Pūrongo Whakarārangi Tuku Haurehu Kati Mahana

Greenhouse Gas Emissions Inventory Report

2022

Te Pūkenga – New Zealand Institute of Skills and Technology

Te Pūkenga

Ngā ihirangi | Contents

He whakarāpopotonga | Summary

This is the first Greenhouse Gas (GHG) Emissions Inventory Report for Te Pūkenga – New Zealand Institute of Skills and Technology and has been prepared for the calendar year (1 January to 31 December) 2022.

This report outlines the process used to prepare the GHG Inventory, which includes determining the organisational boundary, the emission source inclusions and exclusions, and the data collection methods used.

The calculations in this report have been completed by engineers from Lumen and have been verified by Toitū Envirocare.

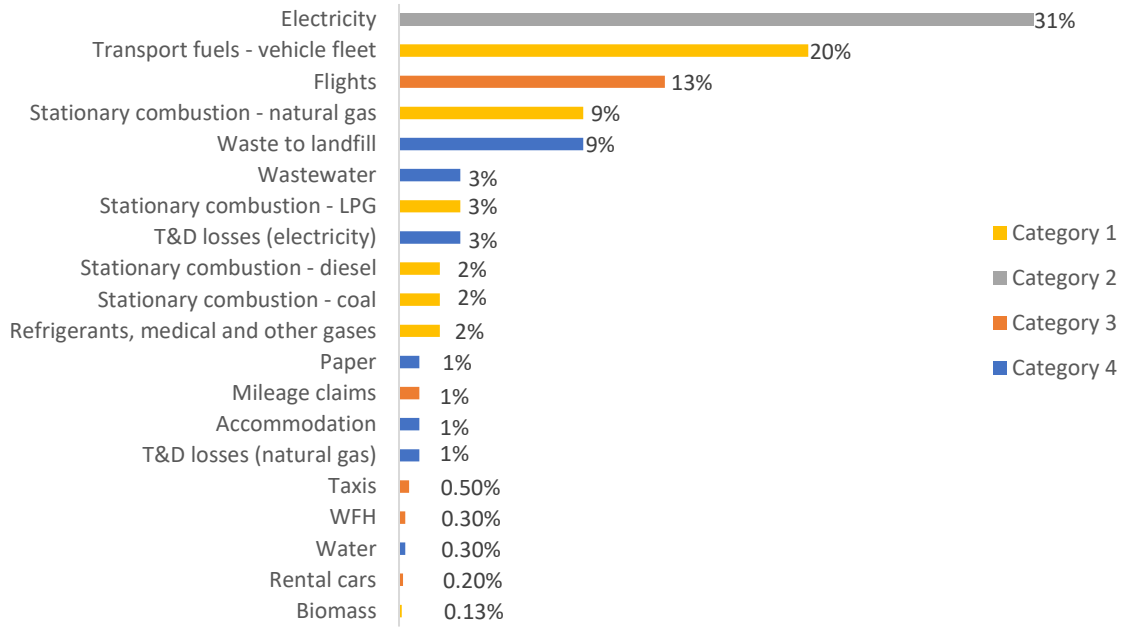
Results

Te Pūkenga GHG emissions for 2022 were 23,697 tonnes of carbon dioxide equivalent (tCO_2-e).

Table 1: Te Pūkenga GHG emissions for 2022 by category

Emissions	tCO_2-e
Category 1 – Direct	8,823
Category 2 – Indirect energy	7,355
Category 3 – Indirect transport	3,508
Category 4 – Indirect products/services	4,011
Total	**23,697**

Figure 1: Te Pūkenga GHG emissions for 2022 by source (tCO_2-e)[1]



[1] Biogenic CO_2 emissions from biomass = 1,034 tCO_2

1. **Kupu Whakataki |** Introduction

This report is the first greenhouse gas (GHG) emissions inventory report for Te Pūkenga. The inventory is a quantification of the amount of GHG emissions that can be attributed to the organisation's operations within the declared boundary and scope for the calendar year 2022.

Te Pūkenga is the largest tertiary education provider in New Zealand. From April 2020, New Zealand's 16 Institutes of Technology and Polytechnics (ITPs) and nine Industry Training Organisations (ITOs) begun a process of integrating into one network. Te Pūkenga has approx. 9000 kaimahi (staff) and 270,000 ākonga (learners) within the network.

Intended use and purpose of this document

This GHG emissions inventory (also known as a 'carbon footprint') has been developed as the first inventory for Te Pūkenga.

The audience for this report is anticipated to be internal stakeholders including Te Pūkenga leadership who are seeking to understand the emissions of the organisation, and the Carbon Neutral Government Programme (CNGP) lead as part of a larger public sector emissions reduction programme.

To meet its requirements under the CNGP, Te Pūkenga will report annually on its footprint moving forward and will use this inventory as a baseline to benchmark future performance.

This document will allow Te Pūkenga to understand what its emissions currently are, and where these emissions occur across the network.

Person responsible

Ehsan Jacobi is the Sustainability Lead at Te Pūkenga and is responsible for the network's sustainability programme which includes obligations under the CNGP.

2. **Taupā ā-Whakahaere |** Organisational boundaries

In this inventory we have used an operational control consolidation approach to account for emissions in the reporting period.

The organisational boundary for this emissions inventory includes the operations and emissions associated with Te Pūkenga as shown below.

