

Greenhouse Gas Emissions Inventory Report

CEMARS and the carboNZero programme

Prepared in accordance with Part 7.3.1 of ISO 14064-1:2006



Kapiti Coast District Council

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Dated: 4th March 2015

Version: 1.0

Verification status: Verified (post-audit)

For the period: 01/07/2014 to 30/06/2015

Base year: 01/07/2009 to 30/06/2010



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Greenhouse Gas Emissions Inventory summary

Table 1: GHG emissions data summary.

	2010	2011	2012	2013	2014	2015
Scope 1	10,671.61	9,561.83	6,868.56	4,459.15	4,409.71	5,120.91
Scope 2	1,776.95	1,469.79	1,968.12	1,802.13	1,584.30	1,487.10
Scope 3 Mandatory	50.01	54.93	441.85	347.74	458.24	507.54
Scope 3 Additional	0.23	0.23	0.84	0.84	0.70	1.28
Scope 3 One time	0.00	0.00	0.00	0.00	0.00	0.00
Total gross emissions	12,498.79	11,086.78	9,279.37	6,609.86	6,452.94	7,116.84
Certified green electricity	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
Net GHG emissions (all scopes)	12,498.79	11,086.78	9,279.37	6,609.86	6,452.94	7,116.84
Total gross GHG emissions per Ratepayer	0.52	0.46	0.38	0.27	0.26	0.29
Total mandatory GHG emissions per Ratepayer	0.52	0.46	0.38	0.27	0.26	0.29
Total gross GHG emissions per Turnover/revenue (\$Millions)	222.79	201.14	149.84	99.73	91.66	104.52
Total mandatory GHG emissions per Turnover/revenue (\$Millions)	222.79	201.13	149.82	99.71	91.65	104.50

Note: total mandatory emissions includes scope 1, scope 2, and scope 3 (i.e. excludes scope 3 one-time and scope 3 additional).

Table 2: Gross organisation GHG emissions by scope for current measurement year.

Indicator	tCO ₂ e
Scope 1	
Energy	492.05
Transport	495.03
Waste Disposal	4,133.83
Scope 2	
Energy	1,487.10
Scope 3	
Energy	0.28
Freight	8.69
Public Transport	18.75
Transport	1.89

Indicator	tCO ₂ e
Waste Disposal	477.92
Scope 3 Additional	1.28
Total	7,116.84

Table 3: GHG emissions inventory summary by scope and greenhouse gas.

Component gas	Scope 1	Scope 2	Scope 3	Total	Removals	After removals
CH ₄	891.99	0.00	7.01	899.00	0.00	899.00
CO ₂	4,202.15	1,487.10	501.58	6,190.83	0.00	6,190.83
HFCs	0.00	0.00	0.00	0.00	0.00	0.00
N ₂ O	26.77	0.00	0.23	27.00	0.00	27.00
PFCs	0.00	0.00	0.00	0.00	0.00	0.00
SF ₆	0.00	0.00	0.00	0.00	0.00	0.00
Total	5,120.91	1,487.10	508.82	7,116.84	0.00	7,116.84

Table 4: Mobile and stationary combustion of biomass.

Biomass	Mass	tCO ₂ e
Biomass & Biofuels (Kg)	1,348,844.03	19.34

Table 5: Deforestation of two hectares or more.

Source	Mass	tCO ₂ e
Deforestation tCO ₂ e (tCO ₂ e)	0.00	0.00

Table 6: GHG stock liability (see Table 13: for mass of individual gases).

GHG gas	Potential Liability tCO ₂ e
GHG holdings - HCFC-22 (R-22)	22.99
GHG holdings - HFC-32	1.22
GHG holdings - R-407C	230.60
GHG holdings - R-410A	113.35
GHG Holdings - Forests	35,198.00
Total	35,566.15

Table 7: Land-use liabilities.

Type of sequestration	Liability tCO ₂ e
Contingent liability (carbon sequestered this reporting period)	448.00
Potential sequestration liability (total carbon stock)	35,198.00

Table 8: Renewable electricity generation on-site.

Renewable generation on-site	kWh generated	tCO ₂ e avoided
No activity recorded	n/a	n/a

Table 9: Purchased emissions reductions.

Type of emission reductions purchased	Amount	tCO ₂ e
Certified green electricity (tCO ₂ e)	0.00	0.00
Purchased emission reductions (tCO ₂ e)	0.00	0.00
Total	0.00	0.00

1 Introduction

This report is the annual greenhouse gas (GHG) emissions¹ inventory report for the named organisation. 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**² of the Programme, which is based on the *Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (2004) and ISO 14064-1:2006 Specification with Guidance at the Organization Level for Quantification and Reporting of Greenhouse Gas Emissions and Removals*³. Where relevant, the inventory is aligned with industry or sector best practice for emissions measurement and reporting.

2 Statement of intent

This inventory forms part of the organisation's commitment to gain Programme certification.

