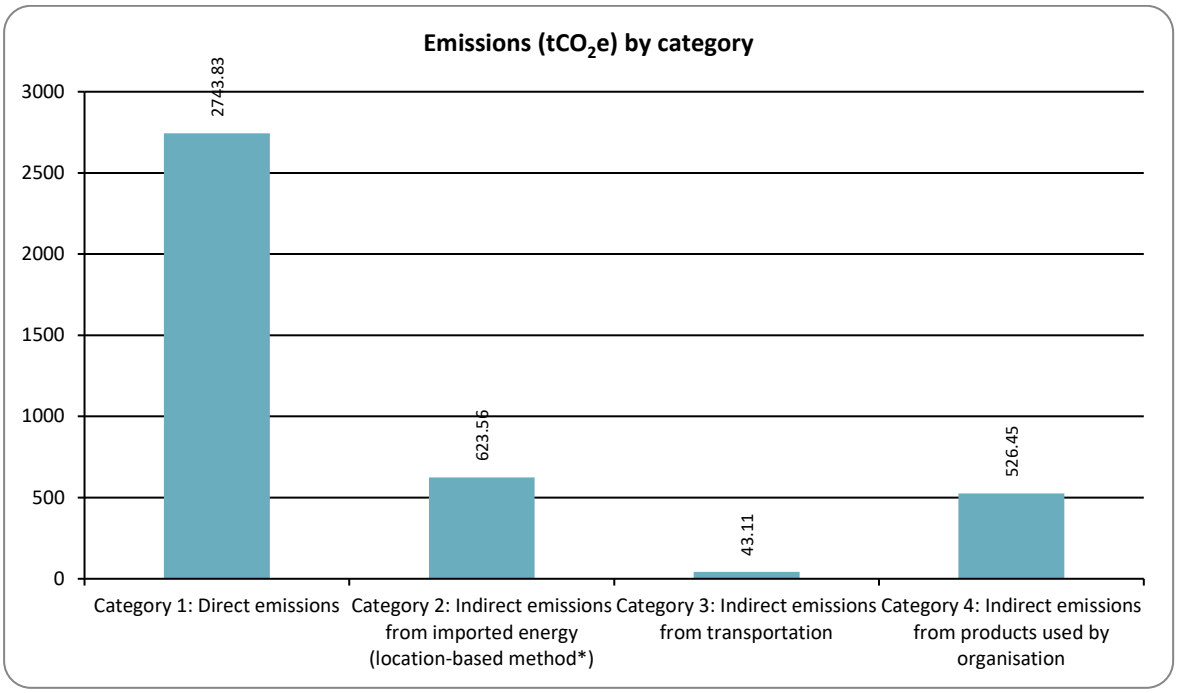

Figure 1: Emissions (tCO_2e) by Category for this measurement period

CHAPTER 1: EMISSIONS INVENTORY REPORT

1.1. INTRODUCTION

This report is the annual greenhouse gas (GHG) emissions inventory and management report for Kāpiti Coast District Council.

The inventory is a complete and accurate quantification of the amount of GHG emissions that can be directly attributed to the organisation's operations within the declared boundary and scope for the specified reporting period. The inventory has been prepared in accordance with the requirements of the measure-step of the Programme, which is based on the Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (2018) and ISO 14064-1:2018 Specification with Guidance at the Organization Level for Quantification and Reporting of Greenhouse Gas Emissions and Removals. Where relevant, the inventory is aligned with industry or sector best practice for emissions measurement and reporting.

This is the second year that the inventory report uses the ISO 14064:2018 category 1 to 5 instead of the ISO 12064:2006 scope 1 to 3. Council currently does not report any emission under category 5 and 6.

However, earlier this year Council estimated its category 3-6 indirect emissions for the first time, using a value-based model provided by Toitū. The 50 highest value contracts were used and translated into estimated emissions by using available emissions factors, some NZ ones but also from the UK. The first estimate resulted in 7,000 tCO_2e (rounded). A work programme is now underway to improve data gathering through contracts for services and products, to develop a robust data capture system which will lead to target setting for categories 3-6 emissions in 2025.

The inventory report and any GHG assertions are expected to be verified by a Programme-approved, third-party verifier. The level of assurance is reported in a separate Assurance Statement provided to the directors of the certification entity.

1.2. EMISSIONS INVENTORY RESULTS

Table 2: GHG emissions inventory summary for this measurement period

Measurement period: 01 July 2022 to 30 June 2023.

Category	Toitū carbon mandatory boundary (tCO_2e)	Additional emissions (tCO_2e)	Total emissions (tCO_2e)
Category 1: Direct emissions	2,743.83 CO_2, Natural Gas distributed commercial, R-407C, Petrol premium, Petrol regular, Diesel, Fertiliser use Nitrogen, Wastewater precalculated (tCO_2e), Wood industry	0.00	2,743.83
Category 2: Indirect emissions from imported energy (location-based method*)	623.56 Electricity	0.00	623.56
Category 3: Indirect emissions from transportation	41.74 Air travel domestic (average), Air travel short haul (average), Private Car default (petrol), Rail travel (national), Taxi (regular), Freight Rigid and Articulated trucks	1.37 Accommodation - Australia, Accommodation hotel/lodge/motor inn	43.11

Category	Toitū carbon mandatory boundary (tCO_2e)	Additional emissions (tCO_2e)	Total emissions (tCO_2e)
Category 4: Indirect emissions from products used by organisation	526.45 Electricity distributed T&D losses, Natural Gas distributed T&D losses, Waste to Landfill Municipal solid waste (CO_2e), Waste landfilled screenings (tCO_2e), Waste to Landfill Sludge (CO_2)	0.00	526.45
Category 5: Indirect emissions associated with the use of products from the organisation	0.00	0.00	0.00
Category 6: Indirect emissions from other sources	0.00	0.00	0.00
Total direct emissions	**2,743.83**	**0.00**	**2,743.83**
Total indirect emissions*	**1,191.74**	**1.37**	**1,193.11**
Total gross emissions*	**3,935.57**	**1.37**	**3,936.94**
Category 1 direct removals	0.00	0.00	0.00
Purchased emission reductions	0.00	0.00	0.00
Total net emissions	**3,935.57**	**1.37**	**3,936.94**
Emissions intensity		**Mandatory emissions**	**Total emissions**
Ratepayer (gross tCO_2e / unit)		0.15	0.15
Operating revenue (gross tCO_2e / $Millions)		33.69	33.71

*Emissions are reported using a location-based methodology. See section.1.2.1 for details.