Table 2: Te Pūkenga organisational boundaries

3. **Tikanga Whakahaere Mōhiohio |** Information Management Procedures

As this was the first emissions inventory produced at the network level for Te Pūkenga, an extensive emissions screening process was undertaken to identify the material emissions sources. This involved planning sessions (remote video meetings) and completion of screening questionnaires at the individual Institute of Technology and Polytechnic (ITP) and Industry Training Organisation (ITO) level, by a knowledgeable individual nominated by each entity.

These questionnaires asked each entity about any previous emissions reporting that had been undertaken, any subsidiaries owned or operated by the entity, and a detailed discussion was had (focussed on the activities of each entity) to identify any potentially emissions intensive activities across Scope 1, 2 and 3 emissions such as land use change, agriculture (livestock), fertiliser use, medical and other GHG gases, refrigerants, transportation, energy, freight, water and wastewater, and purchased goods and services.

The information collected at ITP and ITO level was then collated and an initial estimate of total emissions at the total network level was developed.

Materiality of each of the emissions sources was then accessed using the CNGP thresholds at the total network level. This included identifying emissions sources that were estimated to be less than 1% of the footprint at the network level, that could (where data was difficult to capture) be considered as 'de minimis'. Additionally, ensuring that the estimated sum of exclusions using the 'de minimis' rule is less than 5% of the footprint at the network level.

Additional considerations were whether the emissions source was listed as 'mandatory' under the programme and how accurate any estimates would be.

Following this screening and materiality assessment, Te Pūkenga emission management experts from Lumen (supported by ESP) then collected emissions activity data directly from suppliers for 2022, for material emissions sources.

This was a substantial undertaking given the number of suppliers engaged by the network of Te Pūkenga, and many of these suppliers were not able to readily share the requested information. As such, the process of collating this data was time consuming.

This data (supplier invoices and/or supplier reports) has been stored in Microsoft Teams.

Lumen has reviewed this supplier data to uncover any potential errors and then converted activity data (e.g., kWh, L) to consistent units for emissions calculations.

GHG emissions across Categories 1, 2, 3 and 4 have been calculated using a bottom-up approach where activity data is converted to a CO_2-e value using an appropriate emission factor.

Ongoing monitoring of emissions is anticipated to be reported annually, including comparison to the base year.

4. **Ngā manga pakihi i aukatia i te whakarārangi |** Organisational business units excluded from inventory

Some subsidiaries of the organisations within Te Pūkenga network were excluded from the inventory due to either a lack of available data, or because Te Pūkenga does not have operational control.

Based on discussions with the applicable subsidiaries' parent organisation, the expectation is that none of the subsidiaries have a level of emissions that would be significant. However, future inventories should aim to include this data.

Table 2: Subsidiaries of organisations within Te Pūkenga network

Business Division	Subsidiary details	Operational Control?	Data included?
Otago Polytechnic	Open Education Resource Foundation Limited 100%	No	No
	Otago Polytechnic Education Foundation Trust 100%	No	No
	OPAIC Limited Partnership 50%	No	No
Unitec	Joint venture with WDHB for Awhina Waitaker Simulation Centre 50%	No	No
	UELC 100%	No	No
W&W	Wellington Student Accommodation Ltd (WSAL) 100%	Yes	Data unavailable. Should include in the future.
	Le Cordon Blue NZ (LCB) 50%: partnership to be ended 2022	No	No
Wintec	SODA 100%	Yes	Data unavailable. Should include in the future.
	Learning Works 100%	Yes	Data unavailable. Should include in the future.
	Wintec accommodation trust 100%	Yes	Data unavailable. Should include in the future.
	Jinhua Polytechnic - China	No	No - exclude
	Guizhou Light Industry Technical College - China	No	No - exclude

5. **Tuku Haurehu Kati Mahana ngā mea whāiti mai |** GHG emission source inclusions

The GHG emissions sources included in this inventory were identified with reference to the methodology in the *ISO14064-1:2018* standard and CNGP requirements.

Table 3 GHG emission sources included in this inventory

Category	Emissions source	Data source	Data collection unit	Methodology and data quality
1	Stationary combustion - Natural gas	Supplier invoices and summaries	kWh	Actual data from suppliers, covering 100% of operations
1	Stationary combustion - LPG	Supplier invoices and summaries	kg	Actual data from suppliers, covering 90% of operations
1	Stationary combustion - Coal	Supplier invoices and summaries	tonne	Actual data from suppliers, covering 100% of operations
1	Stationary combustion - Diesel	Supplier invoices and summaries	L	Actual data from suppliers, covering 90% of operations
1	Stationary combustion - Biomass	Supplier invoices and summaries	tonne	Actual data from suppliers, covering 100% of operations
1	Transport fuels - Vehicle fleet	Supplier invoices and summaries	L	Actual data from suppliers, covering 78% of operations
1	Refrigerants, medical and other gases	Supplier invoices and summaries	kg	Actual data from suppliers, covering 80% of operations
2	Electricity	Supplier invoices and summaries	kWh	Actual data from suppliers, covering 90% of operations
3	Flights	Supplier invoices and summaries	pkm by type and passenger class	Actual data from suppliers, covering 90% of operations
3	Accommodation	Supplier invoices and summaries	room-nights by country	Actual data from suppliers, covering 77% of operations
3	Rental Cars	Supplier invoices and summaries	km by car type	Actual data from suppliers, covering 90% of operations