This inventory reports into the CEMARS programme.

3 Organisation description

Kapiti Coast District Council is the territorial authority for its area. It employs approximately 303 full time equivalent staff and is responsible for water and waste water, local roads (including streetlighting), parks, leisure facilities, community facilities, stormwater management and performing statutory duties such as regulatory compliance. Council influences the development of the district through its democratic and strategic planning functions. Council has embedding environmental sustainability into its planning and operations and seeks to measure and reduce its 'carbon footprint' as part of this.

4 Organisational boundaries included for this reporting period

Organisational boundaries were set with reference to the methodology described in the GHG Protocol and ISO 14064-1:2006 standards. 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.

An operational control consolidation approach was used to account for emissions.

The first figure 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 second figure. This is the most straightforward approach as management groups share the use of many of these sources (e.g. offices). 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 Council and part of the operational emissions inventory. The emissions sources in yellow are liabilities, and are reported but are not part of operational emissions.

¹ Throughout this document "emissions" means "GHG emissions".

² Programme refers to the Certified Emissions Measurement And Reduction Scheme (CEMARS) and the carbonZero programme.

³ Throughout this document 'GHG Protocol' means the *GHG Protocol Corporate Accounting and Reporting Standard* and 'ISO 14064-1:2006' means the international standard *Specification with Guidance at the Organizational Level for Quantification and Reporting of Greenhouse Gas Emissions and Removals*.

Chief Executive				
Group Manager, Strategy & Partnerships	Group Manager, Corporate Services	Group Manager, Infrastructure Services	Group Manager, Community Services	Group Manager, Regulatory Services
Community Outcomes Development Management Economic Development Tāngata Whenua Strategic Policy Supporting Environmental Sustainability Supporting Social Wellbeing Corporate Planning, Monitoring and Reporting	Communications Emergency Management Governance Support Information Services Customer Services / Call Centre Electoral Boundaries Financial Management Legislative Compliance Rating	Access and Transport Coastal Management Solid Waste Management Stormwater Management Wastewater Management Water Management Operations Management	Leisure and Open Spaces Aquatic Facilities Arts and Culture Libraries Museums Community Facilities Cycleways, Walkways, Bridleways Network Development	Building Control, Resource Consents, Environmental Health Compliance

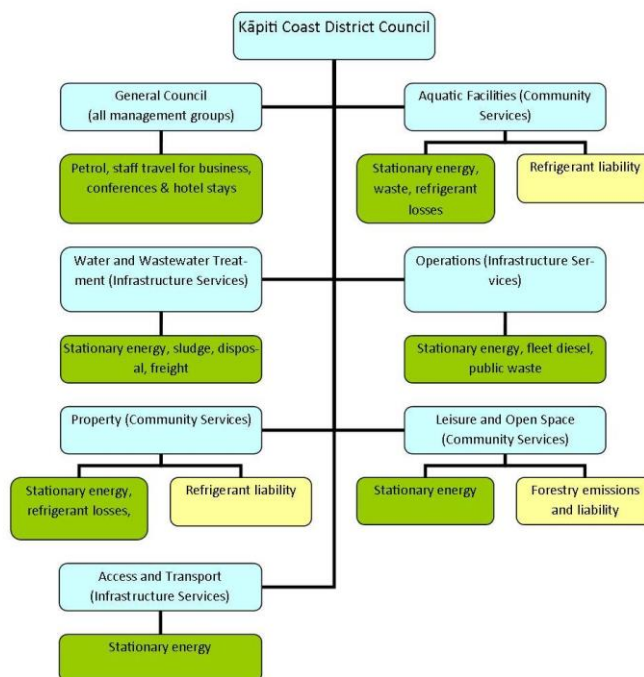


Figure 1: Organisational structure.

Table 10: Brief description of business units in the certifying entity.

Reporting Unit	Description
Water and Wastewater	Purpose: Water supply and treatment, treatment and disposal of sewage, management of all

Reporting Unit	Description
Treatment	associated assets. Contact: Dave Bassett
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: Tony Martin
Property	Purpose: Manages the majority of council-owned buildings including offices, libraries and community halls. Contact: Crispin Mylne
Leisure and Open Space	Purpose: Manages sports facilities, parks and reserves. Contact: Nico Crous
Access and Transport	Purpose: Manages development and maintenance of local roads, plus streetlighting. Contact: Neil Williams
Aquatic Facilities	Purpose: Manages the council's three swimming pools. Contact: Will James
General Council	Purchase: 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: Sara Clift

5 Organisational business units excluded from inventory

None

6 GHG emissions source inclusions

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 ISO14064-1:2006 standards. Identification of emissions sources was achieved via personal communications with Kapiti Coast District Council staff, and cross-checked against operational expenditure records for the reporting period. These records were viewed in order to see what activities may be associated with emissions from all of the operations.