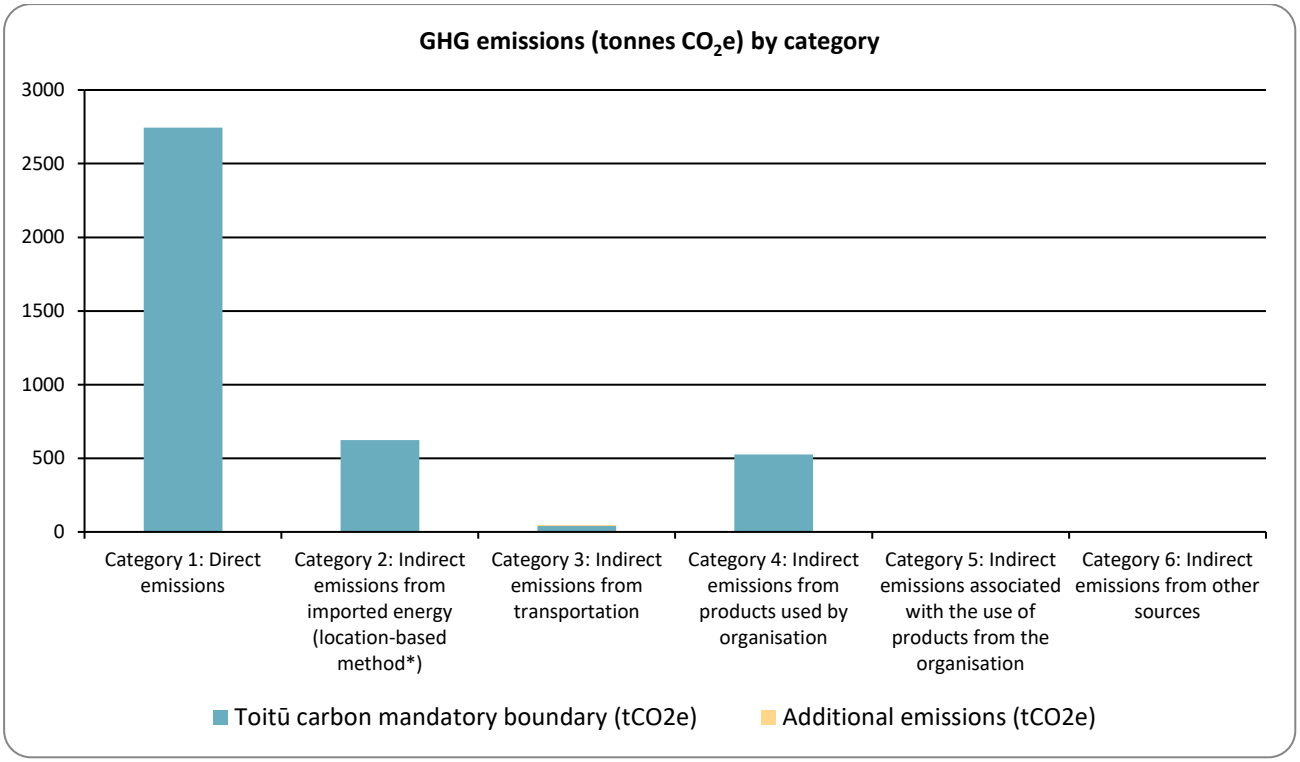

Figure 2: GHG emissions (tonnes CO_2e) by category

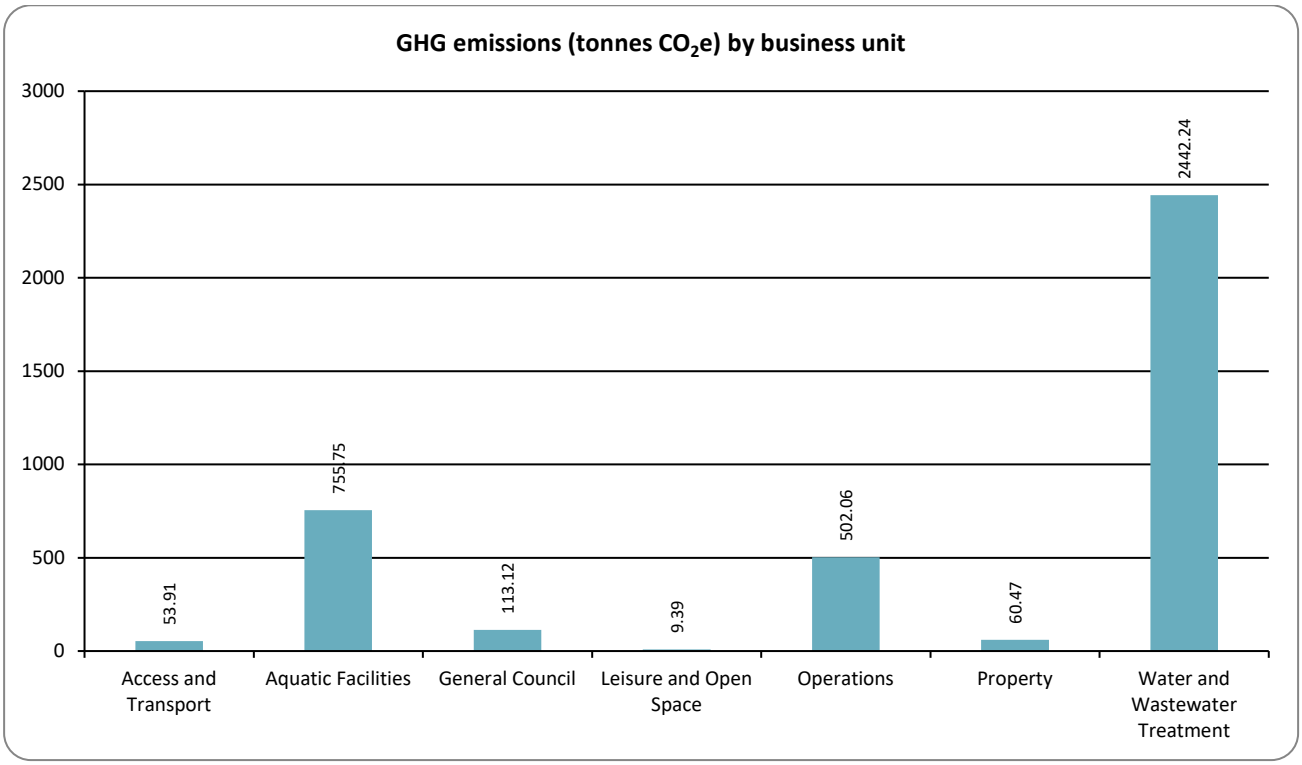

Figure 3: GHG emissions (tonnes CO_2e) by business unit

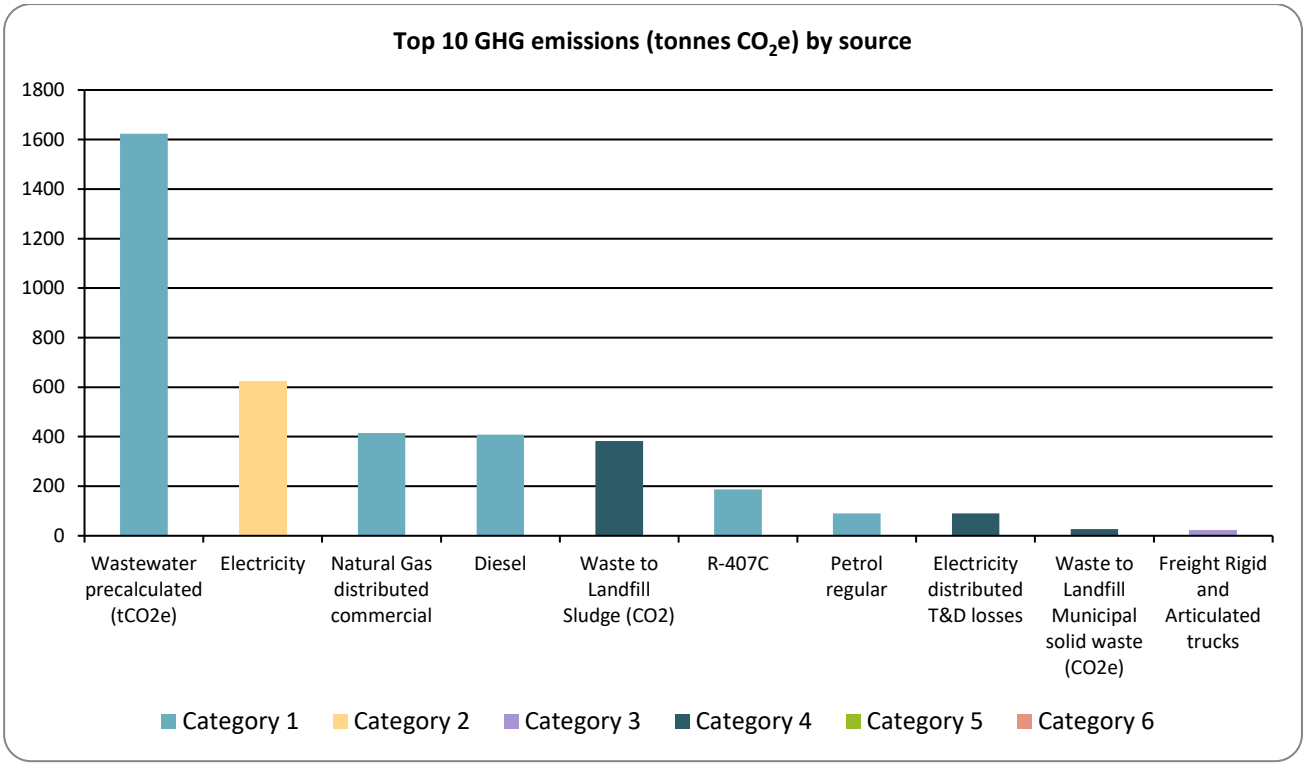

Figure 4: Top 10 GHG emissions (tonnes CO_2e) by source

1.2.1. Dual reporting of indirect emissions from purchased and generated energy

All purchased and generated energy emissions are dual reported using both the location-based method and market-based method. Dual reporting illustrates the role of supplier choice, onsite renewable energy generation and contractual instruments in managing indirect emissions from energy alongside any ongoing energy efficiency and reduction efforts.

Kāpiti Coast District Council aligns to location-based reporting for tracking energy related emissions and reductions over time.

In July 2021 the Council entered a new electricity supply contract with Meridian. The contract with Meridian is for 5 years fixed rates for TOU and 2 years fixed rates for NHH. Switching providers as well as outsourcing management of carbon related data, has allowed for improved and more granular energy usage data.

This information assists with energy efficiency discussions with all Council's activity managers.

To consider further solar power generation, the Council received two feasibility studies in October 2022. One study investigated the feasibility of installing a 'Solar Hub' on Council buildings in the Civic Centre, the other study assessed the feasibility of a Council owned solar farm in Ōtaki. The Solar Hub project at the Civic Centre has been included as one of the projects to be implemented against the new 2032 target and has been included in the draft Long Term Plan 2024 budget. The Long Term Plan budget will be adopted by Council in June 2024.

Council already generates some on-site renewable electricity at several sites. The Council benefits from the following on-site electricity generation systems:

107 kWp Solar PV system at the Ōtaki Wastewater Treatment Plant, commissioned in September 2020. This solar farm is not council owned and is explained in the contractual instruments below.

32.0 kWp solar photovoltaic system located at Paraparaumu Wastewater Treatment Plant, commissioned in June 2015

5.1 kWp solar photovoltaic system located at 2 Ake Ake Place, Ōtaki, commissioned in December 2013

3.8 kWp wind turbine located at 2 Ake Ake Place, Ōtaki, commissioned in December 2013

1.2 kWp solar photovoltaic system at Paekākāriki reservoir (for telemetry)

0.56 kWp solar photovoltaic system at Hautere reservoir (for telemetry)

0.7 kWp solar photovoltaic system at Otaihanga reservoir (3 separate systems for telemetry, flow meter, wide area network radios)

0.2 kWp solar photovoltaic system at Ngārara bush, Tini bush wetland monitoring sites and Upper Muaūpoko stream site (for telemetry).

Apart from the electricity supply contract with Meridian, in 2020 Council entered into a solar energy supply agreement with Energise Ōtaki. To support the installation of the solar farm, that is owned by Energise Ōtaki, Council has also entered into a land lease agreement that enabled the installation of the solar farm next to the wastewater treatment plant in Ōtaki. In the 2022/23 FY the solar farm produced 127,781.28kWH of electricity and the wastewater treatment plant used 93,812kWh (73%) of this.

Meridian has notified Council that there was an error in the calculation used to determine both the kWh produced by the solar farm and energy imported from the main grid to the Ōtaki wastewater treatment plant. Parties involved have provided an updated kWh usage figure that was used in this audit.

The energy supplied by Energise Ōtaki makes up about 40% of the electricity used in the Ōtaki wastewater treatment plant.

Even though Meridian offers renewable energy certificates that Council could use to off-set the indirect emissions of its energy use, Council has decided it does not want to purchase these certificates.

Table 3. Dual reporting of indirect emissions from imported energy

Category	Location-based methodology (tCO_2e)	Market-based methodology (tCO_2e)
Category 1: Direct emissions	2,743.83	2,743.83
Category 2: Indirect emissions from imported energy	623.56	728.63
Category 3: Indirect emissions from transportation	43.11	43.11
Category 4: Indirect emissions from products used by organisation	526.45	526.45
Category 5: Indirect emissions associated with the use of products from the organisation	0.00	0.00
Category 6: Indirect emissions from other sources	0.00	0.00
Total direct emissions	**2,743.83**	**2,743.83**
Total indirect emissions	**1,193.11**	**1,298.19**
Total gross emissions	**3,936.94**	**4,042.02**
Category 1 direct removals	0.00	0.00
Total net emissions	**3,936.94**	**4,042.02**

1.3. ORGANISATIONAL CONTEXT

1.3.1. Organisation description

Kāpiti Coast District Council is the territorial authority for its area. It employed 397 full time equivalent in 2022/23 and is responsible for water and wastewater, local roads (including streetlighting), stormwater management, parks and open spaces, aquatic facilities, libraries, and other community facilities. Council is also a regulator, performing statutory duties such as regulatory compliance, animal management and issuing building and resource consents. Council influences the development of the district through its democratic and strategic planning functions. Council has declared a Climate Change emergency and is embedding climate change planning (emissions reduction and adaptation) throughout its services delivery. Council seeks to measure and reduce its carbon footprint as part of its services delivery.

Commitment to certification

Council has been committed to measuring and reducing its carbon footprint since 2009. In 2019, when Council declared a Climate Change emergency this reinforced the Council's position on continuing to reduce its carbon emissions. The Council is now guided by the Climate Emergency Action Framework that was adopted by Council on 29th July 2021. The framework includes key principles such as to be strong and effective leaders around climate change and to use best practice approaches in all services delivery. This framework will become part of the new Climate & Resilience Strategy that is now under development alongside the Long Term Plan 2024.

That Strategy has a district focus and will include a districtwide emissions target. Council is also co-developing a Regional Emissions Reduction Plan together with the councils in the Wellington Region and Greater Wellington Regional Council, as part of the Wellington Region Growth Framework. This signals Council's continued committed to acting on climate change which includes measuring and reducing its operational carbon emissions.

GHG Reporting

This report delivers on the Councils commitments in the Long Term Plan (LTP) with regard to monitoring and reporting on emissions sources and achieving reductions. It is also delivering on Council's emissions reduction plan.

Climate Change Impacts

Without a global reduction in GHG emissions, global heating will continue to increase leading to a changing climate (e.g., severe storm events, flooding, coastal erosion, sea-level rise, and changes to local biodiversity) These changes will intensify further as heating continues, putting natural and built environments and communities under increasing pressure and risk.

Climate change projections for the Kāpiti Coast district include increases in mean temperature, annual rainfall, of the mean sea level, inundation, as well as significant increases in the frequency and intensity of storm surge events, causing more surface water flooding and impacting the district's groundwater levels. While there is still some uncertainty about the nature and significance of these impacts, including how quickly they will happen, Council is incorporating these projections into its planning processes to provide suitable infrastructure and appropriate regulatory frameworks for this changing future.

1.3.2. Statement of intent

This inventory forms part of the organisation's commitment to gain Toitū carbonreduce certification. The intended uses of this inventory are:

Intended use and users

The inventory report is intended to give an accurate update overview of the operational GHG emissions produced by the Council. The report will be used by officers to understand what the biggest emitting actives are and where efforts should focus to reduce emissions in future years. The report is also publicly available

and shared with Kāpiti Coast District Council's elected members as an update as well as to help inform their governance decisions.

