tasman district council | Te Kaunihera o te tai o Aorere

Greenhouse Gas Emissions Inventory Report

2020 – 2021

Contents

Summary

Tasman District Council's net emissions for the July 2020 – June 2021 period were 20,895 tCO_2e (tonnes of carbon dioxide equivalents). This figure does not include emissions associated with the construction of the Waimea Community Dam, which are reported separately in Section 5 of this report.

Excluding emissions associated with the dam's construction, the Council's primary emissions source this year was from landfills by a significant margin. The Council's other large emission sources were wastewater treatment plants, supplier transport fuels, purchased electricity, and Council's transport fuels. These sources make up 95.6% of our gross carbon emissions for the 2020-21 period.

Figure 1: Gross greenhouse gas (GHG) emissions by source

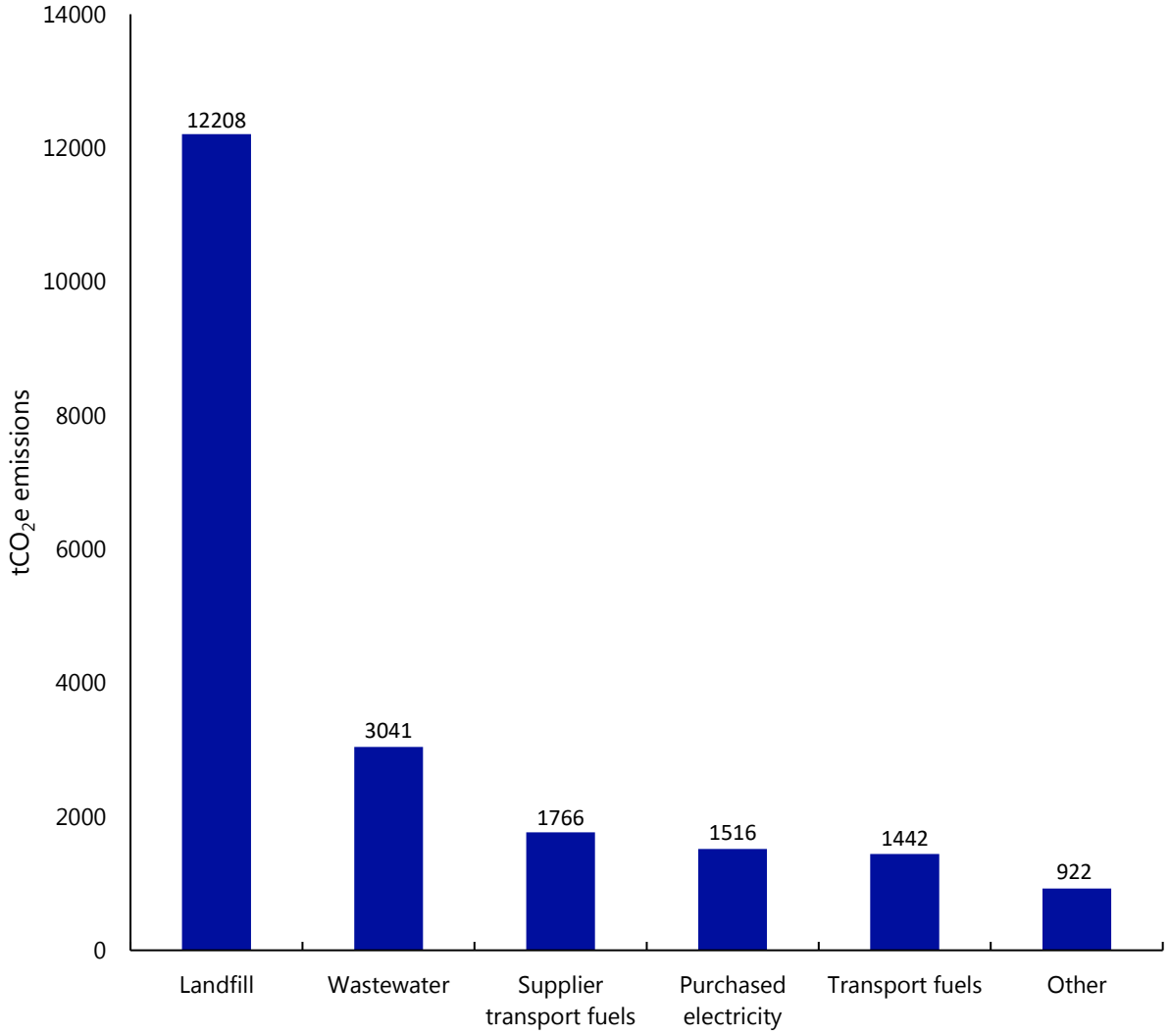


Figure 2: Percentage of gross GHG emissions attributed to sources

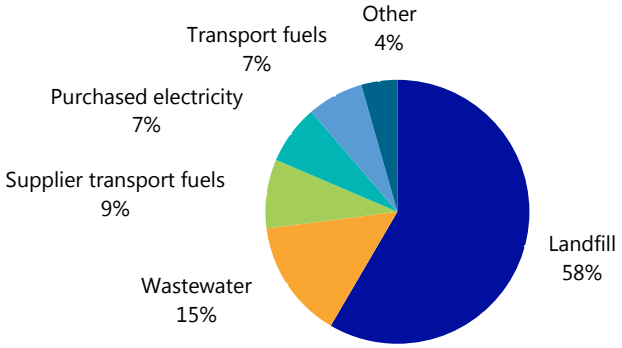


Table 1: Emissions summary

Category	tCO_2e
Category 1: Direct emissions	17,103
Category 2: Indirect emissions from imported energy	1,516
Category 3: Indirect emissions from transportation	141
Category 4: Indirect emissions from products used by the organisation	2,135
Total direct emissions	17,103
Total indirect emissions	3,792
Total gross emissions	20,895
Category 1 direct removals	(0)
Total net emissions	20,895

Table 2: Gross emissions per capita compared to Te Tau Ihu unitary authorities[1]

Authority	Gross emissions (tCO_2e)	Gross emissions (tCO_2e) per capita
Tasman District Council 2020-2021 *Population: 57,900 (June 2021)*[2]	20,895	0.36
Nelson City Council 2019-2020 *Population: 51,900 (June 2020)*[3]	15,014[4]	0.29
Marlborough District Council 2019-2020 *Population: approx. 51,000 (June 2020)*[5]	45,442[6]	0.89

[1] This table uses the most recent emissions figures as of the time of writing and compares them to population data associated with that period. Note that Tasman District Council used updated emissions factors for 2022 which may differ from emissions factors used by the Nelson or Marlborough authorities. In addition, different methodologies and accounting approaches were used.

[2] About Tasman - Tasman District Council.

[3] Annual Report 2020/2021 – Nelson City Council