As adapted from the GHG Protocol, these emissions were classified into the following categories:

- **Direct GHG emissions (Scope 1):** GHG emissions from sources that are owned or controlled by the company.
- **Indirect GHG emissions (Scope 2):** GHG emissions from the generation of purchased electricity, heat and steam consumed by the company.
- **Indirect GHG emissions (Scope 3):** GHG emissions required by the Programme that occur as a consequence of the activities of the company but occur from sources not owned or controlled by the company. Inclusion of other Scope 3 emissions sources is done on a case-by-case basis.

After liaison with the organisation, the emissions sources in Table 11 have been identified and included in the GHG emissions inventory.

Table 11: GHG emissions sources included in the inventory.

Business unit	GHG emissions source	GHG emissions level scope	Data Source	Data collection unit	Uncertainty (description)
/Kapiti Coast District Council/Access and Transport	Electricity - default	Scope 2	Invoice data	kWh	Moderate - electricity consumption calculated from an inventory of lights and their rated power. This inventory requires updating and audit
/Kapiti Coast District Council/Aquatic Facilities	Electricity - default	Scope 2	Invoice data	kWh	Low - meter data
/Kapiti Coast District Council/Aquatic Facilities	Natural Gas - distributed commercial [Energy]	Scope 1	Invoice data	kWh	Low - meter data
/Kapiti Coast District Council/Aquatic Facilities	Waste landfilled - No LFGR general waste	Scope 3	Invoice data	m ³	Moderate - mass calculated from bin volume, density determined by waste audit and number of removals
/Kapiti Coast District Council/Aquatic Facilities	R407c	Scope 1	Estimate of annual system recharges	kg	Low - no losses reported
/Kapiti Coast District Council/General Council	Public transport - air travel domestic (average)	Scope 3	Credit card transactions/Finance system search	pkm	High - some booking details missing from credit card details and need to be assumed/inferred
/Kapiti Coast District Council/General Council	Accomodation	Scope 3	Credit card transactions/Finance system search	visitor-nights	High - inferred from flight bookings
/Kapiti Coast District Council/General Council	Conferences	Scope 3	Credit card transactions/Finance system search	delegate-days	High - inferred from flight bookings
/Kapiti Coast District Council/General Council	Public Transport - Taxi (NZ\$)	Scope 3	Credit card transactions/Finance system search	\$(NZD)	Moderate - data source does not include taxi fares paid by staff and reimbursement by Council

Business unit	GHG emissions source	GHG emissions level scope	Data Source	Data collection unit	Uncertainty (description)
/Kapiti Coast District Council/General Council	Petrol - transport, premium	Scope 1	BP fuel card data	l	Low - measured at pump
/Kapiti Coast District Council/General Council	Petrol - transport, regular	Scope 1	BP fuel card data	l	Low - measured at pump
/Kapiti Coast District Council/General Council	Private Car - default (petrol)	Scope 3	Staff vehicle claims - Expense claims/Finance system search	km	Low
/Kapiti Coast District Council/Leisure and Open Space	Electricity - default	Scope 2	Invoice data	kWh	Low - meter data
/Kapiti Coast District Council/Leisure and Open Space	Natural Gas - distributed commercial [Energy]	Scope 1	Invoice data	kWh	Low - meter data
/Kapiti Coast District Council/Operations	Electricity - default	Scope 2	Invoice data	kWh	Low - meter data
/Kapiti Coast District Council/Operations	Diesel - transport [Volume]	Scope 1	Invoice data, BP fuel card data	l	Low - measured at pump
/Kapiti Coast District Council/Operations/Litter bin waste	CO ₂	Scope 3	Invoice data, LFGC rate estimate	kg	Low - mass measured by weighbridge
/Kapiti Coast District Council/Property	Electricity - default	Scope 2	Invoice data	kWh	Low - meter data
/Kapiti Coast District Council/Property	Natural Gas - distributed commercial [Energy]	Scope 1	Invoice data	kWh	Low - meter data
/Kapiti Coast District	R-410A	Scope 1	Estimate of annual system	kg	Low/moderate - details provided by service

Business unit	GHG emissions source	GHG emissions level scope	Data Source	Data collection unit	Uncertainty (description)
Council/Property			recharges		technicians
/Kapiti Coast District Council/Property	R22	Scope 1	Estimate of annual system recharges	kg	Low/moderate - details provided by service technicians
/Kapiti Coast District Council/Property	CO ₂	Scope 3	Office waste - Frequency of bin collection, sample weighing, LFGC rate estimate	kg	Moderate
/Kapiti Coast District Council/Water and Wastewater Treatment	Electricity - default	Scope 2	Invoice data	kWh	Low - meter data
/Kapiti Coast District Council/Water and Wastewater Treatment	Wood - industry	Scope 1	Wood fuel - Invoice data	kg	Low
/Kapiti Coast District Council/Water and Wastewater Treatment	Freight Road - rigid and articulated trucks (average)	Scope 3	Sludge transfers - Invoice data	tkm	Low
/Kapiti Coast District Council/Water and Wastewater Treatment	CO ₂	Scope 1	Dried sewage sludge - SCADA data from lab test sheets, sample weighing, MC tests.	kg	moderate (+/-6%). Method checked against weighbridge for a sample period
/Kapiti Coast District Council/Water and Wastewater Treatment	Waste landfilled - No LFGR Garden and Food	Scope 1	Invoices for screenings bin removals	kg	Low/moderate - bin mass determined by sample weighing
/Kapiti Coast District Council/Water and Wastewater Treatment	Waste landfilled - No LFGR Wood	Scope 1	Mixing agent (wood) - Freq' of bin collection, bin volume, wood density	kg	Moderate - volume estimate from landfill operators, multiplied by standard density figure