3	Taxis	GL code spend data from head office	$	GL code spend data from head office
3	Mileage claims	GL code spend data from head office	$	GL code spend data from head office
3	Employee work from home	Employee survey	FTE	Extrapolated from survey results
4	Transmission and distribution losses (electricity)	Same activity data as electricity consumption	kWh	Based on electricity consumption
4	Transmission and distribution losses (natural gas)	Same activity data as natural gas consumption	kWh	Based on natural gas consumption
4	Waste to landfill	Supplier invoices and summaries	tonne	Actual data from suppliers, covering 90% of operations
4	Water	Supplier invoices and summaries	m3	Actual data from suppliers, covering 84% of operations
4	Wastewater	Supplier invoices and summaries	m3	Estimated based on staff and student numbers, actual data for 20% of operations

6. **Tuku Haurehu Kati Mahana ngā mea i aukatia |** GHG emission source exclusions

At this stage Te Pūkenga has not captured indirect emissions relating to the following:

- Purchased goods and services (such as maintenance contractors)
- Capital goods (such as construction projects)
- Employee commuting
- Freight (de minimis)
- Fertiliser (de minimis)
- Welding gases (de minimis)

Of these emissions sources, only freight was considered a 'mandatory' emissions source by the CNGP programme rules. However, an initial estimate of these emissions (based on spend data and economic emissions factors from Motu 2014) found that it was de minimis (<1%) at the group level.

We expect some of these emissions sources to be significant, but these were all excluded due to lack of available or accurate data.

Moving forward, Te Pūkenga should set up data collection processes to capture these emissions sources.

7. **Kohinga raraunga me ngā āhuatanga rangirua |** Data collection and uncertainties

Section 7 of this report details the overall approach to data collection and uncertainties. In many cases, data was available from 2021, which allowed us to determine if we were missing data for 2022 by quantitively cross-referencing data as it came in. This helped not only to seek further data if the totals were much lower than expected, but also to guide extrapolations where data was missing and unavailable.

Section 9 of this report describes how the data for each emissions source was collected, and any uncertainties and assumptions where data was estimated.

Data collection was sourced from Te Pūkenga finance and administration team, suppliers and relevant individuals throughout the organisation.

All emission calculations were undertaken using a workbook provided by Lumen. This workbook uses a calculation methodology for quantifying the GHG inventory using emission source activity data multiplied by relevant GHG emissions factors.

Emissions factors used were sourced from the Ministry for the Environment (MfE, NZ) and Department for Business, Energy & Industrial Strategy (BEIS, UK), using the most up to date figures available at the time (published August 2022 by MfE). The emissions factors for air travel include radiative forcing, as per the precautionary principle.

Quantities of each greenhouse gas are converted to tonnes of CO_2-e using the global warming potential from the Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report (AR5). The time horizon is 100 years. All data in this report are expressed in tonnes of carbon dioxide equivalent (CO_2-e).

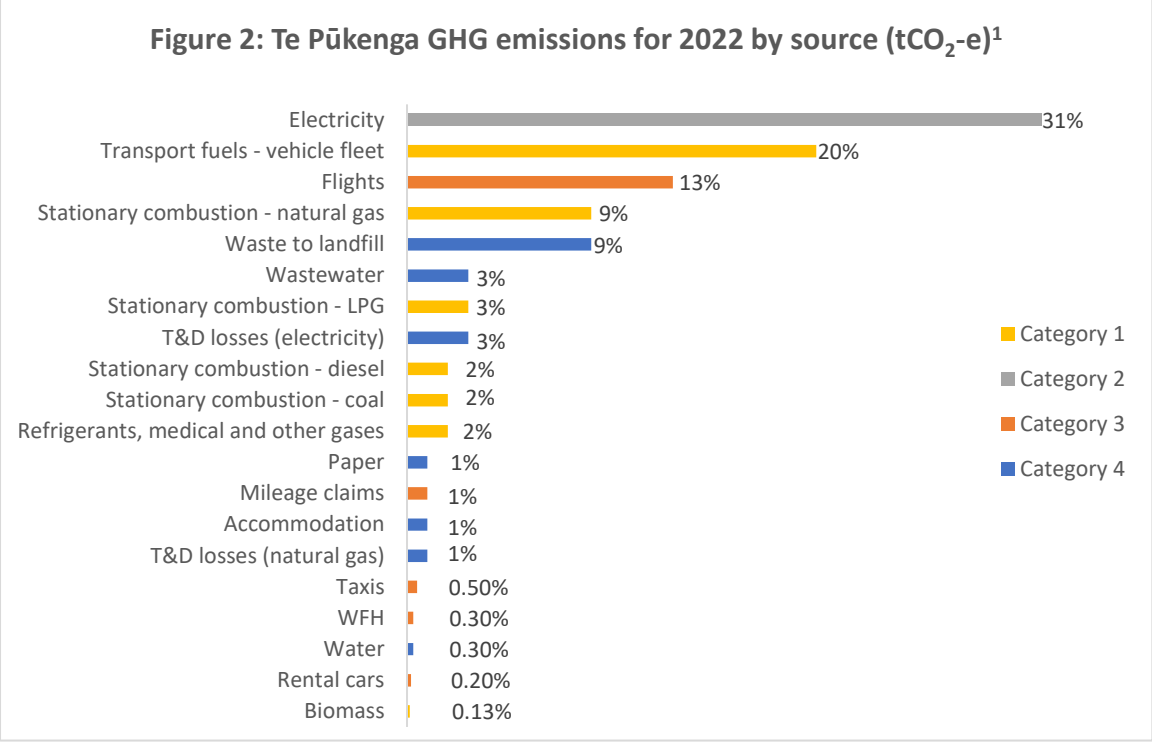
8. **Ngā tātaitanga me ngā otinga Tuku Haurehu Kati Mahana |** GHG emission calculations and results

Te Pūkenga GHG emissions for 2022 were 23,697 tCO_2-e.