[4] Greenhouse Gas Emissions Inventory Report 2019 – 2020 – Nelson City Council

[5] Subnational population estimates by age and sex, at 30 June 1996-2021- Stats NZ

[6] Corporate Greenhouse Gas Emissions 2019-2020 – Marlborough District Council

1 Introduction

This report is the baseline greenhouse gas (GHG) emissions[7] inventory report for Tasman District Council. The inventory quantifies the amount of GHG emissions directly attributed to Tasman District Council's operations within the declared boundary and scope for the 2020 – 2021 period.

The Council has prepared this inventory following the requirements of the *Ministry for the Environment Detailed Guide for Organisations*, 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*[8].

This inventory forms part of the Council's commitment to measure and manage our emissions, as adopted in our *Climate Action Plan*[9]*.* This report aims to understand where our emissions are coming from and monitor our progress in reducing them. Our objectives are to reduce our emissions every year. A detailed target for emissions reduction is currently being reviewed and will be set by late 2022.

1.1 Organisational description

Tasman District Council (TDC) is the territorial authority for the Tasman District of New Zealand. The Tasman District spans 9,786 square kilometres of Te Tau Ihu (the top of the South Island), extending from Richmond to Golden Bay in the north-west and Murchison in the south.

We are one of six unitary councils in Aotearoa, meaning we do the work of both a regional council and a district council. We provide a wide-ranging of services to our communities, including:

- Water supply, wastewater, and stormwater
- Rubbish collection and disposal
- Parks, reserves, and leisure facilities
- Roads and street lighting, subdivision
- Building and resource consents processing
- Libraries and museums
- Food premises and liquor licensing
- Animal control
- Biosecurity and pest control
- Civil defence and emergency management
- River and flood control
- Environmental protection
- Public transport
- Water quantity and quality regulation
- Maritime navigation and safety
- Local bylaw administration

[7] Throughout this document 'emissions' means GHG emissions.
[8] 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
[9] Our climate action plan and progress reports are available on our website.