As Council has achieved significant reductions since 2010, the conversations with elected members and staff have focused on planning further reduction options/projects and resetting the reduction targets to reflect what is achievable as well as current best practice. This resulted in Council adopting a new aspirational Long Term target of being net zero emissions by 2040, and a medium-term emissions reduction target for categories 1 and 2 emissions of 15.5% further reductions by 2032, measured against 2022 as baseline year. This means reducing category 1 and 2 emissions further by around 661 tCO_2e. This further emissions reduction target will be achieved by delivering five key projects and business-as-usual services delivery. These projects are discussed in section 2.4. of this report.

Other schemes and requirements

This inventory forms part of the organisation's commitment to gain programme certification. This inventory reports into the Toitū carbonreduce programme.

1.3.3. Person responsible

Sean Mallon (General Manager Infrastructure Services) is responsible for overall emission inventory measurement and reduction performance, as well as reporting results to top management. Sean Mallon (General Manager Infrastructure Services) has the authority to represent top management and has financial authority to authorise budget for the Programme, including Management projects and any Mitigation objectives.

State any other people/entities involved

Matthew Nabney (Sustainability Advisor, Kāpiti Coast District Council)

This is the advisors first carbon audit.

Robb Morison (Data Services Manager, Carbon EES):

Additional data is prepared by Carbon EES who are contracted to provide this service to the Council.

Top management commitment

Council management is committed to the having the organisational carbon audited each year. This is demonstrated though LTP allocation of funding to support the cost of auditing and carbon reduction projects as well as the employment of a dedicated staff member to carry out auditing and project management work for emissions reduction.

Management involvement

The collection of data and preparation of audit materials is done by Carbon EES in collaboration with Council officers. Some data are provided by third party contractors but managed by Council staff. The Sustainability and Resilience manager has approved the report before it is submitted to Toitū for certification.

1.3.4. Reporting period

Base year measurement period: 01 July 2009 to 30 June 2010
For Council's overall gross emissions, the baseline of 2009/10 will remain as agreed with Toitū Envirocare. For the further reduction target of 15.5% (661 tCO_2e) by 2032 for categories 1 and 2, a base year of 2022 will be used. Gross emission reductions at 1 July 2022 with backdated estimated WW-emissions to 2010 were 64%.

Measurement period of this report: 01 July 2022 to 30 June 2023
Reporting will be done annually.

The reporting period for this inventory report is July 2022 - June 2023 to align with the Councils financial year and other reporting cycle that the council undertakes.

1.3.5. Organisational boundary and consolidation approach

Organisational boundaries were set with reference to the methodology described in the GHG Protocol and ISO 14064-1:2018 standards.

Justification of consolidation approach

The GHG Protocol allows two distinct approaches to be used to consolidate GHG emissions: the equity share and control (financial or operational) approaches. The Programme specifies that the operational control consolidation approach should be used unless otherwise agreed with the Programme.

Organisational structure

Figure 5 shows what has been included in the context of the overall structure.

The first section in Figure 5 below shows the organisational structure. The council has no separate organisational entities or subsidiaries. For the purposes of emissions reporting, the organisation has been divided into units that manage key emissions sources as shown in the second section of Figure 5. For emissions sources that are not managed by one group (e.g., air travel) these have been ascribed to 'General Council'. The emissions sources highlighted in green have been identified as being within full operational control of the Council and part of the operational emissions inventory. The emissions sources in dark green are liabilities and are reported but are not part of operational emissions.

Table 4 provides an overview of the purpose and key contacts within each of the business units.

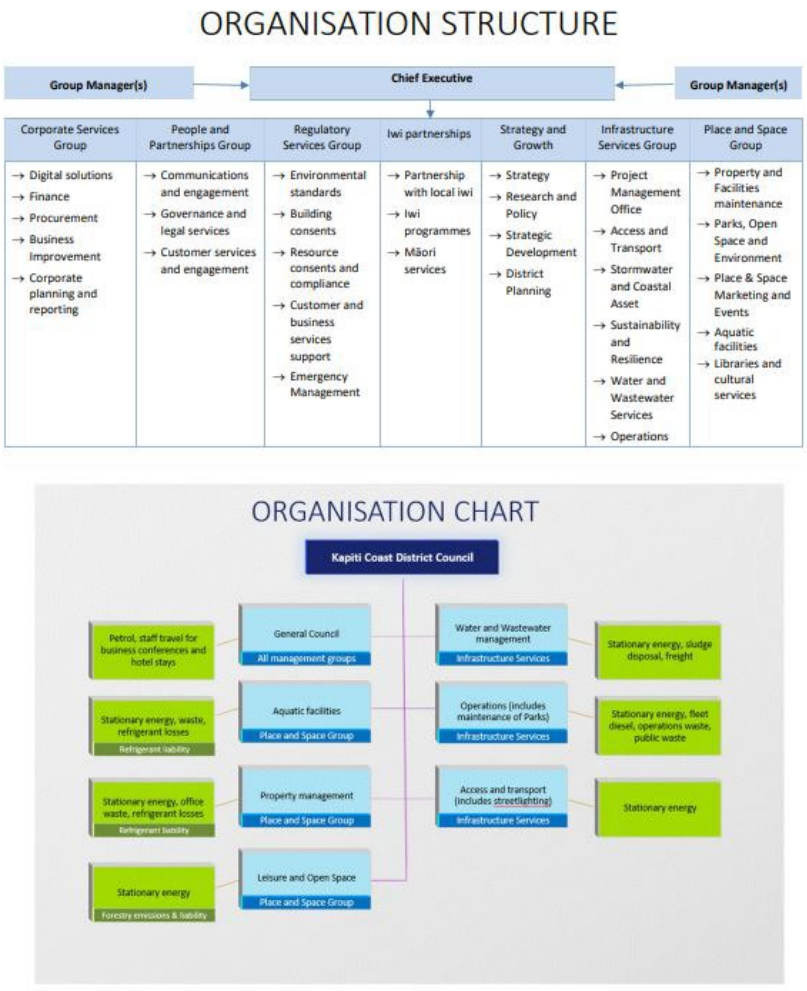

Figure 5: Organisational structure

Table 4. Brief description of business units, sites and locations included in this emissions inventory

Company/Business unit/Facility	Description
Water and Wastewater Treatment	Purpose: Water supply and treatment, treatment and disposal of sewage, management of all associated assets. Contacts: Wastewater Treatment Plant Manager.
Operations	Management of council operations such as public litter bin waste collection, parks maintenance, leak detection and repairs and all water, wastewater and stormwater pumping station maintenance and repairs. Includes management of landfill sites. Contact: Operations Manager.
Property	Purpose: Manages the majority of council-owned buildings including offices, libraries and community halls. Contact: Property and Facilities Manager.
Leisure and Open Space	Purpose: Manages sports facilities, parks and reserves. Contact: Parks, Open Space and Environment Manager.
Access and Transport	Purpose: Manages development and maintenance of local roads, plus streetlighting. Contact: Access & Transport Manager.
Aquatic Facilities	Purpose: Manages the council's three swimming pools. Contact: Aquatics Manager.
General Council	Purpose: Catch-all reporting unit for emissions sources that cut across Council groups and are generally not linked to a specific site – e.g., pool vehicles, flights, taxis etc. Contact: Sustainability Advisor.

1.3.6. Excluded business units

None.

CHAPTER 2: EMISSIONS MANAGEMENT AND REDUCTION REPORT

2.1. EMISSIONS REDUCTION RESULTS

In the 2022/23-year, Council's total gross emissions were 3,937tCO_2e which is a 14.5% reduction (-669tCO_2e) in gross emissions compared to the 2021/22FY. This decrease can largely be explained by the decrease in calculated emissions from electricity, and improved gas capture rates at the Silverstream and Bonny Glen landfills. However, there were increases in direct emissions from several sources which in part offset Council's full potential emissions reduction, including:

- refrigerant use (R407-C) (+97tCO_2e),
- air travel (+18tCO_2e), and
- diesel (+3 tCO_2e).

These increases resulted in an additional 118tCO_2e emissions compared to the 2021/22FY.

Regarding the reduction in emissions from electricity use, for the 2022/23FY the emissions factor used to calculate emissions from electricity led to a 50% reduction in emissions (602tCO_2e reduction), compared to the 2021/22FY. This is due to a new methodology (which applies quarterly emission factors instead of an average over the financial year), and lower emissions factors (due to higher rainfall over the 2022/23FY which increased hydro power capacity).

It is important to note that despite the reduction in calculated emissions from electricity, overall energy use across Council increased by 2.5% compared to 2021/22FY. The following business units across Council used more electricity for the 2022/23FY compared to 2021/22FY, including:

- Aquatics - 2,046,048kWh/ +15%,
- Operations - 991,616kWh/ +6%,
- Property - 807,815/ +4%,
- Leisure and Open Space – 87,766kWh/ +3%, and
- Access and Transport - 777,562kWh/ +2%.

There was a reduction in electricity use for the Water and Wastewater business unit (-2%) which is partially due to the installation of new blowers at the Paraparaumu Wastewater Treatment Plant.

Council's gross emission decrease can also be explained by the improved gas capture rate at the Silverstream landfill (where sludge and screenings are disposed) which has remained at 90% over the 2022/23FY. Also, 100% of Council operational waste is now disposed at the Bonny Glen landfill, which has a gas capture rate of 90%. This change affects Councils category 1 emissions profile.

There was an 8tCO_2e reduction in emissions from petrol use which can largely be explained by the on-going replacement of Council fleet vehicles with electric vehicles.

Emissions from refrigerants (R-407C) increased by 108% to 187tCO_2e compared to 2021/22FY, due to a significant refrigerant loss from the electric heat pump at the Coastlands Aquatic Centre.

Overall, operational transport emissions have increased due to more frequent use of air travel compared to the 2021/22FY.

Further detailed information on the emission results can be found in section 2.2.

Council will continue to work on further emissions reductions and expand efforts to sequestration opportunities and data gathering and reduction options development for categories 3-6 emissions. As a result of the recent change in government there is still significant uncertainty about the Council's future role in water and wastewater treatment and stormwater management. If Council's role changes as an asset owner and services provider, Council's gross emissions may change as a result. If this needs to lead to reconsideration of the reduction targets, then this is likely to be discussed with Council when the outcomes of the audit are discussed in the first half of 2024.

The effect of the amended emissions factor for electricity will for the moment not be considered when reporting on the new further reduction target, as the electricity emissions factor is reviewed every 2 to 3 years and is very much a result of changing weather conditions (hydropower). This may mean that in a couple of years' time the emissions factor is adjusted upwards again which means that Council's electricity emission could increase again. Council's first aim is to continue to physically reduce emissions through delivery of projects.