Figures 1, 3 and 4 and Table 1 provide an overview of where the emissions are occurring across the network.

Table 3: Te Pūkenga GHG emissions for 2022 by category

Emissions	tCO_2-e
Category 1 – Direct	8,823
Category 2 – Indirect energy	7,355
Category 3 – Indirect transport	3,508
Category 4 – Indirect products/services	4,011
Total	**23,697**



[1] Biogenic CO_2 emissions from biomass = 1,034 tCO_2

The largest emissions source is electricity as shown in Figure 2. The next largest emissions source is stationary fuels (coal, diesel, gas), followed by transport fuels (petrol, diesel), and travel (flights, mileage claims, taxis).

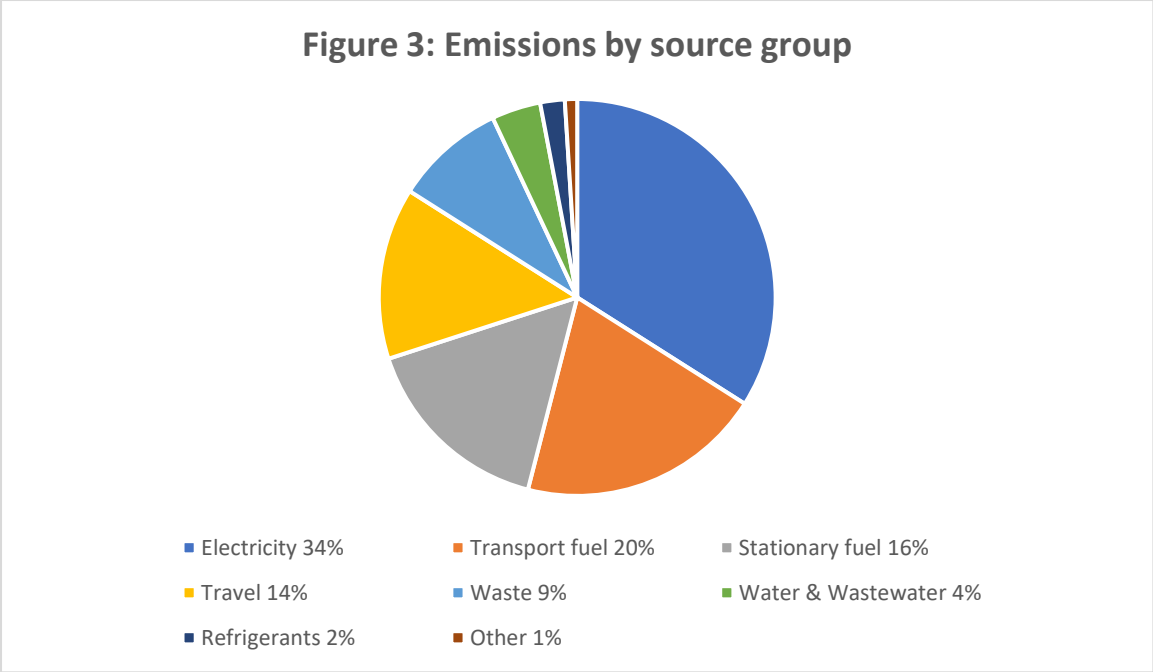
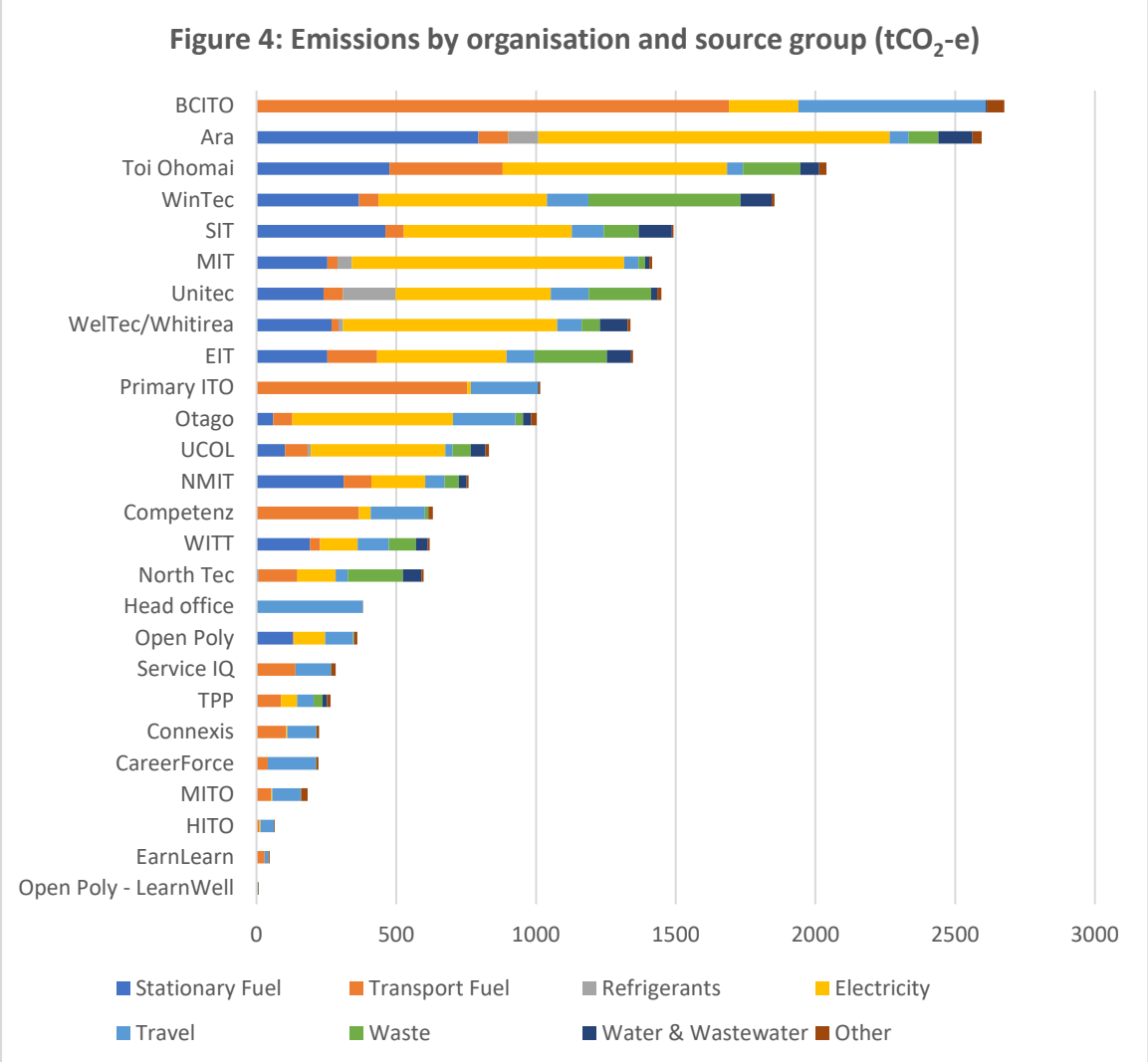