6.1 Other emissions – HFCs, PFCs and SF₆

We use hydrofluorocarbons (HFCs) in our operations and these have been included in the inventory.

No operations use perfluorocarbons (PFCs), Nitrogen Trifluoride (N₃) nor sulphur hexafluoride (SF₆), therefore no holdings of these are reported and no emissions from these sources are included in this inventory.

6.2 Other emissions – biomass

Combustion of biomass has occurred in our operations and is included in the inventory. Wood fuel is used for sewage sludge drying.

6.3 Other emissions – deforestation

No deforestation has been undertaken by the organisation on land it owns and that is included in this inventory. Therefore no emissions from deforestation are included in this inventory. Emissions from forestry are significant in 2013-14 as 12.17 Ha of forest at Otaihanga was cleared prior to sale of the land to NZTA for the Mackays to Peka Peka Expressway.

6.4 Pre-verified data

No pre-verified data is included within the inventory.

7 GHG emissions source exclusions

The following emissions sources have been identified and excluded from the GHG emissions inventory.

Table 12: GHG emissions sources excluded from the inventory

Business unit	GHG emissions source	GHG emissions level scope	Reason for exclusion
Water and Wastewater Treatment	Wood pellet freight	Scope 3 (mandatory)	Contract for supply specifies product is responsibility of supplier until delivered
Water and Wastewater Treatment	Water treatment chemicals freight	Scope 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 minimus. The Council has no other significant regular freight.
Operations	Closed landfills - Ōtaki and Waikanae	Scope 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	Partly closed landfill - Otaihanga	Scope 1	Closed to the public in 2008, still used to dispose of sludge and screenings. Convention adopted for these is to account for all future emissions in the year of disposal, based on mass of material deposited.

Business unit	GHG emissions source	GHG emissions level scope	Reason for exclusion
Operations	Freight of office and public litter bin waste from Otaihanga transfer station to Levin and Bonny Glen Landfills	Scope 3 (mandatory)	Council's responsibility for this waste in terms of freight ends at the transfer station.
General Council	Capital projects embodied carbon	Scope 3 (one time, additional)	Council will seek to measure embodied carbon for future projects of significant scale.

8 Data collection and uncertainties

Table 11 provides an overview of how data were collected for each GHG emissions source, the source of the data and an explanation of any uncertainties or assumptions made. Estimated numerical uncertainties are reported with the emissions calculations and results.

All data was calculated using E-Manage and GHG emissions factors as provided by the Programme (see Appendix 1 - data summary.xls).

A calculation methodology has been used for quantifying the GHG emissions inventory using emissions source activity data multiplied by GHG emissions or removal factors.

A full description of methodologies used and all background calculations, documentation and evidence is contained in the document 'GHG Emissions Calculation Methodology 2014-15.doc' which is provided as an additional appendix to this report.

9 GHG emissions calculations and results

GHG emissions for the organisation for this measurement period are provided in Table 1 where they are stated by greenhouse gas, by scope, by business unit and as total emissions.

The majority of GHG emissions are Scope 1 as shown in figure 2, which arise from the disposal of sewage sludge in Council's own landfill, and the combustion of petrol, diesel and natural gas. Figure 3 shows Water and Wastewater Treatment dominate Council's carbon footprint as sewage sludge disposal is part of this reporting unit, as is the majority of Council's electricity use. Figure 4 shows that sewage sludge is Council's largest emissions source, followed by electricity. Diesel, natural gas and public litter bin waste are also significant.