Table 5: Comparison of historical GHG inventories

Category	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Category 1: Direct emissions	7,480.63	6,371.83	3,979.55	1,352.15	1,086.91	1,872.91	1,401.66	845.21	847.89	920.96	2,977.55	2,725.83	2,668.86	2,743.83
Category 2: Indirect emissions from imported energy (location-based method*)	1,749.59	1,613.95	1,743.71	1,797.63	1,672.21	1,454.64	1,202.71	1,079.02	1,131.17	1,166.38	1,211.67	1,226.74	1,225.99	623.56
Category 3: Indirect emissions from transportation	20.54	25.47	36.32	30.67	31.67	30.62	35.42	50.06	41.10	48.46	45.58	37.85	28.36	43.11
Category 4: Indirect emissions from products used by organisation	3,219.70	3,219.69	3,295.38	3,424.91	3,750.07	3,726.20	2,291.11	796.87	732.03	778.84	864.46	960.36	682.82	526.45
Category 5: Indirect emissions associated with the use of products from the organisation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Category 6: Indirect emissions from other sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total direct emissions	**7,480.63**	**6,371.83**	**3,979.55**	**1,352.15**	**1,086.91**	**1,872.91**	**1,401.66**	**845.21**	**847.89**	**920.96**	**2,977.55**	**2,725.83**	**2,668.86**	**2,743.83**
Total indirect emissions*	**4,989.83**	**4,859.11**	**5,075.41**	**5,253.21**	**5,453.95**	**5,211.46**	**3,529.25**	**1,925.95**	**1,904.29**	**1,993.68**	**2,121.71**	**2,224.95**	**1,937.17**	**1,193.11**
Total gross emissions*	**12,470.46**	**11,230.94**	**9,054.97**	**6,605.36**	**6,540.86**	**7,084.38**	**4,930.90**	**2,771.15**	**2,752.18**	**2,914.64**	**5,099.26**	**4,950.79**	**4,606.03**	**3,936.94**
Category 1 direct removals	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Purchased emission reductions	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total net emissions	**12,470.46**	**11,230.94**	**9,054.97**	**6,605.36**	**6,540.86**	**7,084.38**	**4,930.90**	**2,771.15**	**2,752.18**	**2,914.64**	**5,099.26**	**4,950.79**	**4,606.03**	**3,936.94**
Emissions intensity														
Ratepayer (gross tCO_2e / unit)	0.52	0.46	0.37	0.27	0.27	0.29	0.20	0.11	0.11	0.12	0.20	0.20	0.18	0.15
Ratepayer (gross mandatory tCO_2e / unit)	0.52	0.46	0.37	0.27	0.27	0.29	0.20	0.11	0.11	0.12	0.20	0.20	0.18	0.15
Operating revenue (gross tCO_2e / $Millions)	222.29	203.75	146.21	99.66	92.91	104.04	70.44	38.04	32.80	35.40	47.77	50.47	43.94	33.71
Operating revenue (gross mandatory tCO_2e / $Millions)	222.28	203.74	146.19	99.64	92.90	104.02	70.42	38.02	32.79	35.37	47.76	50.45	43.93	33.69

*Emissions are reported using a location-based methodology. See section 1.2.1 for details

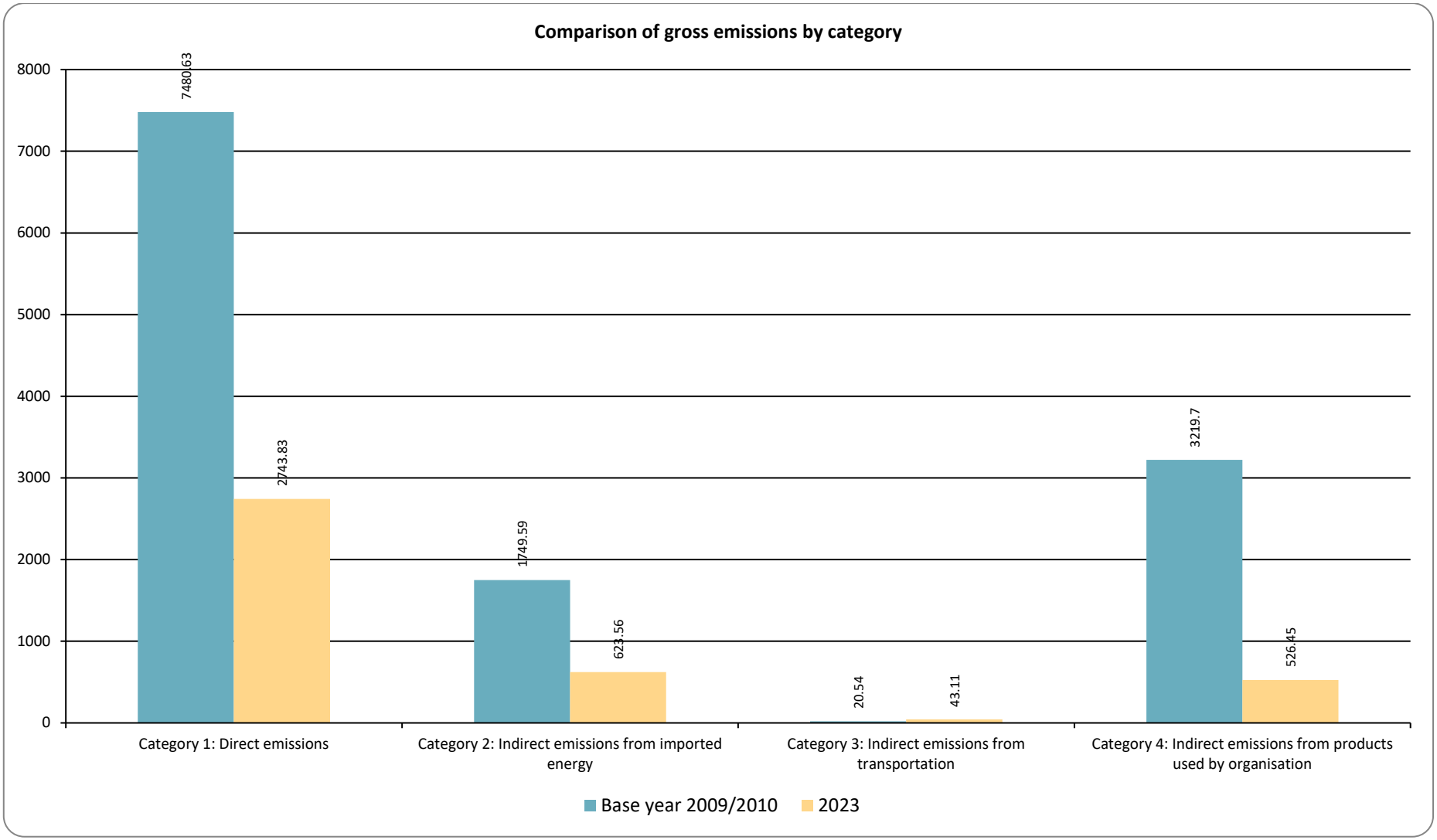

Figure 6: Comparison of gross emissions by category between the reporting periods

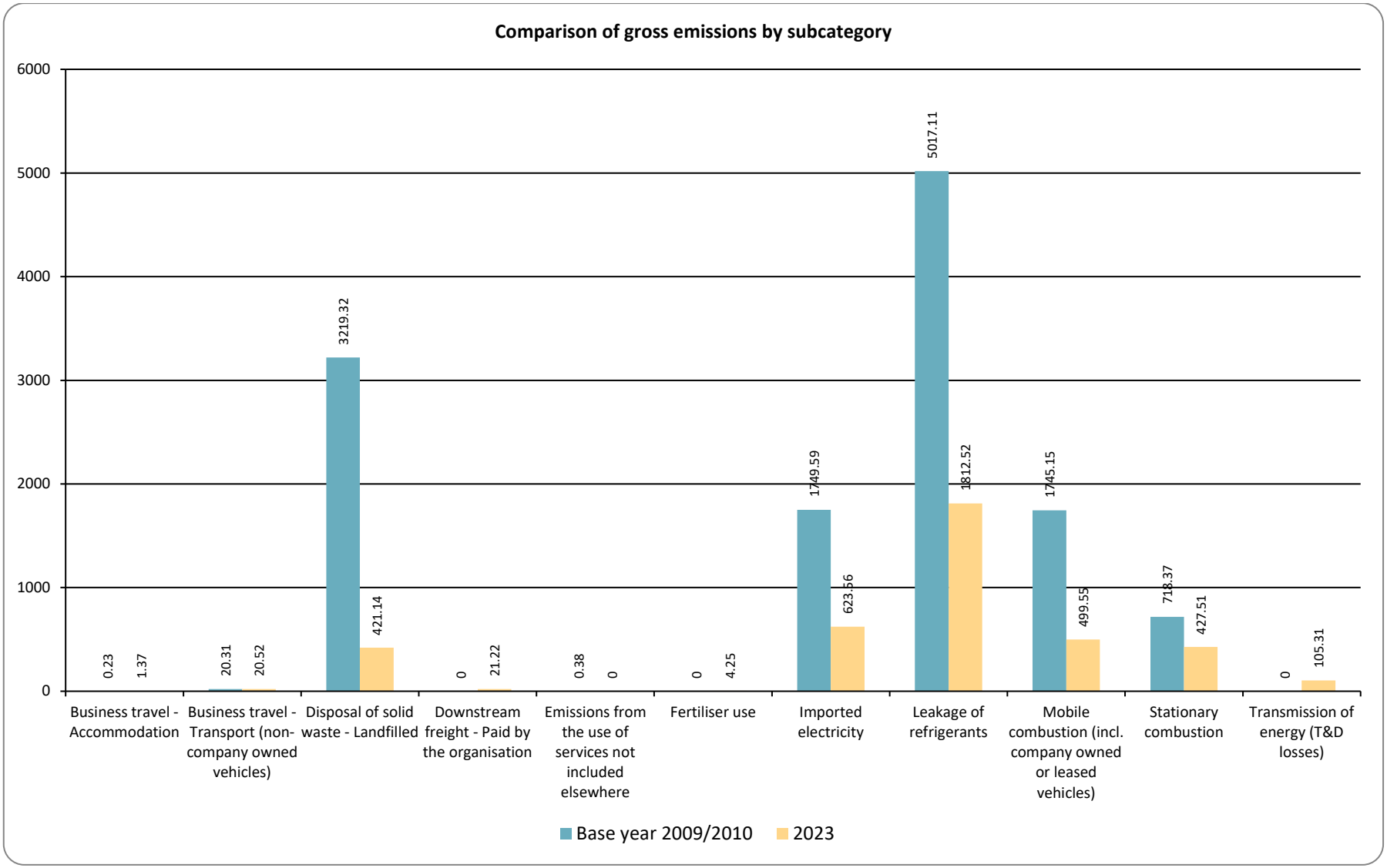

Figure 7: Comparison of gross emissions by subcategory between the reporting periods