Figure 4 visualises the contribution by organisation and emissions source.



9. **Ngā Pūnama Tuku Haurehu Kati Mahana |** GHG liabilities

As Te Pūkenga does not have any forestry land, liabilities relate to refrigerants held in HVAC equipment and fuels held on site at the end of the reporting period.

Holdings of fuels have already been accounted for in inventory as fuels are recorded at point of purchase/delivery and not when combusted.

Questionnaires were provided to business divisions which identified if refrigerants were held. Stocks of refrigerants held were requested from suppliers but were unable to be provided and there is no reliable inventory of the refrigerants held in HVAC equipment across Te Pūkenga network.

Te Pūkenga will aim to include an estimate of this emissions liability in the future.

Āpitihanga 1 – Ripanga Whakarāpopoto Tuku ā-Kōtuinga | Appendix 1 – Network Summary Emissions Table

Category	Scope	Emissions Source	Emissions tCO2-e	Carbon Dioxide (CO2) tCO2-e	Methane (CH4) tCO2-e	Nitrous Oxide (N2O) tCO2-e	Hydrofluoro-carbons (HFCs) tCO2-e	Accuracy	Commentary on data accuracy
1	Scope 1	Stationary combustion - Natural gas	2,139	2,134	4	1		High	Actual data from suppliers, covering 100% of operations
1	Scope 1	Stationary combustion - LPG	710	708	1	0		High	Actual data from suppliers, covering 90% of operations
1	Scope 1	Stationary combustion - Coal	449	445	1	2		High	Actual data from suppliers, covering 100% of operations
1	Scope 1	Stationary combustion - Diesel	459	457	2	1		High	Actual data from suppliers, covering 90% of operations
1	Scope 1	Stationary combustion - Biomass	31	0	12	19		High	Actual data from suppliers, covering 100% of operations
1	Scope 1	Transport fuels - Vehicle Fleet	4,662	4,499	41	132		High	Actual data from suppliers, covering 78% of operations
1	Scope 1	Refrigerants, medical and other gases	372				372	High	Actual data from suppliers, covering 80% of operations
2	Scope 2	Electricity	7,355	7,171	172	14		High	Actual data from suppliers, covering 90% of operations
3	Scope 3 Manadatory	Flights	2,982	2,932	9	39		High	Actual data from suppliers, covering 90% of operations
3	Scope 3 Manadatory	Accommodation	149	149				Medium	Actual data from suppliers, covering 77% of operations
3	Scope 3 Manadatory	Rental Cars	41	39	0	1		Medium	Actual data from suppliers, covering 90% of operations
3	Scope 3 Manadatory	Taxis	117	115	0	2		Medium	GL Code Spend Data from head office
3	Scope 3 Manadatory	Mileage Claims	153	146	2	5		Medium	GL Code Spend Data from head office
3	Scope 3 Manadatory	Employee Work from Home	66	63	2	0		Medium	Extrapolated from survey results
4	Scope 3 Manadatory	Transmission and distributions losses (electricity)	674	656	18	1		High	Based on electricty consumption
4	Scope 3 Manadatory	Transmission and distributions losses (natural gas)	127	0	127	0		High	Based on natural gas consumption
4	Scope 3 Additional	Paper	276	276				High	Actual data from suppliers, covering 90% of operations
4	Scope 3 Manadatory	Waste to landfill	2,047		2,047			Medium	Actual data from suppliers, covering 84% of operations
4	Scope 3 Manadatory	Water	64	60	3	0		Low	Estimated based on staff and student numbers, actual data for 20% of operations
4	Scope 3 Manadatory	Wastewater	823	131	283	398		Low	Estimated based on staff and student numbers, actual data for 20% of operations