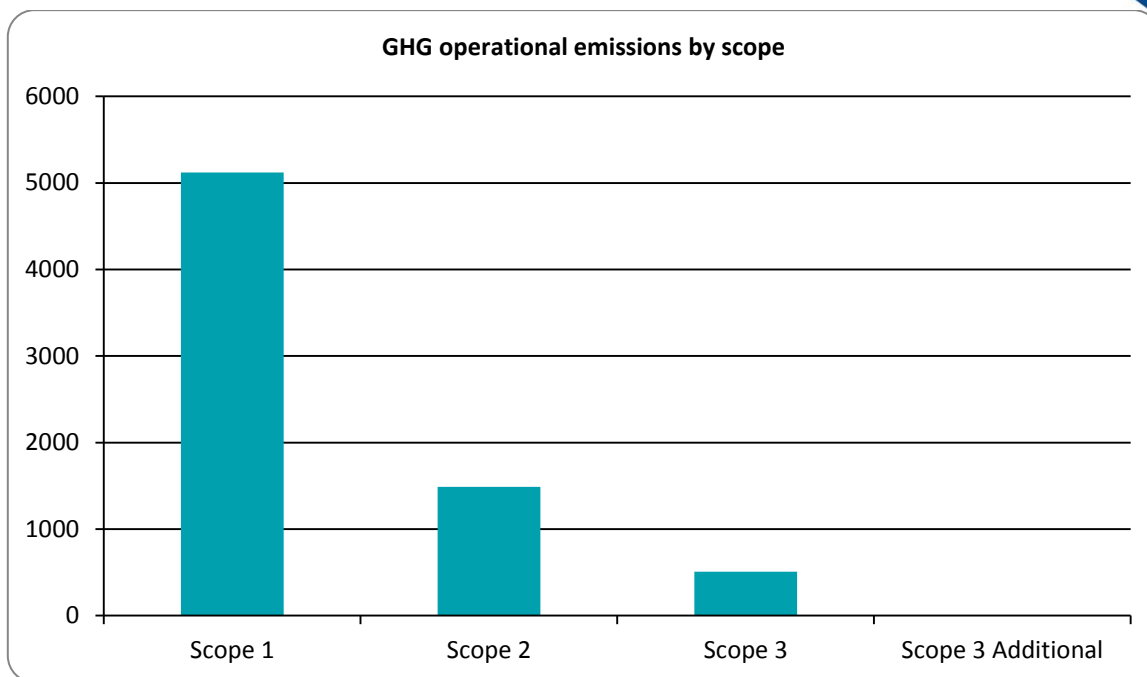


Figure 2: GHG emissions (tonnes CO₂e) by scope.

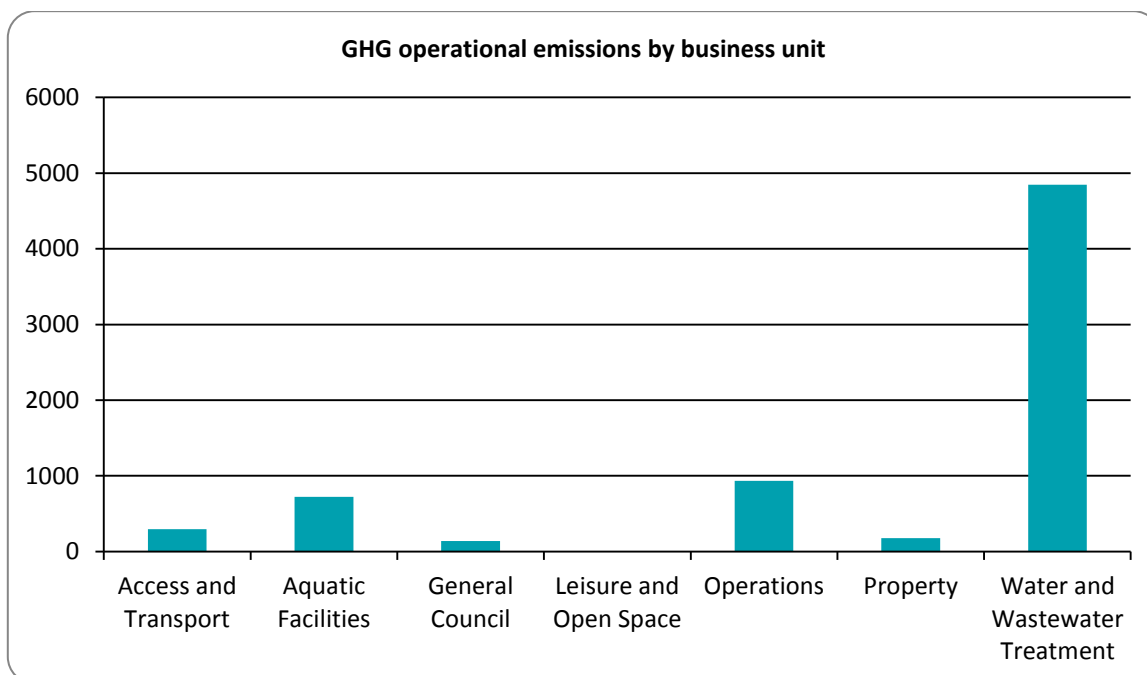


Figure 3: GHG emissions (tonnes CO₂e) by business activity.