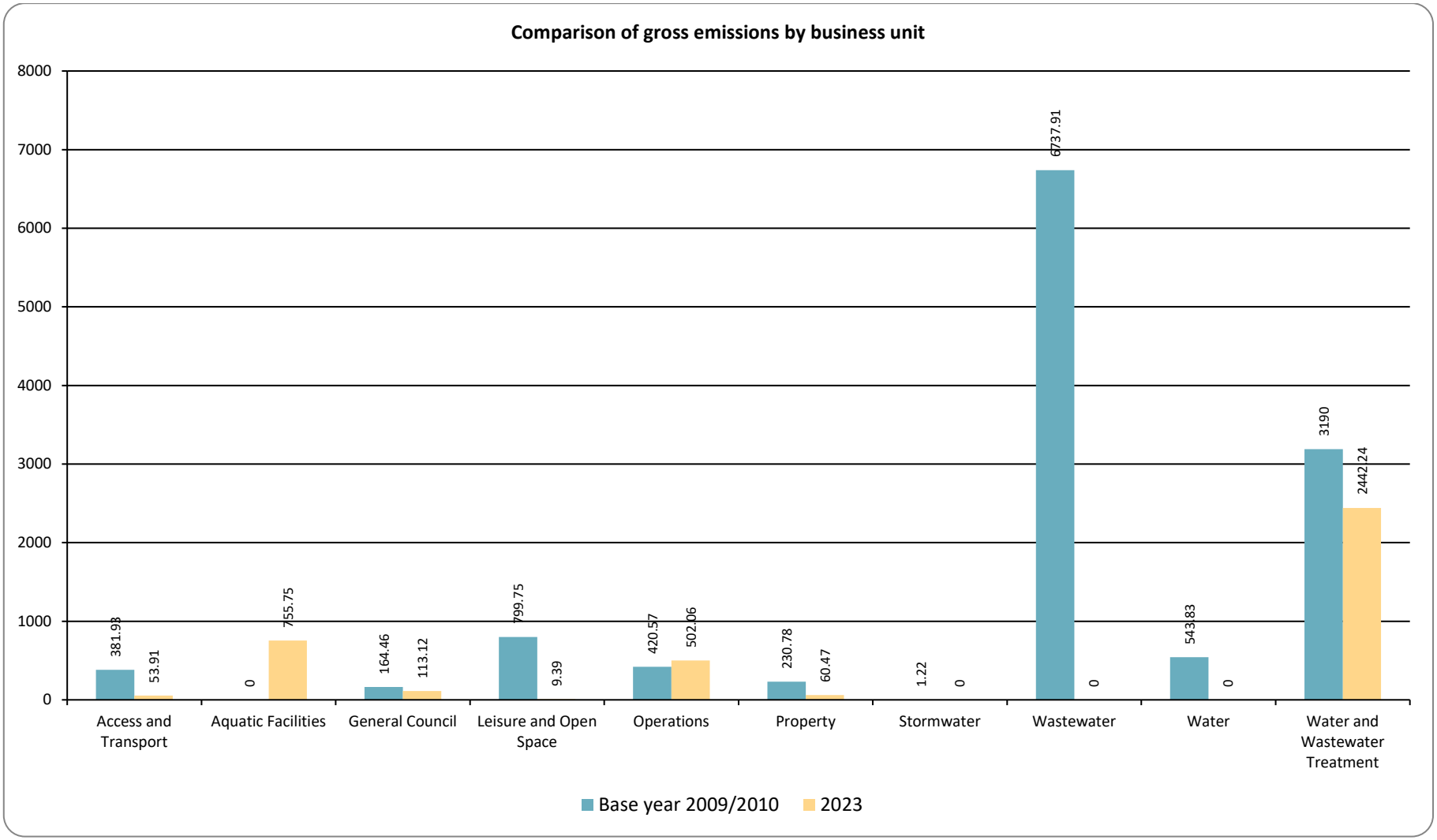

Figure 8: Comparison of gross emissions by business unit between the reporting periods

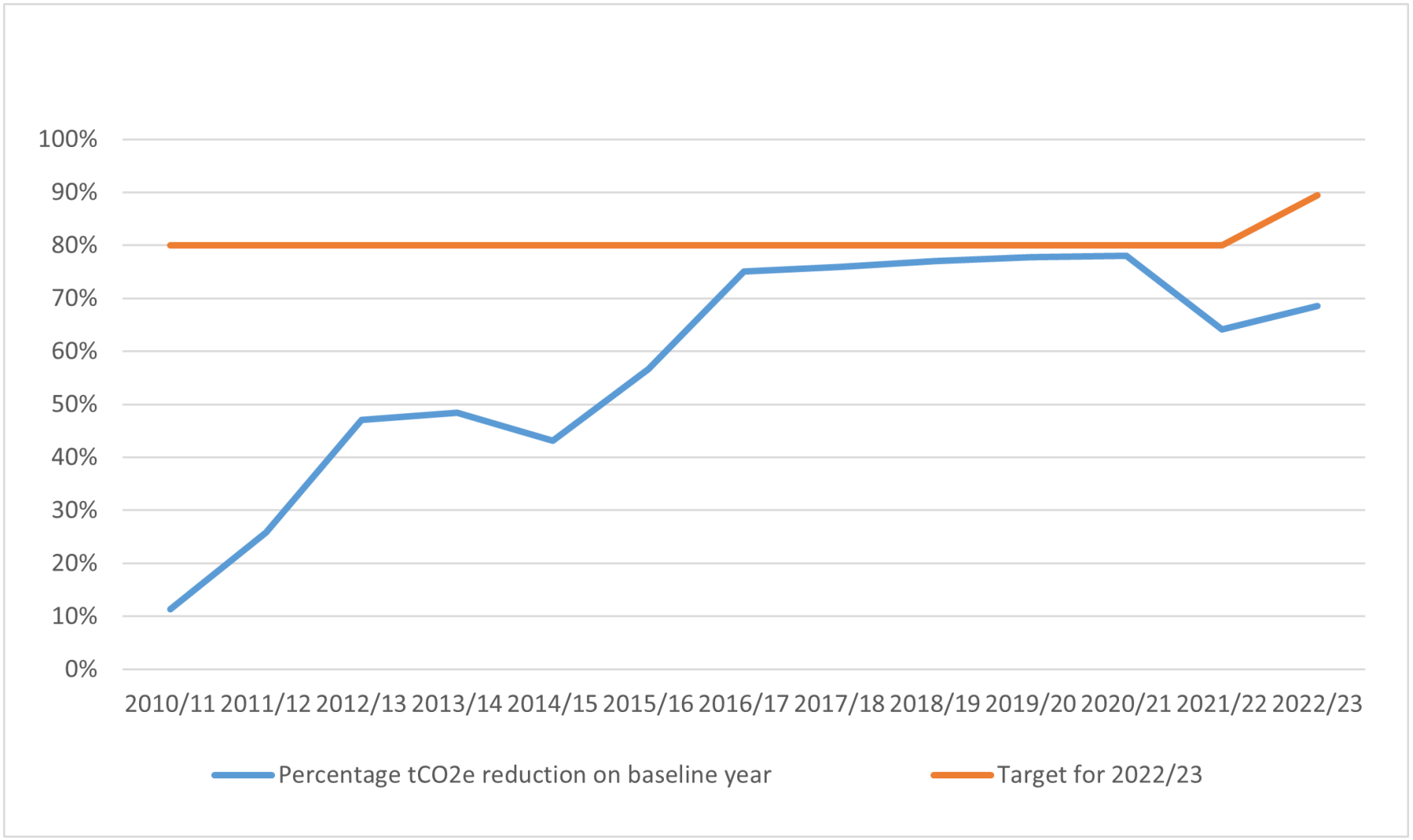

Figure 9: Performance against target since base year

Table 6. Performance against plan

Target name	Baseline period	Target date	Type of target (intensity or absolute)	Current performance (tCO_2e)	Current performance (%)	Comments
80% reductions of emissions from the 2009/10 baseline year (12,497.82tCO_2e) by 2021/22	2009/10 Financial year.	2021/22	Absolute	2852.60 tCO_2e	77%	This target is reported excluding wastewater process emissions as they are not included in the baseline year or when this target was set. Wastewater emissions are included in the inventory report and are only excluded when measuring against this target.
Further 15.5% reduction of category 1 and 2 emissions from 2022 baseline year	2022	2032	Absolute	3,378.4 tCO_2e	On target	This further emissions reduction target was adopted in June 2023. If this target is achieved in 2032 Council will have reduced emissions by 89.5% (64% achieved in July 2022). This is reflected in the graph above from 2022 onwards. This is the first reporting period that the target has been included in the 22/23FY audit report.

2.2. SIGNIFICANT EMISSIONS SOURCES

Significant sources

Water and Wastewater treatment:

Councils most significant emissions source is the treatment of water and wastewater.

Emissions reported from our Wastewater Treatment Plants (WWTP) include:

- Electricity use
- Wood pellets for drying biosolids
- Freight of sludge, dried biosolids and screenings
- Emissions for disposal to landfill, and
- Pre-calculated emission from the biological wastewater treatment process.

Water NZ collaborated with local councils and treatment experts to develop a model to estimate Methane and Nitrous Oxide process emissions more accurately and that would be acceptable for all local councils to use to estimate these emissions. This model was released late September 2021 and was used to estimate the biological treatment emissions for the 2020/21 inventory. Using the new Water NZ model, the estimated emissions from wastewater treatment in the 2020/21 year were 1,623 tCO_2e.

For the year 2022/23 it was decided again to use the pre-calculated emissions used from the 2020/21 as the year-on-year change is assumed to be minimal. Council proposes to pre-calculate these emissions again in 2024 for the next audit year.

Electricity:

Indirect emissions from electricity use are 624tCO_2e which is 15.8% of Council's gross emissions and the second biggest emissions source for the organisation. This emissions figure is a 50% reduction compared to 2021/22FY. However, as highlighted in Section 2, the reduction in emissions from electricity is primarily driven by the emissions factor as Councils overall electricity use increased by 2.5%.

Natural gas:

Natural gas is Council's third largest emissions source with 415tCO_2e which is 10.5% of Council's total gross emissions.

Diesel:

Diesel is Council’s fourth largest emissions source with 408tCO_2e which is 10.4% of Council’s total gross emissions.

Waste sludge to landfill:

Sludge and screening disposal is Council's fifth largest emissions source with 383tCO_2e which is 9.7% of Council's total gross emissions.

During the 2022/23 landfill gas capture (LFG) at the Silverstream landfill improved to 90% capture for the entire reporting period (this is up from an average of 90% in the first 6 months then an average of 81.5% for the last half 2021/22FY).

This resulted in a 21% (104tCO_2e) decrease in emissions from this category in 2022/23, compared to 2021/22FY.

Activities responsible for generating significant emissions

In alignment with the above paragraph the wastewater treatment activity is Council's highest emitting activity, it includes both the treatment process and the disposal of sludge and screening to landfill.

Of the total electricity emissions, 55% (342tCO_2e) are related to energy used in drinking water and wastewater treatment. Aquatics also accounts as a large energy user with 20% of total energy emissions (122tCO_2e).

Aquatics accounts for the majority of natural gas use and is as such responsible for 99% (410tCO_2e) of total gas usage emissions.

Influences over the activities

As further discussed in section 2.4, Council will implement five key projects by 2032 to further reduce category 1 and 2 emissions by 15.5%. These projects include:

- the replacement of the gas condensing boilers at the Ōtaki and Waikanae pools with electric heat pumps
- the continued renewal of the Council vehicle fleet with EVs
- the Civic Solar Hub Project – installing Solar PV panels on the buildings in the civic precinct and
- the introduction of an electric rubbish truck for public bin collections.

These projects are planned for the 2024 and 2027 Long Term Plans. Council will continue to improve energy efficiency in its services delivery. However, as Council has continued to grow as an organisation over the past year and has occupied an additional building, electricity usage has increased accordingly.

Significant sources that cannot be influenced

Waste sludge to landfill:

Population growth and consequently increased volumes of wastewater that require treatment is the largest driver behind increasing emissions into the future from this activity.

Council will continue to maintain and renew its assets to improve energy efficiency.

The landfill of choice for disposal of sludge and screenings also influences Council's emissions from this activity, as gas capture rates at the landfills are different and as such directly influence Council's emissions in turn. Council is dependent on out of district landfills for disposal and has for that reason no influence over the gas capture rate efficiencies.

2.3. EMISSIONS REDUCTION TARGETS

Council is committed to managing and reducing its emissions in accordance with the Programme requirements. Table 7 provides details of the emission reduction targets to be implemented. These are 'SMART' targets (specific, measurable, achievable, realistic, and time-constrained).

As discussed earlier in this report, the 80% target deadline was in July 2022 and in June 2023, Council set new reduction targets, which are now the targets that this inventory is reporting against. The new further emissions reduction target of 15.5% was calculated against a new baseline of 2022. Both targets are based on services delivery, in collaboration with Toitū.

By 2021/2022, Council had achieved a 77% reduction against the previous 2009/2010 baseline, although the original target of an 80% reduction was not met, this is a significant reduction of 9,640 tCO_2e from the base year.