The Council aims to work together for a Tasman District with a healthy environment, strong economy, and a vibrant community. We understand that climate change is a serious threat and that we will need to lead by example. Like many other councils, Tasman District Council knows that ongoing, sustained action on climate change is required. This report helps us understand how to reduce our emissions moving forward.

1.2 People responsible

Anna Gerraty, Senior Community Policy Advisor, is responsible for emissions measurement. Neil Lindsay, Andrew Bingham, David Stephenson, and Graeme Fox were also involved in developing this inventory. Staff also took part in a workshop to assess our scope and organisational boundaries with Toitū Envirocare.

1.3 Third-party verification

Independent verification was completed by McHugh & Shaw Limited. Mixed assurance has been achieved (Reasonable Assurance ISO Cat 1/2 and Limited Assurance ISO Cat 3-6).

1.4 Intended use and users

The Council has developed this report to help our staff and councillors identify, mitigate, and reduce our greenhouse gas emissions. This report forms part of the Council's commitment to measure and manage our emissions, as stated in our *Climate Action Plan*. We plan on annually reporting these results, so our community is kept aware of the Council's emissions and our progress in reducing them.

1.5 Dissemination policy

We will make this report publicly available on our website. In addition, we will update our website annually to report our emissions and what we are doing to reduce them.

1.6 Documentation retention and record-keeping

The Council keeps records associated with our GHG emissions on a secure internal server. The Council handles these documents following our GHG information management procedures.

1.7 Reporting period, base year, and frequency of reporting

This inventory covers the period from July 1, 2020, to June 30, 2021. This choice aligns with global standards and the Council's financial reporting. This period will also act as our base year for emissions reporting as this is the first inventory of our carbon emissions. We will consider a base-year recalculation in the case of changes to reporting boundaries, improvements in reporting methodology (such as additional ISO Category 3-6 emission sources), or the identification of significant errors in the methodology. We will continue to measure our emissions annually.

1.8 Performance against targets

The Council's *Climate Action Plan* aims to reduce emissions by 10% below 2017 levels by 2030 and 47% by 2050. We have based this target on the goals of the *Zero Carbon Act*[10]. However, we did not record our emissions in 2017. As a result, we will revise this target in mid-2023, and the 2020-2021 period will become the baseline for our new targets.

1.9 GHG information management procedures

The Council has established GHG information management procedures that conform with GHG Protocol and ISO 14064-1:2018 standards. These information management procedures provide regular checks to ensure the accuracy and completeness of our inventory. Our information management procedures document the following:

- Staff responsible for GHG inventory development
- Training procedures for staff responsible for GHG inventory development
- Organisational boundaries and how we review them
- GHG sources, sinks, and how we review them
- Quantification approaches (including data and models used for quantification) and how we review them
- Use, maintenance, and calibration of measurement equipment
- Data collection systems and how we review them
- How regular accuracy checks, internal audits, and reviews of information management take place

[10] Climate Change Response (Zero-Carbon) Amendment Bill - New Zealand Parliament