Āpitihanga 2 – Ripanga Tuku ā-Whakahaere | Appendix 2 – Emissions by Organisation Table

ITP/ITO	Stationary combustion - natural gas	Stationary combustion - LPG	Stationary combustion - coal	Stationary combustion - diesel	Stationary combustion - biomass	Transport fuels - vehicle fleet	Refrigerants, medical and other gases	Electricity	Flights	Accommodation	Rental cars	Taxis	Mileage claims	Employee work from home	T&D losses (electricity)	T&D losses (natural gas)	Paper	Waste to landfill	Water	Wastewater	Totals
Open Polytechnic - LearnWell								2	1	0.1	0	0.1	0.1	0	0	0	0	4	0	0	7
EarnLearn						29		0	0	13	1	0	0	1	0	0	3	1	0	1	47
HITO						11		3	41	2	1	2	2	0	0	0	1	1	0	0	65
MITO						53		4	87	3	1	4	5	1	0.3	0	23	1	0	1	183
CareerForce						40		0	151	6	0	7	9	1	0	0	5	2	0	1	221
Connexis						105		5	75	13	7	3	4	0	0	0	9	1	0	1	224
TPP				4		84		52	44	6	5	2	3	0	5	0	12	32	1	14	265
ServiceIQ						139		0	110	3	1	5	6	1	0	0	15	2	0	1	283
Open Polytechnic	123					5		101	86	3	1	4	5	5	9	7	7	3	0	2	361
Head office									366	13	2						1				381
NorthTec	6					140		125	36	2	1	2	2	2	11	0	6	198	5	61	598
WITT	179	1				36		123	99	2	1	4	6	1	11	11	5	97	3	39	619
Competenz						367		38	170	7	0	8	10	1	3	0	14	11	0	2	631

NMIT		1		311		100		176	57	5	2	3	3	3	16	0	5	51	2	26	759
UCOL	92	4				82	11	441	21	2	0.1	1	1	3	40	5	10	64	4	49	832
Otago Polytechnic		32			27.63	69		527	194	5	4	9	11	5	48	0	16	27	2	26	1003
Primary ITO						754		11	212	4	2	10	12	2	1	0	3	1	0	2	1015
EIT	239					178		425	84	5	2	4	5	4	39	14	3	259	6	80	1347
Whitireia and WelTec	254					25	16	702	73	6	1	3	4	4	64	15	7	66	7	92	1339
Unitec	226					70	188	509	113	10	1	5	7	5	47	13	9	223	2	20	1448
MIT	239					37	51	892	43	4	0.2	2	3	4	82	14	5	23	1	14	1415
SIT		12	449			66		551	99	3	1	4	6	3	51	0	3	126	9	109	1492
Wintec	346					71		551	122	12	3	5	7	5	51	21	6	544	8	104	1854
Toi Ohomai	435			14		405		736	48	4	0.2	2	3	5	67	26	21	205	5	62	2039
Ara		660		130	3.16	108	107	1151	56	6	0.4	3	3	6	105	0	27	106	9	113	2595
BCITO						1690		229	594	10	5	27	35	3	21	0	59	1	0	3	2675

Āpitihanga 3 – Tohutoro | Appendix 3 – References

International Organization for Standardization. 2018. ISO14064-1:2018. Greenhouse gases – Part 1: *Specification with guidance at the organisation level for quantification and reporting of greenhouse gas GHG emissions and removals.* Geneva: ISO.

Ministry for the Environment. August 2022. Measuring Emissions: A Guide for Organisations: 2022 Detailed Guide. Wellington: Ministry for the Environment.

Department for Business, Energy & Industrial Strategy. June 2022. Greenhouse gas reporting: conversion factors 2022. London: Department for Business, Energy & Industrial Strategy, UK Government.

"Consumption-based greenhouse gas emissions input-output model". 2014. Obtained by Motu Economic and Public Policy Research from Statistics New Zealand, MBIE and MFE in 2013. Unrestricted dataset available online from: www.motu.org.nz

New Zealand Reserve Bank. 2023. Inflation Calculator. Available online from: https://www.rbnz.govt.nz/monetary-policy/about-monetary-policy/inflation-calculator.