In July 2022, Council had achieved 64% reductions since 2010, which was calculated by back dating the estimated WW-emissions to 2010.

The year covered in this inventory report was the first year for the new further reductions target of 15.5% by 2032, measured against the 2022 baseline year. Council is confident that the further 15.5% reduction target can be achieved within the projects planned and discussed in this report.

Table 7. Emission reduction targets

Target name	Baseline period	Target date	Type of target (intensity or absolute)	Categories covered	Target		KPI	Responsibility	Rationale
To reduce total gross emissions by 80% from baseline year	2009/10 Financial year	2022	R6.4a	Categories 1, 2,3 and 4	80%	12497.81 tCO_2e is the baseline year amount, an 80% reduction from baseline is 2,499.56 tCO_2-e	2,499 tCO_2e	Sustainability Advisor	The target was calculated into 2009/10 based on services delivery in collaboration with Toitū.
To achieve a further mid-term target to further reduce gross emissions by 15.5% from new baseline year	2022	2032		Categories 1 and 2	16%	661 tCO_2e	661 tCO_2e	Sustainability Advisor	The target was calculated based in 2021/22-year services delivery and audit outcome, in collaboration with Toitū.

2.4. EMISSIONS REDUCTION PROJECTS

In order to achieve the reduction targets identified in Table 7, specific projects have been identified to achieve these targets, and are detailed in Table 8 below.

Table 8. Projects to reduce emissions

Objective	Project	Responsibility	Completion date	Potential co-benefits	Potential unintended consequences	Actions to minimise unintended consequence
Reduce natural gas use and improve heating efficiency	Progress the Ōtaki pool fuel switch to a heat pump and energy efficiency improvements project (currently in the 2021 Long Term Plan), achieved by 2032. Plan for a similar project for the 2027 Long Term Plan period, for the Waikanae pool.	Aquatics Manager, PMO Manager	2025-2031	Eliminating or reducing gas used in the pools, gas prices are expected to rise so this will help to keep operational cost lower in the pools in the longer term.	Heat pumps present a refrigerant liability, if maintenance is not carried out regularly there is a risk that losses could occur.	Maintenance schedules will be reviewed and carried out in line with guidance from professionals.

Objective	Project	Responsibility	Completion date	Potential co-benefits	Potential unintended consequences	Actions to minimise unintended consequence
Expand renewable energy generation	Create a 'Solar Hub' by installing solar panels on the roofs of council-owned buildings at the Civic centre. This project will be funded as part of the 2024 and 2027 Long Term Plans.	Sustainability Advisor, PMO officer		Energy use savings and power supply resilience.	None anticipated	n/a
Reduce vehicle fleet emissions	Continue to decarbonise the Council fleet (KPI is 12 EV/PHEV vehicles by end of 23/24 year). The current Council vehicle fleet includes 8 full EV's and 3 plug-in hybrids.	Sustainability Advisor, Operations Manager	Ongoing	Fuel budget savings	None anticipated	n/a
Reduce vehicle fleet emissions	Purchase an EV Truck for public rubbish bin collections.	Sustainability Advisor, Operations Manager	2024/25 or 2025/26	Fuel budget savings	None anticipated	n/a
Other reductions through business-as-usual delivery	Continue the process to update various aspects of Council's business-as-usual service delivery such as, the renewal of non-LED streetlights with LED's, use different fertilisers, consider electric lawnmowers, undertake a review of the staff travel policy to minimise flights and to maximise the use of public transport wherever possible.	Sustainability Advisor and Activity Managers	Ongoing	Result in financial savings and fuel budget/ electricity use savings	None anticipated	n/a
Reduce company-wide electricity usage and Energy Efficiency projects	Use the Carbon EES data management system to get better insights into electricity use and where savings can be made. Provide energy efficiency studies to building managers to implement further energy saving measures.	Sustainability Advisor and Activity Managers	Ongoing	This will also result in a financial savings	None anticipated	n/a

Table 9 highlights emission sources that have been identified for improving source the data quality in future inventories.

Table 9. Projects to improve data quality

Emissions source	Actions to improve data quality	Responsibility	Completion date
Category 3-6 emissions	Council will undertake a work programme to establish data requirements through contracts and procurement to start measuring and reporting category 3-6 emissions. Council must start reporting and setting a reduction target for these emissions by 2025.	Property Manager, Aquatics Manager, Operations Manager	2025
Electricity use	Council will continue to monitor electricity use for further changes to power consumption.	Property Manager, Sustainability Advisor	30/06/2024
Accommodation	Work with Council Executive Assistant team to develop a process to improve accommodation data collection from flight invoicing.	Sustainability Advisor	30/06/2024

The emissions inventory chapter identified various emissions liabilities (see GHG Storage and liabilities section). Table 10 details the actions that will be taken to prevent GHG emissions from these potential emissions sources.

Table 10. Projects to prevent emissions from liabilities

Liability source	Actions to prevent emissions	Responsibility	Completion date
Refrigerants	Review maintenance schedule and renewals plan to reduce leak risks.	Property Manager, Aquatics Manager	Ongoing
Forestry	N/A Council owned forests are not commercial, they are mostly native planted forests or rejuvenating areas. There is very little that can be done to reduce risk of loss.	Team Leader Environment and Ecological Services	Ongoing

2.5. STAFF ENGAGEMENT

Councils carbon reduction commitments are communicated to staff through annual reporting and the intranet. Key staff and operational business units are engaged by the Sustainability and Resilience team to work on projects to help reduce council's emissions. The inventory report is used to inform project planning discussions.

2.6. KEY PERFORMANCE INDICATORS

The Council monitors its progress on emissions reduction through the two KPIs below:

1. Emissions per ratepayer unit: The total number of ratepayer units this financial year 22/23 was 25,592 and the emissions per ratepayer unit were 0.15tCO_2e.
2. Emissions per million of Operating Revenue: This years operating revenue was $116.8 million and the emissions per million of Operating Revenue was 33.71tCO_2e.

2.7. MONITORING AND REPORTING

The council's Sustainability Advisor is primarily responsible for monitoring and reporting on council's targets however the work involved in achieving the emission reduction requires input in action from activity managers and staff across the organisation.

Reporting is done annually through completing an emissions inventory report and the emissions reduction plan is updated every three years.

APPENDIX 1: DETAILED GREENHOUSE GAS INVENTORY

Additional inventory details are disclosed in the tables below, and further GHG emissions data is available on the accompanying spreadsheet to this report (Appendix1-Data Summary Kāpiti Coast District Council.xls).

Table 11. Direct GHG emissions and removals, quantified separately for each applicable gas

Category	CO_2	CH_4	N_2O	NF_3	SF_6	HFC	PFC	Desflurane	Sevoflurane	Isoflurane	Emissions total (tCO_2e)
Stationary combustion	413.76	6.54	7.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	427.51
Mobile combustion (incl. company owned or leased vehicles)	489.47	1.75	8.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	499.55
Emissions - Industrial processes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Removals - Industrial processes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Leakage of refrigerants	1,625.74	0.00	0.00	0.00	0.00	186.78	0.00	0.00	0.00	0.00	1,812.52
Treatment of waste	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Treatment of wastewater	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Emissions - Land use, land-use change and forestry	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Removals - Land use, land-use change and forestry	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fertiliser use	0.00	0.00	4.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.25
Addition of livestock waste to soils	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Addition of crop residue to soils	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Addition of lime to soils	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Enteric fermentation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Open burning of organic matter	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electricity generated and consumed onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Medical gases	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Exported electricity	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total net emissions	2,528.97	8.29	19.79	0.00	0.00	186.78	0.00	0.00	0.00	0.00	2,743.83

Table 12. Non-biogenic, biogenic anthropogenic and biogenic non-anthropogenic CO_2 emissions and removals by category

Category	Anthropogenic biogenic CO_2 emissions	Anthropogenic biogenic (CH_4 and N_2O) emissions (tCO_2e)	Non-anthropogenic biogenic (tCO_2e)
Category 1: Direct emissions	741.39	12.60	0.00
Category 2: Indirect emissions from imported energy	0.00	0.00	0.00
Category 3: Indirect emissions from transportation	0.00	0.00	0.00
Category 4: Indirect emissions from products used by organisation	0.00	0.00	0.00
Category 5: Indirect emissions associated with the use of products from the organisation	0.00	0.00	0.00
Category 6: Indirect emissions from other sources	0.00	0.00	0.00
Total gross emissions	**741.39**	**12.60**	**0.00**

A1.1 REPORTING BOUNDARIES

A1.1.1 Emission source identification method and significance criteria

The GHG emissions sources included in this inventory are those required for Programme certification and were identified with reference to the methodology described in the GHG Protocol and ISO 14064-1:2018 standards as well as the Programme Technical Requirements.

There is a mix of ways Council will identify new emissions sources. Communications with staff and activity managers is the keyway that emissions sources and sinks are identified and understood however, operational expenditure records and site visits are also used for identification of sources.

Significance of emissions sources within the organisational boundaries has been considered in the design of this inventory. The significance criteria used comprise:

- All direct emissions sources that contribute more than 1% of total Category 1 and 2 emissions
- All indirect emissions sources that are required by the Programme.

A1.1.2 Included sources and activity data management

As adapted from ISO 14064-1, the emissions sources deemed significant for inclusion in this inventory were classified into the following categories:

- **Direct GHG emissions (Category 1):** GHG emissions from sources that are owned or controlled by the company.
- **Indirect GHG emissions (Category 2):** GHG emissions from the generation of purchased electricity, heat and steam consumed by the company.
- **Indirect GHG emissions (Categories 3-6):** GHG emissions that occur as a consequence of the activities of the company but occur from sources not owned or controlled by the company.

Table 13 provides detail on the categories of emissions included in the GHG emissions inventory, an overview of how activity data were collected for each emissions source, and an explanation of any uncertainties or assumptions made based on the source of activity data. Detail on estimated numerical uncertainties are reported in Appendix 1.

Activity data collection is managed via a list of emissions sources for inventory reporting that is kept updated with the locations the data can be found. This list guides the Sustainability Advisor and supporting staff to the locations of these data sources (mostly invoicing).

Invoicing data is translated into excel spreadsheets to carry out data analysis and some conversions into tCO_2e for some source such as waste before data is uploaded into E-Manage.

Table 13. GHG emissions activity data collection methods and inherent uncertainties and assumptions

Business unit	GHG emissions source	GHG emissions level scope	Data Source	Data collection unit	Uncertainty (description)
Kāpiti Coast District Council/Access and Transport	Electricity - default	Scope 2	Invoice data via Carbon EES	kWh	Low - invoice data.
Kāpiti Coast District Council/Aquatic Facilities	Electricity - default	Scope 2	Invoice data via Carbon EES	kWh	Low - invoice data.
Kāpiti Coast District Council/Aquatic Facilities	Natural Gas - distributed commercial [Energy]	Scope 1	Invoice data via Carbon EES	kWh	Low - invoice data.
Kāpiti Coast District Council/Aquatic Facilities	Waste landfilled - MSW, unique EF	Scope 3	Pool waste - Frequency of bin collection, waste audit, LFGC rate calculated	CO_2e	Moderate - estimate based on last year's data (mass calculated from bin volume, waste density determined by waste audit and number of removals). The latter is based on pool staff information as some invoices are not clear.
Kāpiti Coast District Council/Aquatic Facilities	CO_2 held in bottles at pools	Scope 1	CO_2 bottles used by pools to manage Ph in water	kg	Moderate - use total kgs purchased against kgs held at the pools to calculate kgs used.
Kāpiti Coast District Council/General Council	Public transport - air travel domestic (average)	Scope 3	Report from Air NZ Direct Connect Portal/Travelcard transactions	pkm	Low/Moderate - Air NZ provides a transaction report on request which now clarifies when there are flight changes rather than additional flights. There is a risk that some contractor/consultant air travel is booked privately and reimbursed later as expenses.
Kāpiti Coast District Council/General Council	Accommodation	Scope 3	Inferred from flights (Air NZ report)	visitor-nights	High - inferred from flight bookings.
Kāpiti Coast District Council/General Council	Public Transport - Taxi (NZ$)	Scope 3	Finance system search	$ (NZD)	Moderate - data source does not include taxi fares paid by staff and reimbursed by Council (but that is picked up under 'staff travel reimbursements' as private car use and, if identified correctly, can be added to this item).
Kāpiti Coast District Council/General Council	Petrol - transport, premium	Scope 1	Invoice/BP fuel card data via Carbon EES	l	Low - measured at pump.