2 Organisational boundaries

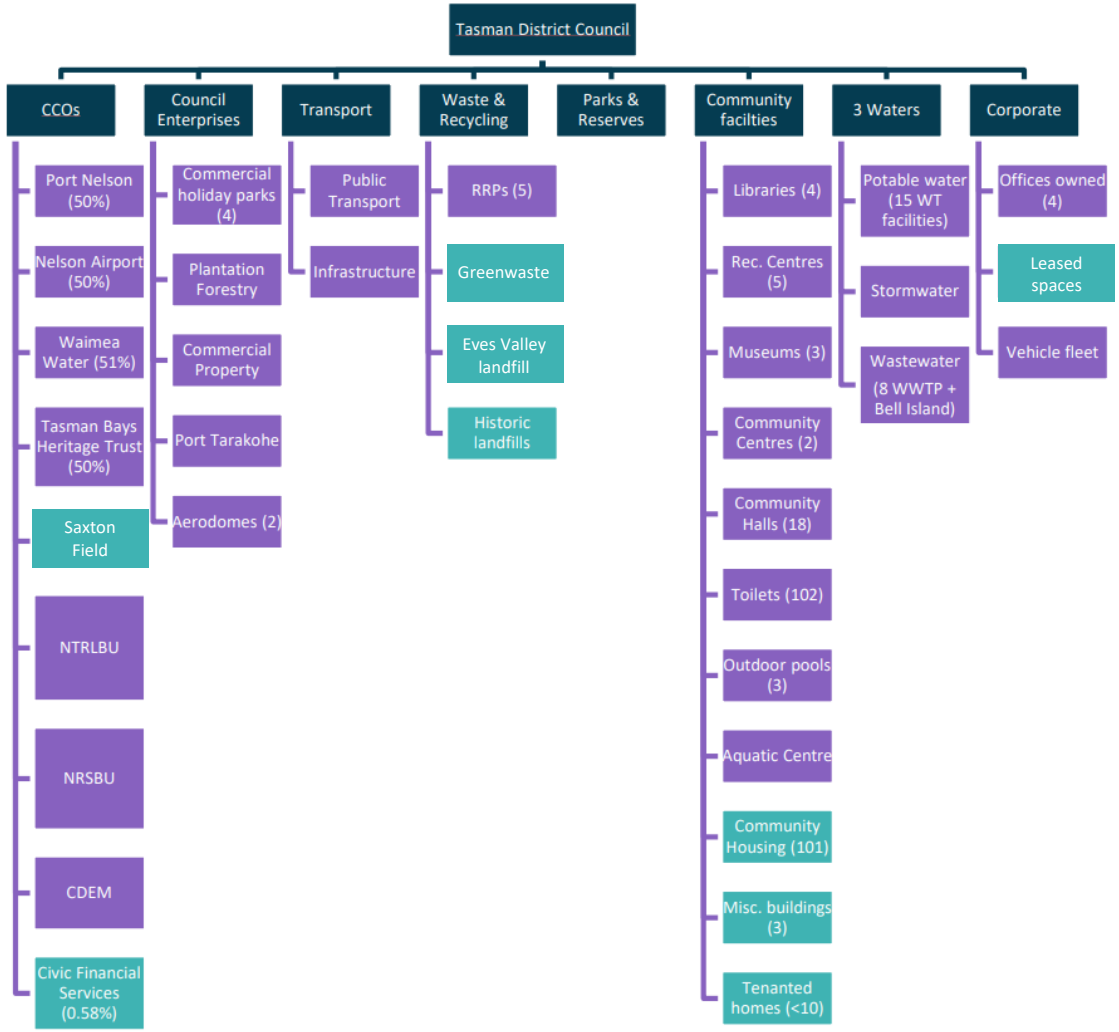
Tasman District Council sets our organisational boundaries using the methodology described in the GHG Protocol and ISO 14064-1:2018 standards. The standards allow us to use two distinct approaches to consolidate GHG emissions: equity share or control (financial or operational)[11].

We used an **equity share consolidation approach** to account for emissions. An equity share approach is where the Council accounts for its portion of GHG emissions and removals from respective facilities. We chose this approach to align with the structure of our Council and the intended use of this inventory. For example, Council directly accounts for 50% of Port Nelson's emissions using this approach because we are a 50% shareholder alongside Nelson City Council.

Figure 3 identifies what facilities and business units we have included and excluded from our inventory.

[11] **Control:** the organization accounts for all GHG emissions and/or removals from facilities over which it has financial or operational control.
Equity share: the organization accounts for its portion of GHG emissions and/or removals from respective facilities.

Figure 3: Organisational boundary for Tasman District Council emissions measurement[12]



[12] Business units in purple are included in the inventory. Business units in green are excluded from the inventory.
Eves Valley Landfill was closed in 2017. The landfill is a significant emissions source, but MfE emission factors do not currently account for closed landfills and we cannot account for these emissions at this stage.

3 Reporting boundaries

3.1 Excluded sources

While we have tried to account for all our emissions, some sources may be impracticable to measure. Therefore, we decided to exclude emissions for the following reasons:

- Emissions are minimal or non-significant (<1% of carbon emissions and, together with other excluded sources, do not exceed 5% of carbon emissions).
- The value of a contract with a supplier or the emissions intensity is low.
- The Council has minimal influence or control.
- The source is outside of the reporting boundaries.
- The source is not relevant to intended users.
- There is a lack of emissions factors.
- It is infeasible to gather data from the source.

We excluded five sources from our inventory. Table 3 explains why we excluded these sources.

Table 3: Business units, facilities, and activities excluded from emissions measurement

Source	Reason for exclusion
Richmond office diesel generator	Emissions are minimal
Rental car hire	Emissions are minimal
Personal vehicle use	Emissions are minimal
Postage/small courier package	Emissions are minimal
Working from home	It is infeasible to gather data from the source.