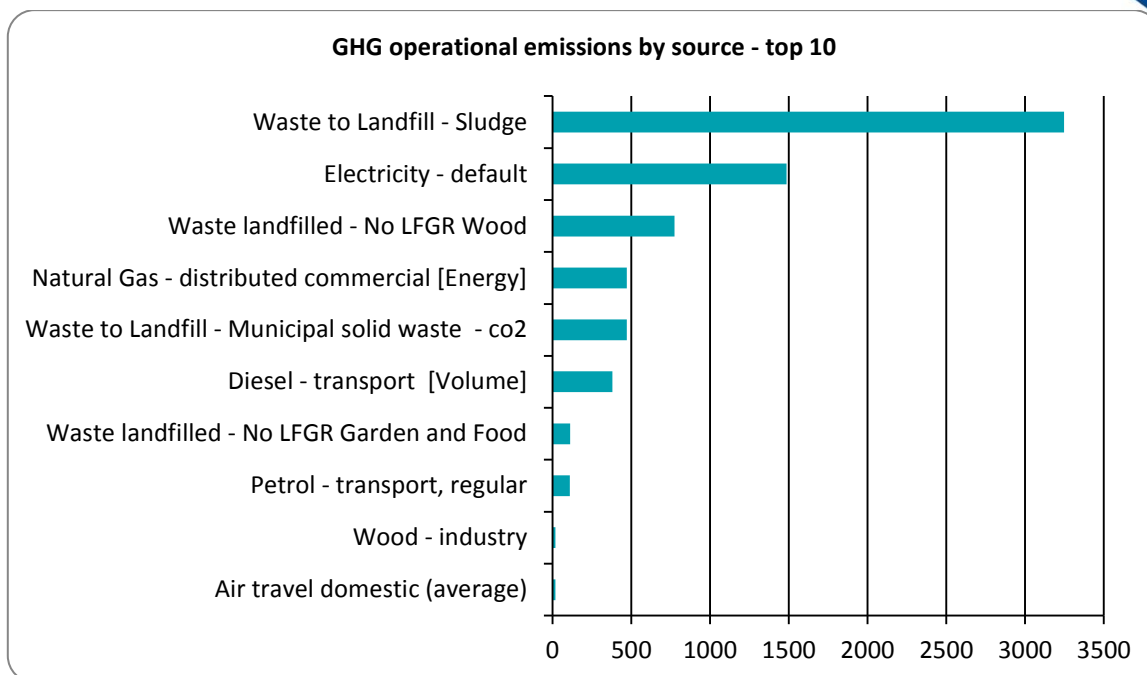


Figure 4: GHG emissions sources by source.

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 certified entity.

10 GHG emissions reductions and removals enhancement

GHG emissions for the organisation for the current reporting period are detailed in Table 1.

Figure 7 shows variations that arise from reorganisation of reporting units. In 2009-10 and 2010-11, pumping station assets were divided between the units 'Water', 'Wastewater' and 'Stormwater', while treatment plants were part divided between of the 'Water' and 'Wastewater' units. From 2011-12 onwards, these were reorganised to align more closely with how these assets are managed, namely all water, wastewater and stormwater pumping stations were allocated to the 'Operations' reporting unit, and all treatment plants and other water assets such as bores and reservoirs were allocated to the new 'Water and Wastewater Treatment' reporting unit. Hence the reporting units 'Water', 'Wastewater' and 'Stormwater'. Are now unused. A second change implemented from 2012-13 was the formation of the 'Aquatic Facilities' reporting unit, which inherited swimming pool assets from 'Leisure and Open Space'. This reflected a management change that occurred at that time.

The management and reduction plan has been changed since certification.

The organisation will have an updated management plan in place for managing and reducing emissions in the future in order to maintain Programme recertification.