Business unit	GHG emissions source	GHG emissions level scope	Data Source	Data collection unit	Uncertainty (description)
Kāpiti Coast District Council/General Council	Petrol - transport, regular	Scope 1	Invoice/BP fuel card data via Carbon EES	l	Low - measured at pump.
Kāpiti Coast District Council/General Council	Private Car - default (petrol)	Scope 3	Staff vehicle claims - Expense claims/Finance system search	km	Low to moderate - from accounting system, but data entry is not always clear on what is a travel reimbursement, what is a taxi fare reimbursement and what is a parking reimbursement, so staff travel is possibly overstated at times.
Kāpiti Coast District Council/General Council	Rail travel (national) - Rail car (electric)	Scope 3	Train ticket log	pkm	Low to moderate - train ticket log maintained in a spreadsheet for all tickets distributed to staff for use. In 2019/20 adopted the new emissions factor for Rail municipal (electric) from the previous diesel EF, which had been the only option in the past.
Kāpiti Coast District Council/Leisure and Open Space	Electricity - default	Scope 2	Invoice data via Carbon EES	kWh	Low - invoice data.
Kāpiti Coast District Council/Leisure and Open Space	Natural Gas - distributed commercial [Energy]	Scope 1	Invoice data via Carbon EES	kWh	Low - invoice data.
Kāpiti Coast District Council/Operations	Electricity - default	Scope 2	Invoice data via Carbon EES	kWh	Low - Invoice data is now managed by Carbon EES in E-Bench.
Kāpiti Coast District Council/Operations	Diesel - transport [Volume]	Scope 1	Invoice/BP fuel card data via Carbon EES	l	Low - measured at pump.
Kāpiti Coast District Council/Operations	Waste landfilled - MSW, unique EF	Scope 3	Invoice data via Carbon EES. Emission Factor LFGC rate	kg	Low/moderate - invoice based on weighbridge data and average weight for waste delivered in car, ute or bags. Improved certainty with gas capture rates as 100% on waste goes to Bonny Glen and improved gas capture rate at Silverstream landfill.
Kāpiti Coast District Council/Property	Electricity - default	Scope 2	Invoice data via Carbon EES	kWh	Low - meter data captured in E-Bench.

Business unit	GHG emissions source	GHG emissions level scope	Data Source	Data collection unit	Uncertainty (description)
Kāpiti Coast District Council/Property	Natural Gas - distributed commercial [Energy]	Scope 1	Invoice data via Carbon EES	kWh	Low - meter data.
Kāpiti Coast District Council/Property	Refrigerants	Scope 1	Contractor estimates of annual system recharges	kg	Moderate - responses provided by maintenance contractors.
Kāpiti Coast District Council/Property	Waste landfilled - MSW, unique EF	Scope 3	Office waste - Invoice data via Carbon EES, bin size, waste audit, LFGC rate calculated	kg	Moderate - mass calculated from bin volume, waste density determined by waste audit and number of removals. Fairly good invoice data on number of removals provided by the collector.
Kāpiti Coast District Council/Water and Wastewater Treatment	Electricity - default	Scope 2	Invoice data via Carbon EES	kWh	Low - All invoice data managed in. E-Bench
Kāpiti Coast District Council/Water and Wastewater Treatment	Wood - industry	Scope 1	Invoice data via Carbon EES	kg	Low - invoice data.
Kāpiti Coast District Council/Water and Wastewater Treatment	Freight Road - rigid and articulated trucks (average)	Scope 3	Invoice data (two sources) via Carbon EES	tkm	Low - invoice data.
Kāpiti Coast District Council/Water and Wastewater Treatment	Waste landfilled - sewage sludge, unique EF	Scope 1	Invoice and SCADA data via Carbon EES * emission factor * LFGC rate	kg	Low - invoice data based on weighbridge invoice data + lab test data.
Kāpiti Coast District Council/Water and Wastewater Treatment	Waste landfilled - screenings, unique EF	Scope 3	Invoice and SCADA data via Carbon EES * emission factor * LFGC rate	kg	Low - invoice data based on weighbridge.
Kāpiti Coast District Council/Water and Wastewater Treatment	Wastewater biological treatment process	Scope 1	Water NZ Model 2021 for estimating wastewater treatment process emissions	CO_2e	Low - but note that this is a model to estimate not measure exact emissions.

A1.1.3 Excluded emissions sources and sinks

Emissions sources in Table 14 have been identified and excluded from this inventory.

Table 14. GHG emissions sources excluded from the inventory

Business unit	GHG emissions source or sink	GHG emissions category	Reason for exclusion
Water and Wastewater Treatment	Wood pellet freight	Category 3 (mandatory)	Contract for supply specifies product is responsibility of supplier until delivered
Water and Wastewater Treatment	Water treatment chemicals freight	Category 3 (mandatory)	No specific freight charge applied on invoices. Also, volume 10 – 15 tonnes per month moved within the North Island is likely to be de minimis. The Council has no other significant regular freight.
Operations	Closed landfills - Ōtaki and Waikanae	Category 1	Ōtaki Landfill closed 1995, Waikanae Landfill closed 2003. In line with programme emission calculation methods, any emissions that are occurring from waste deposited prior to the inventory period would be considered not to have emissions as the programme uses a calculation approach whereby all emissions are considered to have occurred at time of disposal.
Operations	Closed landfill - Otaihanga	Category 1	Closed to the public in 2008. Closed to all waste types since 2016.
Operations	Freight of office and public litter bin waste from Otaihanga transfer station to Levin and Bonny Glen Landfill	Category 3 (mandatory)	The Council's responsibility for this waste in terms of freight ends at the transfer station.
General Council	Capital projects embodied carbon	Category 5 (one time, additional)	Council will seek to measure embodied carbon for future projects of significant scale.
General Council	Public transport - air travel domestic (average)	Category 3 (mandatory)	Some (irregular) contractor air travel is not separately recorded but included in a general invoice sent by the contractor. Air travel cannot be extracted. Volume of contractor air travel is estimated as low.
			Regular air travel by contractors is booked by KCDC and included.
Production and distribution of fuel	Fuel	Category 3 (additional)	Only Scope 1 emissions (consumption of fuel) are included. Scope 3 emissions related to production and distribution of fuel (to local petrol stations, or to our diesel tank at the depot) are not included.

A1.2 QUANTIFIED INVENTORY OF EMISSIONS AND REMOVALS

A1.2.1 Calculation methodology

A calculation methodology has been used for quantifying the emissions inventory based on the following calculation approach, unless otherwise stated below:

Emissions = activity data x emissions factor

The following alternative emissions quantification approaches have been used in this inventory:

- Forest removals using programme supplied template based on growth rate lookup tables.

All emissions were calculated using Toitū emanage with emissions factors and Global Warming Potentials provided by the Programme (see Appendix 1 - data summary.xls). Global Warming Potentials (GWP) from the IPCC fifth assessment report (AR5) are the preferred GWP conversion[4].

Where applicable, unit conversions applied when processing the activity data has been disclosed.

There are systems and procedures in place that will ensure applied quantification methodologies will continue in future GHG emissions inventories.

A1.2.2 GHG Storage and liabilities

A1.2.2.1 GHG STOCKS HELD ON SITE

Refrigerants and fuels may be stored on site, but their accidental leakage or release could result in a large increase in emissions for that period. Refrigerants such as HFCs, PFCs and SF_6 are GHGs with high global warming potentials, so material volumes of these or fuel are reported as potential liabilities.

Table 15. Total storage as of year end with potential GHG emissions liabilities.

GHG gas stock held	Quantity	Unit	Potential liability (tCO_2e)
CO_2	396	kilograms	0.40
Diesel commercial	5,000.00	litres	13.45
HCFC-22 (R-22, Genetron 22 or Freon 22)	8.50	kilograms	14.96
HFC-32	8.50	kilograms	5.75
R-407C	88.00	kilograms	156.10
R-410A	270.60	kilograms	520.50
Total potential liability			711.15

A1.2.2.2 LAND-USE LIABILITIES

Organisations that own land subject to land-use change may achieve sequestration of carbon dioxide through a change in the carbon stock on that land. Where sequestration is claimed, then this also represents a liability in future years should fire, flood, management activities or other intentional or unintentional events release the stored carbon.

[4] If emission factors have been derived from recognised publications approved by the programme, which still use earlier GWPs, the emission factors have not been altered from as published.

Table 16. Land-use liabilities (total)

Site name	Total sequestration during reporting period (tCO_2e)	Contingent liability (tCO_2e)	Total potential liability (tCO_2e)
Kāpiti Coast District Council	0	313	24793

A1.2.3 Supplementary results

Holdings and transactions in GHG-related financial or contractual instruments such as permits, allowances, verified offsets or other purchased emissions reductions from eligible schemes recognised by the Programme are reported separately here.

APPENDIX 2: SIGNIFICANCE CRITERIA USED

Table 17. Significance criteria used for identifying inclusion of indirect emissions

Emissions source	Magnitude	Level of influence	Risk or opportunity	Sector specific guidance	Outsourcing	Employee engagement	Intended Use and Users	Include in inventory?	Primary reason for decision to include or exclude
Toitū carbon programme boundary sources:									
a) All Category 1 and 2 emissions	n/a	n/a	n/a	n/a	n/a	n/a	Yes	Include	Intended Use and Users
b) Category 3 emissions associated with business travel and freight paid for by the organisation	n/a	n/a	n/a	n/a	n/a	n/a	Yes	Include	Intended Use and Users
c) Category 4 emissions associated with waste disposed of by the organisation, and transmissions and distribution of electricity and natural gas, where appropriate	n/a	n/a	n/a	n/a	n/a	n/a	Yes	Include	Intended Use and Users
d) any Sector specific mandatory emissions sources as outlined by the Programme	n/a	n/a	n/a	n/a	n/a	n/a	Yes	Include	Intended Use and Users
Sources beyond the Toitū carbon programme boundary:									
Access and Transport road maintenance	Significant (>5% of estimated total)	Moderate	n/a	n/a	Yes	Yes	Yes	Exclude	Data is not currently collected
Capital projects Project Management Office (PMO)	Moderate (1-5% of estimated total)	Moderate	n/a	n/a	Yes	Yes	Yes	Exclude	Data is not currently collected