We report emissions from our suppliers as part of our annual reporting. While we endeavoured to collect data from suppliers that contribute to significant emissions, some suppliers did not report emissions data for this year. We received data from 10 out of 18 suppliers (55%). Our intention is to improve on supplier reporting in future years by including this as a new contractual requirement.

3.2 Included sources

We decided to include sources for the following reasons:

- The emissions or removals are quantitatively substantial or are likely to contribute >1% to the overall emissions inventory.
- The extent to which the organisation can control the source is high.
- A member of the public would assume that the Council were responsible for the source.
- The source is deemed significant by other councils or public sector entities.
- The source is typically a core business activity.
- The source could motivate employees or customers (for example) to reduce energy use or inspire team spirit around climate change (e.g., energy conservation incentives, carpooling, internal carbon pricing).
- A certification claim (or other intended uses) implies that the inventory includes a source

We engaged Toitū Envirocare to run a scope and boundary workshop with staff, to help decide what sources we would include.

The emissions sources deemed significant for inclusion in this inventory were classified into the following categories:

- Category 1: Direct emissions and removals.
- Category 2: Indirect emissions from imported energy.
- Category 3: Indirect emissions from transportation.
- Category 4: Indirect emissions from products used by the organisation.

Table 4 provides detail on emission sources included in our inventory, an overview of how we collected for each emissions source, and an explanation of any uncertainties or assumptions.

Table 4: Sources included in emissions measurement

Activity	Category	Data source	Unit	Level of accuracy/uncertainty
Landfill	1	NTRLBU data	kg	We assume the NTRLBU have provided complete and accurate data.
Leased assets	1	Nelson Airport data	$kgCO_2e$	We assume Nelson Airport have provided complete and accurate data.
Refrigerents	1	Aquatic centre data	kg	We assume the operator has provided complete and accurate invoice data.
Stationary fuels	1	Nelson Airport data	$kgCO_2e$	We assume Nelson Airport have provided complete and accurate data.
Transport fuels	1	NPD Monthly Reports, Supplier data	L	We assume the suppliers have provided complete and accurate invoice data. This data will be slightly underestimated because we lack data from three holiday parks.
Wastewater	1	Calculations from the project engineer, NRSBU data	kg	We calculated these figures using Water NZ guidelines (2021). Some deviations were made from the guidelines to account for the proportion of holidaymakers during the year and more accurate monitoring data for the Motueka and Takaka areas. We assume the NRSBU have provided complete and accurate data.
Purchased electricity[13]	2	EBench database of electricity purchases, Supplier data	kWh	We assume the suppliers have provided complete and accurate invoice data. This data will be slightly underestimated because we lack data from three holiday parks.
Accommodation	3	Orbit Travel	Room nights	We assume the supplier has provided complete and accurate invoice data.

[13] We used a location-based reporting approach (using a national "grid average" emissions factor for electricity consumption provided by MfE) to source electric consumption data.

Activity	Category	Data source	Unit	Level of accuracy/uncertainty
Air travel	3	Orbit Travel	Passenger km	We assume the supplier has provided complete and accurate invoice data.
Car hire	3	Orbit Travel	km	We assume the supplier has provided complete and accurate invoice data
Freight	3	Library and Environmental Monitoring departments, Supplier data	Tonne/km	This figure is an estimate calculated by calculating the average parcel weight and distance travelled. We assume our suppliers have provided complete and accurate invoice data. For Council's direct freight emissions, the figure only includes the two Council departments that responsible for the vast majority of our freight
Helicopter fuel	3	Forestry contractor and Hydrology manager	L	We assume that the forestry contractor has provided complete and accurate data. The hydrology component is an estimate but is a much smaller proportion of the total.
Cloud storage	4	Storage provider	kWh	We assume the supplier has provided complete and accurate data. The figure is an average of two calendar years to match our financial year.
Supplier construction materials	4	Suppliers' data	Kg	This figure will have a low level of accuracy and will be an underestimate because it is the estimated data from half of our significant suppliers.
Supplier electricity	4	Suppliers' data	kWh	This figure will have a low level of accuracy and will be an underestimate because it is the estimated data from half of our significant suppliers.
Supplier transport fuels	4	Suppliers' data	L	This figure will have a low level of accuracy and will be an underestimate because it is the estimated data from half of our significant suppliers.
Supplier waste	4	Suppliers' data	kg	This figure will have a low level of accuracy and will be an underestimate because it is the estimated data from half of our significant suppliers.