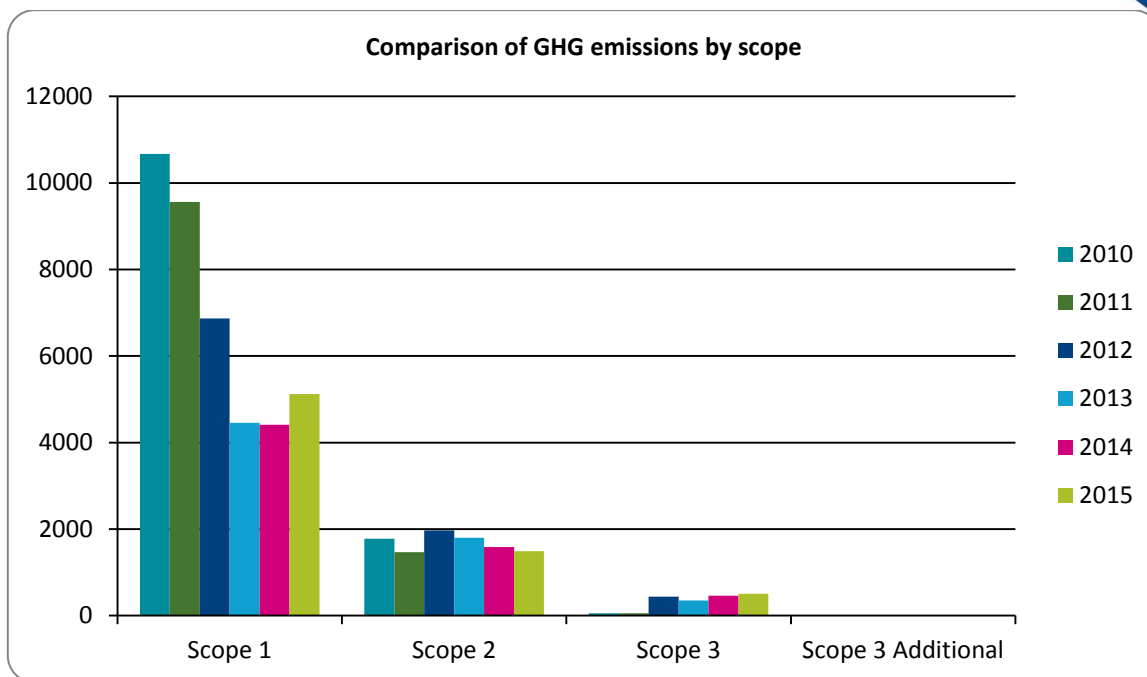


Figure 5: Comparison of GHG operational emissions by scope between the reporting periods.

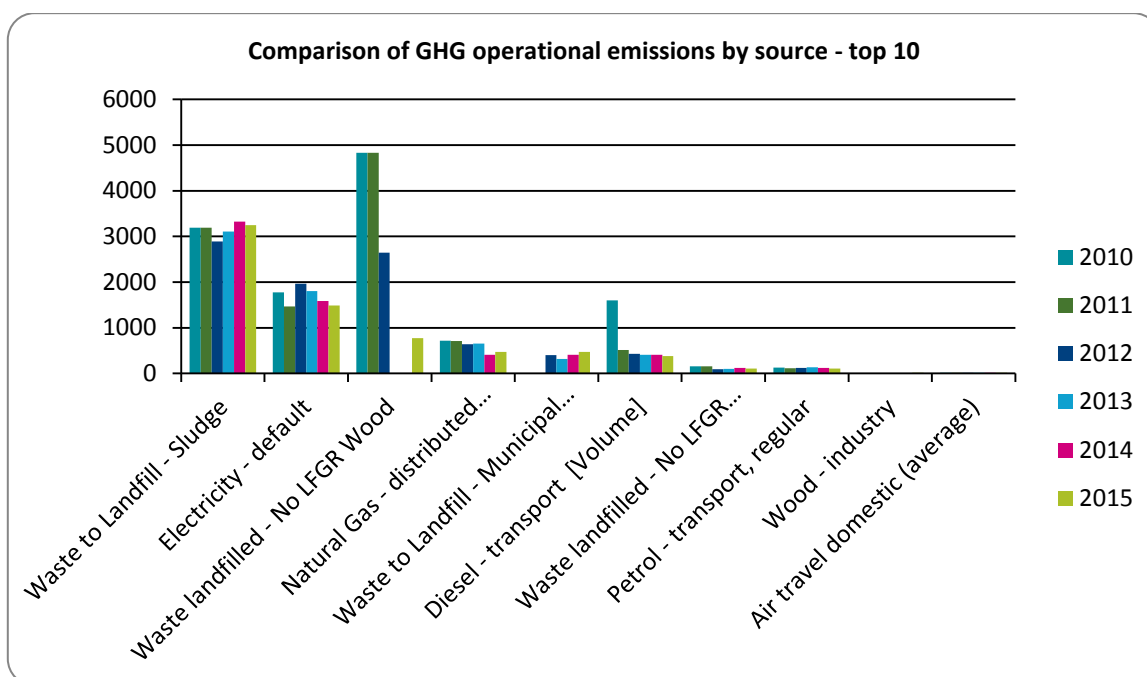


Figure 6: Comparison of GHG operational emissions by emissions sources between the reporting periods.