Āpitihanga 4 – Tā te Kaitātari Motuhake Whakaaro: Whakamanatanga Toitū | Appendix 4 – Independent Audit Opinion: Toitu Verification

INDEPENDENT AUDIT OPINION
Toitū Verification

TO THE INTENDED USERS

Organisation subject to audit:	Te Pukenga - New Zealand Institue of Skills and Technology
Audit Criteria:	ISO 14064-1:2018 ISO 14064-3:2019 Audit & Certification Technical Requirements 3.0
Responsible Party:	Te Pukenga - New Zealand Institue of Skills and Technology
Intended users:	Te Pūkenga's Senior Management
Registered address:	Level 2, Wintec House, Cnr Anglesea & Nisbet Streets, Hamilton, 3204, New Zealand
Inventory period:	1 January 2022 to 31 December 2022
Inventory report:	Te Pukenga GHG Inventory Report 2022 - Lumen 180523.pdf

We have reviewed the greenhouse gas emissions inventory report ("the inventory report") for the above named Responsible Party for the stated inventory period.

RESPONSIBLE PARTY'S RESPONSIBILITIES

The Management of the Responsible Party is responsible for the preparation of the GHG statement in accordance with ISO 14064-1:2018 . This responsibility includes the design, implementation and maintenance of internal controls relevant to the preparation of a GHG statement that is free from material misstatement.

VERIFIERS' RESPONSIBILITIES

Our responsibility as verifiers is to express a verification opinion to the agreed level of assurance on the GHG statement, based on the evidence we have obtained and in accordance with the audit criteria. We conducted our verification engagement as agreed in the audit letter, which define the scope, objectives, criteria and level of assurance of the verification.

The International Standard ISO 14064-3:2019 requires that we comply with ethical requirements and plan and perform the verification to obtain the agreed level of assurance that the GHG emissions, removals and storage in the GHG statement are free from material misstatement.

Reasonable assurance is a high level of assurance, but is not a guarantee that an audit carried out in accordance with the ISO 14064-3:2019 Standards will always detect a material misstatement when it exists. The procedures performed on a limited level of assurance vary in nature and timing from, and are less in extent compared to reasonable assurance, which is a high level of assurance. Misstatements are differences or omissions of amounts or disclosures, and can arise from fraud or error. Misstatements are considered material if, individually or in the aggregate, they could reasonably be expected to influence the decisions of readers, taken on the basis of the information we audited.

GHG quantification is subject to inherent uncertainty because of incomplete scientific knowledge used to determine emissions factors and the values needed to combine emissions of different gases.

BASIS OF VERIFICATION OPINION

Our responsibility is to express an assurance opinion on the GHG statement based on the evidence we have obtained. We conducted our assurance engagement as agreed in the Contract which defines the scope, objectives, criteria and level of assurance of the verification.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

VERIFICATION

We have undertaken a verification engagement relating to the Greenhouse Gas Emissions Inventory Report (the 'Inventory Report')/Emissions Inventory and Management Report of the organisation listed at the top of this statement and described in the emissions inventory report for the period stated above.

The Inventory Report provides information about the greenhouse gas emissions of the organisation for the defined measurement period and is based on historical information. This information is stated in accordance with the requirements of International Standard ISO 14064-1 Greenhouse gases – Part 1: Specification with guidance at the organisation level for quantification and reporting of greenhouse gas emissions and removals (ISO 14064-1:2018).

VERIFICATION STRATEGY

Our verification strategy used a combined data and controls testing approach. Evidence-gathering procedures included but were not limited to:
—activities to inspect the completeness of the inventory;
—interviews of site personnel to confirm operational behaviour and standard operating procedures;
—sampling of fuel records to confirm accuracy of source data into calculations;
—recalculation of electricity, waste, rental car and flight data;
—sense checking of accommodation, refrigerant gases, paper use, water and wastewater data.
The data examined during the verification were historical in nature.

QUALIFICATIONS TO VERIFICATION OPINION

The following qualifications have been raised in relation to the verification opinion: Unmodified

VERIFICATION LEVEL OF ASSURANCE

	tCO_2e	Level of Assurance
Category 1	8,822.69	**Reasonable**
Category 2	7,354.95	**Reasonable**
Category 3	3,139.09	**Reasonable**
Category 3	369.12	**Limited**
Category 4	2,847.72	**Reasonable**
Category 4	1,162.74	**Limited**
Total inventory	**23,696.31**	

RESPONSIBLE PARTY'S GREENHOUSE GAS ASSERTION (CERTIFICATION CLAIM)

Te Pūkenga - New Zealand Institute of Skills and Technology has measured its greenhouse gas emissions in accordance with ISO 14064-1:2018 in respect of the operational emissions of its organisation including emissions under category 1 and 2, category 3 emissions associated with business travel, accommodation, staff working from home, staff commuting and freight paid for by the organisation, and category 4 emissions associated with waste disposed of by the organisation, the transmissions and distribution of electricity and natural gas where appropriate, water supply and wastewater, and purchased goods and services.

VERIFICATION CONCLUSION

EMISSIONS - REASONABLE ASSURANCE

We have obtained all the information and explanations we have required. In our opinion, the emissions, removals and storage defined in the inventory report, in all material respects:

- comply with ISO 14064-1:2018 ; and
- provide a true and fair view of the emissions inventory of the Responsible Party for the stated inventory period.

EMISSIONS - LIMITED ASSURANCE

Based on the procedures we have performed and the evidence we have obtained, nothing has come to our attention that causes us to believe that the emissions, removals and storage defined in the inventory report:

- do not comply with ISO 14064-1:2018 ; and
- do not provide a true and fair view of the emissions inventory of the Responsible Party for the stated inventory period.