Activity	Category	Data source	Unit	Level of accuracy/uncertainty
Transmission and distribution losses	4	EBench database of electricity purchases	kWh	We assume the supplier has provided complete and accurate invoice data. This data will be slightly underestimated because we lack data from three holiday parks.
Waste	4	Port Nelson and Nelson Airport annual reports, supplier data, waste audit	Kg	This data will be slightly underestimated because we lack data from three holiday parks. We assume suppliers have provided complete and accurate data. The waste audit figure is an estimate based on a 4-day waste audit of the main Richmond office. This figure was adjusted for all offices based on staff numbers and grossed up for the year.

3.3 Impact on uncertainties on the accuracy of GHG emissions and removals

A quantitative estimation of uncertainty was not cost-effective, so we conducted a qualitative assessment of uncertainty. The uncertainty of Category 1 emissions is medium because there is uncertainty within the Water New Zealand methodology used to calculate our wastewater emissions. The uncertainty for Category 2 emissions is low because there was only one source of emissions, and we assume our suppliers provided complete and accurate data. Uncertainty is high for Categories 3 and 4 as we only received data from 10 out of 18 suppliers. For all these categories, there are uncertainties in the emissions factors that MfE provided in their Detailed Guide to Measuring Emissions 2022.

4 Quantified GHG inventory of emissions and removals

4.1 Methodology

Tasman District Council used an Interactive Workbook (April 2022) developed by the Ministry for Environment[14] to complete this inventory. The Ministry for the Environment recommends that organisations use this workbook, and local governments widely use it to report their emissions. The workbook automatically calculates our emissions. We chose this quantification model to ensure our results align with the rest of the sector. MfE's Detailed Guide to Measuring Emissions 2022 documents this model and the GHG emission and removal factors used, based on New Zealand's Greenhouse Gas Inventory 1990-2020.

4.2 GHG inventory

ISO 14064-1:2018 recommends reporting six different greenhouse gases. Each gas has a *global warming potential* (GWP). The Global Warming Potential (GWP) compares the global warming impacts of different gases. Specifically, the GWP measures how much energy the emissions of one ton of a gas will absorb over a given time relative to one ton of carbon dioxide (CO2) emissions. The larger the GWP, the more that a given gas warms the Earth compared to CO_2 over a given period. The period usually used for GWPs is 100 years. GWPs provide a standard unit of measure, allowing analysts to add up the effects of different gases. Table 5 states the GWP of the greenhouse gases reported in this inventory.

Table 5: Global warming potential (GWP) of selected greenhouse gases[15]

Gas	GWP
CO_2	1
CH_4	28
NO_2	265
HFCs[16]	3,985[17]
SF_6	23,500
NF_3	16,100

The following table states our GHG emissions in detail. This table is organised by emissions category, as recommended by ISO 14064-1:2018.

[14] Greenhouse Gas Protocol – Global Warming Potential Values
[15] The listed potentials are provided by the Ministry for the Environment in their Interactive Workbook.
[16] Weighted average stated in ISO 4064-1. MfE does not state what GWP they use for HFCs.
[17] Average GWP for HFC-125 and HFC-143a used in refrigerant AZ50R507.

Table 6: Consolidated statement of GHG emissions[18]

Category 1: Direct emissions							
Source	tCO_2e	tCO_2	tCH_4	tNO_2	tHFCs	tSF_6	tNF_3
Landfill	12,208	-	436 (12,208)	-	-	-	-
Wastewater	3,041	-	88 (2460)	2 (580)	-	-	-
Transport fuels	1,442	1407 (1407)	0.1 (3)	0.1 (25)	-	-	-
Refrigerants	402	-	-	-	0.1 (402)	-	-
Stationary fuels	6	-	-	-	-	-	-
Leased assets	4	-	-	-	-	-	-
Air conditioning units/heat pumps	These sources were not measured for the 2020-2021 period. We will measure these sources in future years.						
Planted forest harvest and deforestation							
Natural forest harvest and deforestation							
Total Category 1 emissions	**17,103**						
Category 2: Indirect emissions from imported energy							
Source	tCO_2e	tCO_2	tCH_4	tNO_2	tHFCs	tSF_6	tNF_3
Purchased electricity	1,516	1,415 (1,415)	1 (41)	0.01 (3)	-	-	-
Total Category 2 emissions	**1,516**						
Category 3: Indirect emissions from transportation							
Source	tCO_2e	tCO_2	tCH_4	tNO_2	tHFCs	tSF_6	tNF_3
Helicopter fuels	110	106 (106)	0.03 (1)	0.01 (3)	-	-	-
Air travel	26	24 (24)	-	0.003 (1)	-	-	-
Accommodation	2	-	-	-	-	-	-
Freight	2	2 (2)	-	-	-	-	-
Public transport	This source was not measured for the 2020-2021 period. We will measure this source in future years.						
Total Category 3 emissions	**141**						