Emissions source	Magnitude	Level of influence	Risk or opportunity	Sector specific guidance	Outsourcing	Employee engagement	Intended Use and Users	Include in inventory?	Primary reason for decision to include or exclude
Corporate Finance	*De minimis* (<1% of estimated total)	Moderate	n/a	n/a	Yes	Yes	Yes	Exclude	Data is not currently collected
IS Wastewater Treatment Plant	Moderate (1-5% of estimated total)	Moderate	n/a	n/a	Yes	Yes	Yes	Exclude	Data is not currently collected
Open Spaces tree maintenance	Moderate (1-5% of estimated total)	Moderate	n/a	n/a	Yes	Yes	Yes	Exclude	Data is not currently collected
Legal	Moderate (1-5% of estimated total)	Low	n/a	n/a	Yes	Yes	Yes	Exclude	Data is not currently collected
Stormwater upgrades	Moderate (1-5% of estimated total)	Moderate	n/a	n/a	Yes	Yes	Yes	Exclude	Data is not currently collected
Property maintenance	Moderate (1-5% of estimated total)	Moderate	n/a	n/a	Yes	Yes	Yes	Exclude	Data is not currently collected
Stormwater	Significant (>5% of estimated total)	Moderate	n/a	n/a	Yes	Yes	Yes	Exclude	Data is not currently collected

Emissions source	Magnitude	Level of influence	Risk or opportunity	Sector specific guidance	Outsourcing	Employee engagement	Intended Use and Users	Include in inventory?	Primary reason for decision to include or exclude
Stormwater catchment services	Moderate (1-5% of estimated total)	Moderate	n/a	n/a	Yes	Yes	Yes	Exclude	Data is not currently collected
Infrastructure services	Significant (>5% of estimated total)	Moderate	n/a	n/a	Yes	Yes	Yes	Exclude	Data is not currently collected
Corporate vehicle fleet licensing	Moderate (1-5% of estimated total)	Low	n/a	n/a	Yes	Yes	Yes	Exclude	Data is not currently collected
IS Stormwater model update	Moderate (1-5% of estimated total)	Low	n/a	n/a	Yes	Yes	Yes	Exclude	Data is not currently collected
Ōtaki ponds desludging Wastewater yr1	Moderate (1-5% of estimated total)	Moderate	n/a	n/a	Yes	Yes	Yes	Exclude	Data is not currently collected
Stormwater engineering/consulting	Moderate (1-5% of estimated total)	Low	n/a	n/a	Yes	Yes	Yes	Exclude	Data is not currently collected
Wastewater and Stormwater	Moderate (1-5% of estimated total)	Low	n/a	n/a	Yes	Yes	Yes	Exclude	Data is not currently collected

Emissions source	Magnitude	Level of influence	Risk or opportunity	Sector specific guidance	Outsourcing	Employee engagement	Intended Use and Users	Include in inventory?	Primary reason for decision to include or exclude
Open Spaces (playgrounds)	*De minimis* (<1% of estimated total)	Moderate	n/a	n/a	Yes	Yes	Yes	Exclude	Data is not currently collected
Access and Transport, Stormwater and Waste (all infrastructure)	Moderate (1-5% of estimated total)	Low	n/a	n/a	Yes	Yes	Yes	Exclude	Data is not currently collected
Project Management Office, Stormwater (Infrastructure)	Moderate (1-5% of estimated total)	Moderate	n/a	n/a	Yes	Yes	Yes	Exclude	Data is not currently collected
Water team (infrastructure)	Moderate (1-5% of estimated total)	Moderate	n/a	n/a	Yes	Yes	Yes	Exclude	Data is not currently collected
Wastewater Team	Moderate (1-5% of estimated total)	Moderate	n/a	n/a	Yes	Yes	Yes	Exclude	Data is not currently collected
PMO (Infra) (PM services)	Moderate (1-5% of estimated total)	Moderate	n/a	n/a	Yes	Yes	Yes	Exclude	Data is not currently collected
Corporate IT	*De minimis* (<1% of estimated total)	Moderate	n/a	n/a	Yes	Yes	Yes	Exclude	Data is not currently collected

Emissions source	Magnitude	Level of influence	Risk or opportunity	Sector specific guidance	Outsourcing	Employee engagement	Intended Use and Users	Include in inventory?	Primary reason for decision to include or exclude
Transport streetlighting maintenance	Moderate (1-5% of estimated total)	Moderate	n/a	n/a	Yes	Yes	Yes	Exclude	Data is not currently collected
Iwi consultancy services	*De minimis* (<1% of estimated total)	Low	n/a	n/a	Yes	Yes	Yes	Exclude	Data is not currently collected
Project Management Office (PMO) Open Space Otaraua Park sports ground pavilion	*De minimis* (<1% of estimated total)	Moderate	n/a	n/a	Yes	Yes	Yes	Exclude	Data is not currently collected
Water and Wastewater Team SCADA data (IT)	*De minimis* (<1% of estimated total)	Low	n/a	n/a	Yes	Yes	Yes	Exclude	Data is not currently collected
Coastal, Water, Project Management Office (PMO) engineering and consultancy	Moderate (1-5% of estimated total)	Moderate	n/a	n/a	Yes	Yes	Yes	Exclude	Data is not currently collected
Stormwater and coastal maintenance	Moderate (1-5% of estimated total)	Moderate	n/a	n/a	Yes	Yes	Yes	Exclude	Data is not currently collected
Transport; traffic counting	Moderate (1-5% of estimated total)	Low	n/a	n/a	Yes	Yes	Yes	Exclude	Data is not currently collected

Emissions source	Magnitude	Level of influence	Risk or opportunity	Sector specific guidance	Outsourcing	Employee engagement	Intended Use and Users	Include in inventory?	Primary reason for decision to include or exclude
Council consents monitoring fees	Moderate (1-5% of estimated total)	Low	n/a	n/a	Yes	Yes	Yes	Exclude	Data is not currently collected
Wastewater and Stormwater drain inspections	Moderate (1-5% of estimated total)	Moderate	n/a	n/a	Yes	Yes	Yes	Exclude	Data is not currently collected
Property maintenance	*De minimis* (<1% of estimated total)	Moderate	n/a	n/a	Yes	Yes	Yes	Exclude	Data is not currently collected
Finance payments system	*De minimis* (<1% of estimated total)	Low	n/a	n/a	Yes	Yes	Yes	Exclude	Data is not currently collected
Leisure; Gallery annual grant	*De minimis* (<1% of estimated total)	Moderate	n/a	n/a	Yes	Yes	Yes	Exclude	Data is not currently collected
Corporate IT	*De minimis* (<1% of estimated total)	Low	n/a	n/a	Yes	Yes	Yes	Exclude	Data is not currently collected
Wastewater and Water repairs maintenance	*De minimis* (<1% of estimated total)	Moderate	n/a	n/a	Yes	Yes	Yes	Exclude	Data is not currently collected

Emissions source	Magnitude	Level of influence	Risk or opportunity	Sector specific guidance	Outsourcing	Employee engagement	Intended Use and Users	Include in inventory?	Primary reason for decision to include or exclude
Water Team chemicals treatment	Moderate (1-5% of estimated total)	Low	n/a	n/a	Yes	Yes	Yes	Exclude	Data is not currently collected
Finance team valuations for rates	Moderate (1-5% of estimated total)	Low	n/a	n/a	Yes	Yes	Yes	Exclude	Data is not currently collected
Project Management Office (PMO) Town centres upgrade capital	Moderate (1-5% of estimated total)	Low	n/a	n/a	Yes	Yes	Yes	Exclude	Data is not currently collected
Property community facilities	*De minimis* (<1% of estimated total)	Moderate	n/a	n/a	Yes	Yes	Yes	Exclude	Data is not currently collected
Access and Transport engineering consultancy	*De minimis* (<1% of estimated total)	Low	n/a	n/a	Yes	Yes	Yes	Exclude	Data is not currently collected
Wastewater and Water Team UV lights for treatment	Moderate (1-5% of estimated total)	Low	n/a	n/a	Yes	Yes	Yes	Exclude	Data is not currently collected
Aquatics and Wastewater Treatment water chemicals	*De minimis* (<1% of estimated total)	Low	n/a	n/a	Yes	Yes	Yes	Exclude	Data is not currently collected

APPENDIX 3: CERTIFICATION MARK USE

The Council uses the Toitū certifications on its website https://www.kapiticoast.govt.nz/our-district/our-environment/climate-change/emissions/ it does not sell any products with Toitū's logo on it.

APPENDIX 4: REFERENCES

International Organization for Standardization, 2018. ISO 14064-1:2018. Greenhouse gases – Part 1: Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals. ISO: Geneva, Switzerland.

World Resources Institute and World Business Council for Sustainable Development, 2004 (revised). The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard. WBCSD: Geneva, Switzerland.

World Resources Institute and World Business Council for Sustainable Development, 2015 (revised). The Greenhouse Gas Protocol: Scope 2 Guidance. An amendment to the GHG Protocol Corporate Standard. WBCSD: Geneva, Switzerland.

APPENDIX 5: REPORTING INDEX

This report template aligns with ISO 14064-1:2018 and meet Toitū carbonreduce programme Organisation Technical Requirements. The following table cross references the requirements against the relevant section(s) of this report.

Section of this report	ISO 14064-1:2018 clause	Organisational Technical Requirement rule
Cover page	9.3.1 b, c, r 9.3.2 d,	TR8.2, TR8.3
Availability	9.2 g	
Chapter 1: Emissions Inventory Report		
1.1. Introduction	9.3.2 a	
1.2. Emissions inventory results	9.3.1 f, h, j 9.3.3	TR4.14, TR4.16, TR4.17
1.3. Organisational context	9.3.1 a	
1.3.1. Organisation description	9.3.1 a	
1.3.2. Statement of intent		TR4.2
1.3.3. Person responsible	9.3.1 b	
1.3.4. Reporting period	9.3.1 l	TR5.1, TR5.8
1.3.5. Organisational boundary and consolidation approach	9.3.1.d	TR4.3, TR4.5, TR4.7, TR4.11
1.3.6. Excluded business units		
Chapter 2: Emissions Management and Reduction Report		
2.1. Emissions reduction results	9.3.1 f, h, j, k 9.3.2 j, k	TR4.14, TR6.18
2.2. Significant emissions sources		
2.3. Emissions reduction targets		TR6.1, TR6.2, TR6.4, TR6.6, TR6.8,

2.4. Emissions reduction projects	9.3.2 b	TR6.8, TR6.11, TR6.12, TR6.13, TR6.14, TR6.15
2.5. Staff engagement		TR6.1, TR6.9
2.6. Key performance indicators		TR6.19
2.7. Monitoring and reporting	9.3.2 h	TR6.2
Appendix 1: Detailed greenhouse gas inventory	9.3.1 f, g	TR4.9, TR4.15
A1.1 Reporting boundaries		
A1.1.1 Emission source identification method and significance criteria	9.3.1 e	TR4.12, TR4.13
A1.1.2 Included emissions sources and activity data collection	9.3.1 p, q 9.3.2 i	TR5.4, TR5.6, TR5.17, TR5.18,
A1.1.3 Excluded emissions sources and sinks	9.3.1 i	TR5.21, TR5.22, TR5.23
A1.2 Quantified inventory of emissions and removals		
A1.2.1 Calculation methodology	9.3.1 m, n, o, t	
A1.2.2 Historical recalculations		
A1.2.3 GHG Storage and liabilities		
A1.2.3.1 GHG stocks held on site		TR4.18
A1.2.3.2 Land-use liabilities	9.3.3.	TR4.19
A1.2.4 Supplementary results		
A1.2.4.1 Carbon credits and offsets	9.3.3.3	
A1.2.4.2 Purchased or developed reduction or removal enhancement projects	9.3.2 c	
A1.2.4.3 Double counting and double offsetting		
Appendix 2: Significance criteria used	9.3.1.e	TR4.12
Appendix 3: Certification mark use		TR3.6
Appendix 4: References		
Appendix 5: Reporting index		