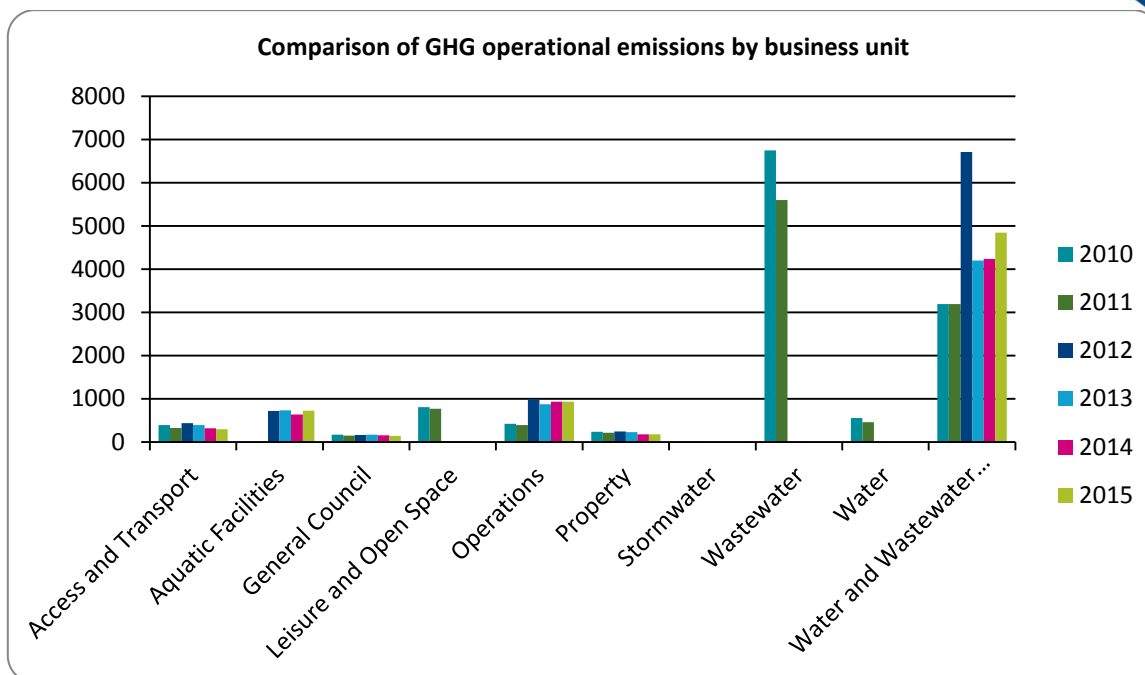


Figure 7: Comparison of emissions by business unit between the reporting periods.

11 Liabilities

11.1 GHG stocks held⁴

HFCs, PFCs and SF₆ represent GHGs with high global warming potentials. Their accidental release could result in a large increase in emissions for that year, and therefore the stock holdings are reported under the Programme (Table 13).

GHG stocks have been reported in this inventory and added into the GHG Stock Liability questionnaire. Emissions and sequestration associated with council-owned forests is reported in this inventory but not included in the organisational total. Emissions from losses of refrigerant are included in the organisational total.

Table 13: HFCs, PFCs and SF₆ GHG emissions and liabilities.

GHG gas	Amount held - start of reporting period	Amount held - end of reporting period	Potential Liability tCO ₂ e
GHG holdings - HCFC-22 (R-22) (kg HFCs)	12.70	12.70	22.99
GHG holdings - HFC-32 (kg HFCs)	(no data)	1.80	1.22
GHG holdings - R-407C (kg HFCs)	130.00	130.00	230.60
GHG holdings - R-410A (kg HFCs)	202.50	54.30	113.35
GHG Holdings - Forests (tCO ₂ e)	34,787.00	35,198.00	35,198.00

⁴ HFC stock liabilities for systems under 3 kg can be excluded.

GHG gas	Amount held - start of reporting period	Amount held - end of reporting period	Potential Liability tCO ₂ e
Total	35,132.20	35,396.80	35,566.15

11.2 Land-use change

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 a sequestration is claimed, then this also represents a liability in future years should fire, flood or other management activities release the stored carbon.

Land-use change has been included in this inventory. In 2014-15 there has been no significant change of use of council land, or additions or removals of forest land from council ownership.

12 Purchased reductions

Purchased reductions could include certified “green” electricity, verified offsets or other carbon-neutral-certified services. Organisations may choose to voluntarily purchase carbon credits (or offsets) or green electricity that meets the eligibility criteria set by a regulatory authority. The reported gross emissions may not be reduced through the purchase of offsets or green tariff electricity.

Purchased emission reductions have not been included in this inventory.

Certified green electricity has not been included in this inventory.

We generate on-site renewable electricity, and this is included in the inventory. The Council possesses the following on-site electricity generation systems:

2.0 kW psolar photovoltaic system located at Otaki Library and Service Centre, commissioned in November 2011

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, Otaki, commissioned in December 2013

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

13 Double counting / double offsetting

Double counting/offsetting refers to situations where:

- Parts of the organisation have been prior offset.
- The same emissions sources have been reported (and offset) in both organisation and product.
- Emissions have been included and potentially offset in the GHG emissions inventories of two different organisations, e.g. a company and one of its suppliers/contractors. This is particularly relevant to indirect (Scope 2 and 3) emissions sources.
- The organisation generates renewable electricity, uses or exports the electricity and claims the carbon benefits.
- Emissions reductions are counted as removals in an organisation’s GHG emissions inventory and are counted or used as offsets/carbon credits by another organisation.

Double counting / double offsetting has not been included in this inventory.



14 References

International Organization for Standardization, 2006. ISO14064-1:2006. Greenhouse gases – Part 1: Specification with guidance at the organisation level for quantification and reporting of greenhouse gas GHG 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.

Appendix 1: GHG emissions data summary

More GHG emissions data is available on the accompanying spreadsheet(s) to this report:

KCDC_n633258_GHG_Emissions_Calculation_Methodology_2014-15.DOC