[18] Numbers in brackets indicate converted tCO_2e units. Numbers may not add up to tCO_2e due to rounding or lack of data. Numbers may not be reported if they are minimal (<0.5 tCO_2e). Some emission sources were only reported as tCO_2e rather than split into constituent gases.

Category 4: Indirect emissions from products used by the organisation							
Source	tCO_2e	tCO_2	tCH_4	tNO_2	tHFCs	tSF_6	tNF_3
Supplier transport fuels	1,766	1,735 (1,735)	0.1 (3)	0.1 (28)	-	-	-
Supplier construction materials	130	-	-	-	-	-	-
Transmission and distribution losses	109	106 (106)	0.1 (3)	-	-	-	-
Cloud storage	75	-	-	-	-	-	-
Waste	35	-	1 (24)	-	-	-	-
Supplier electricity	14	13 (13)	-	-	-	-	-
Supplier waste	6	-	0.2 (6)	-	-	-	-
Total Category 4 emissions	**2,135**						
Emission sources							
Total direct emissions	17,103						
Total indirect emissions	3,792						
Total gross emissions	**20,895**						
Removals							
Activity	tCO_2e	tCO_2	tCH_4	tNO_2	tHFCs	tSF_6	tNF_3
Regenerating natural forest growth	See Section 4.4. This source was measured for the 2020-2021 period but is not reported in this inventory because we lack accurate harvesting and deforestation data. We will measure this in future years.						
Tall natural forest growth							
Planted forestry growth							
Total removals	(0)						
Total net emissions	**20,895**						

4.3 Anthropogenic biogenic CO_2 emissions

Anthropogenic biogenic emissions result from biomass combustion caused by human activity. Examples of this include burning biofuel or decomposition of organic matter.

We followed the Ministry for the Environment's Detailed Guide to Measuring Emissions 2022, which states that users should separately report biogenic emissions from biofuel or biomass combustion. Council does not have biofuel or biomass combustion sources. We used Water New Zealand's methodology to quantify our wastewater emissions, which excludes biogenic emissions.

We will report any other anthropogenic biogenic emissions separately and in our consolidated statement in future years.

4.4 Forestry emissions

Growing forests are called "carbon sinks" because they remove carbon dioxide from the atmosphere. The Council administers a large area of planted forestry for commercial harvesting and some areas of natural regenerating forest.

We do not currently know how much natural regenerating forest is on Council land. Accordingly, we cannot calculate how much carbon this type of forest sequesters from our atmosphere. This work is due to be calculated in the upcoming years.

We have 2,781 ha of planted exotic forest for commercial purposes[19]. According to MfE emission factors[20], planted forests sequester -35.561 tonnes per hectare, so our commercial forests remove roughly 99,000 tCO_2e from the atmosphere each year. This is based on the stock-change accounting method of reporting emissions

Harvesting and deforestation emit a significant amount of tCO_2e. Unfortunately, we did not receive data on harvesting from our forestry contractors and cannot report our emissions from this activity. Because of this lack of data, we have decided to not report our forestry removals as part of our overall emissions figure for this year. We intend on securing this data in future years for more accurate reporting.

[19] Tasman District Council – Council Enterprises Activity Management Plan 2021-2051
[20] Ministry for the Environment – 2022 summary of emissions factors

5 Emissions associated with the construction of the Waimea Community Dam

Tasman District Council is currently constructing the Waimea Community Dam. Tasman District Council is the 51% majority shareholder of Waimea Water, a council-controlled organisation (CCO) tasked with building and maintaining the dam. We share ownership with Waimea Irrigators Limited, which holds 49% of the shares.

The dam's construction produces a significant amount of emissions, and as a 51% majority shareholder, we are responsible for 51% of construction emissions. We believe it is important to include the emissions produced from the dam's construction in this report, but note that excluding these emissions from our baseline measurement may be more helpful for comparison with our annual operational emissions in future. As this is our first year of reporting our emissions, including the emissions associated with the dam in our overall summary would disrupt future reporting. Accordingly, we have decided to report emissions associated with the dam separately, as this is a one-off project.

Including emissions from the construction of the Waimea Community Dam, Tasman District Council's net emissions for the July 2020 – June 2021 period was 28,131 tCO_2e. Our 51% share of the emissions from construction of the Waimea Dam were 7,273 tCO_2e and made up 25.8% of our gross carbon emissions for 2020-2021.

Figure 4 and Tables 7 and 8 describe the emissions for each activity associated with the dam's construction.

Figure 4: Gross GHG emissions by source - including emissions from the construction of the Waimea Community Dam

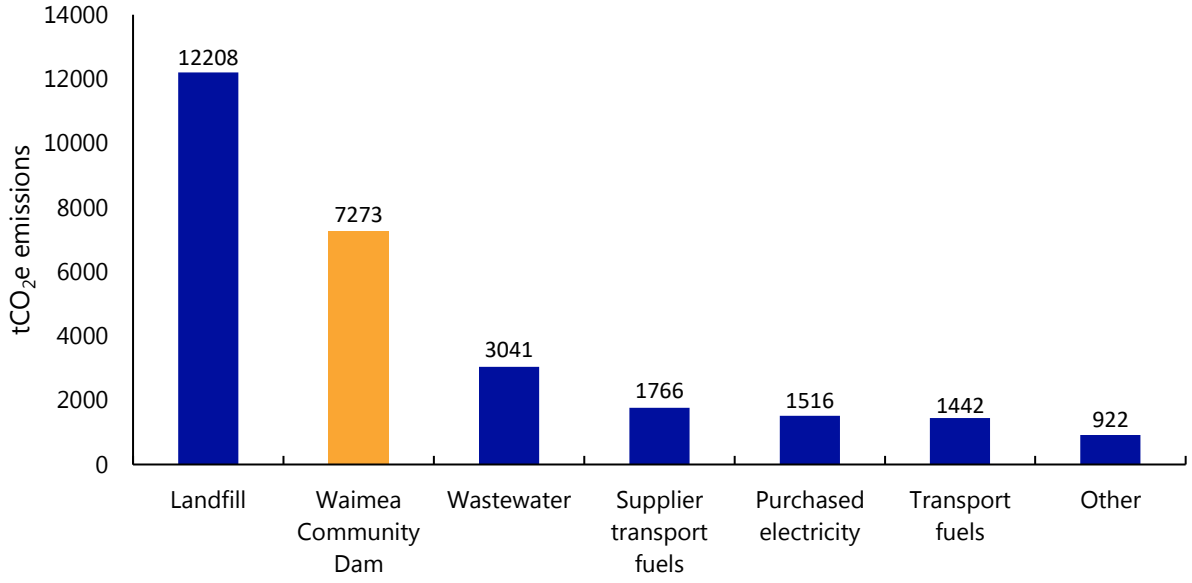


Table 7: GHG emissions from the construction of the Waimea Community Dam

Source	tCO_2e	tCO_2	tCH_4	tNO_2	tHFCs	tSF_6	tNF_3
Construction materials	4,002	-	-	-	-	-	-
Construction transport fuels	3,246	3,190 (3,190)	0.2 (5)	0.2 (51)	-	-	-
Construction waste	19	-	1 (19)	-	-	-	-
Construction electricity	6	6 (6)	-	-	-	-	-
Gross emissions	**7273**						

Table 8: Source emissions for construction of the Waimea Community Dam

Activity	Category	Data source	Unit	Level of accuracy/uncertainty
Construction materials	4	Contractor	kg	The supplier assumed an average mix of sand, fly, ash, cement, and aggregate to estimate the quantity of concrete. The supplier used a concrete embodied carbon footprint calculator to calculate this figure.
Construction transport fuels	4	Contractor	L	We assume the supplier has provided complete and accurate invoice data.
Construction waste	4	Contractor	kg	We assume the supplier has provided complete and accurate invoice data.
Construction electricity	4	Contractor	kWh	We assume the supplier has provided complete and accurate invoice data.

6 References

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