OTHER INFORMATION

The responsible party is responsible for the provision of Other Information. The Other Information may include emissions management and reduction plan and purchase of carbon credits, but does not include the information we verified, and our auditor's opinion thereon.

Our opinion on the information we verified does not cover the Other Information and we do not express any form of audit opinion or assurance conclusion thereon. Our responsibility is to read and review the Other Information and consider it in terms of the ISO 14064-1: 2018 and ISO 14064-3: 2019. In doing so, we consider whether the Other Information is materially inconsistent with the information we verified or our knowledge obtained during the verification.

Verified by:		**Authorised by:**	
Name:	Neil Gilbert	Name:	Ana Tatana
Position:	Verifier, Constantia Consulting	Position:	Certifier, Toitū Envirocare
Signature:		Signature:	
Date verification audit:	01-05 May 2023		
Date opinion expressed:	15 June 2023	Date:	06 September 2023

ORGANISATION AUDIT REPORT

ISO 14064-1 Verification

Organisation:

Te Pūkenga - New Zealand Institute of Skills and Technology

Lead Auditor	Neil Gilbert
Team members	Misha Balzarova, Tina Hartung
Verification firm	Constantia Consulting
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Contact details	Ehsan.Jacobi@tepukenga.ac.nz
	+64 21 057 9555
Report date	
	15 June 2023
Report reviewed by	Ana Tatana
	Toitū Envirocare
	06 September 2023

AUDIT OBJECTIVES

The objective of the audit was to determine if:

- the organisation's GHG measurement (emissions data and calculations) meet(s) the criteria and requirements of ISO 14064-1:2018.

AUDIT CRITERIA AND SCOPE

The audit criteria and scope are detailed in the following table:

Audit criteria	ISO 14064-1:2018 ISO 14064-3:2019 Audit & Certification Technical Requirements 3.0
Audit date	01-05/05/2023
Reporting year	01/01/2022 – 31/12/2022
Base year	01/01/2022 – 31/12/2022
Consolidation methodology	Operational control
Materiality threshold	5%
GHG statement	Te Pūkenga - New Zealand Institute of Skills and Technology has measured its greenhouse gas emissions in accordance with ISO 14064-1:2018 in respect of the operational emissions of its organisation including emissions under category 1 and 2, category 3 emissions associated with business travel, accommodation, staff working from home, staff commuting and freight paid for by the organisation, and category 4 emissions associated with waste disposed of by the organisation, the transmissions and distribution of electricity and natural gas where appropriate, water supply and wastewater, and purchased goods and services.
Intended users	Te Pūkenga's Senior Management
Registered office address	Level 2, Wintec House, Cnr Anglesea & Nisbet Streets, Hamilton, 3204, New Zealand
Locations visited	Wintec, Hamilton - 12/05/23 Ara, Christchurch - 12/06/23 Ara, Timari - 14/06/23
Audit Type	Verification only
Activities undertaken remotely	Where audit activities have been undertaken using remote/ICT based approaches, it is confirmed that the methods used allowed all relevant audit activities to be undertaken effectively.

CONCLUSION

The following total emissions have been verified:

Emissions summary by categories	All verified emissions	Units
Category 1 total	**8,822.69**	**tCO_2e**
Category 2 total	**7,354.95**	**tCO_2e**
Category 3 total	**3,508.21**	**tCO_2e**
Category 4 total	**4,010.46**	**tCO_2e**
Total gross inventory:	**23,696.31**	**tCO_2e**

[1] Not adjusted for inflation. Adjusted values available upon request.

An assessment of materiality was made against the defined threshold. From this analysis it is concluded that the stated emissions are free from material error.

AUDIT SUMMARY

SCOPE AND BOUNDARIES

The scope of the emissions inventory includes all activities within the operational boundaries of Te Pukenga including but not limited to all of New Zealand's 16 Institutes of Technology and Polytechnics (ITPs) and 9 Industry Training Organisations (ITOs). It is noted that there are a range of activities that have previously been shown to be *de minimis* or out of scope. Therefore these are excluded from the scope of the inventory. These include but are not limited to:

- Purchased goods and services (such as maintenance contractors)
- Capital goods (such as construction projects)
- Employee commuting
- Freight (de minimis)
- Fertiliser (de minimis)
- Welding gases (de minimis)

EMISSIONS FACTORS

The emissions factors were checked for all emission sources and were found to align with the following sources:

- Ministry for the Environment (MfE, NZ) and Department for Business, Energy & Industrial Strategy (BEIS, UK), with the most up to date figures available at the time used (published August 2022 by MfE).

VERIFICATION PROCEDURES

Verification evidence-gathering procedures for the stated emission sources are as follows:

Verification Level	Emissions sources
Detailed review: Verification from reported emissions back to actual source data in accordance with the appropriate data sampling protocols (checking supplier or other source data, calculations, scope and boundaries of data, date ranges, emissions factors and key assumptions). The extent to which the verification was conducted varied depending on level of controls noted at the emission source level.	Natural Gas, LPG, Coal, Transport Fuel use, Biomass, Refrigerant gases, Electricity, Air travel, Rental cars, Taxis, Electricity and Natural Gas transmission and distribution losses, Waste
Limited review (Sense checks): Professional judgment that the reported emissions are of the correct order of magnitude; that all emissions factors are correct; that stated *de minimis* sources are appropriately justified. The extent to which the verification was conducted varied depending on level of controls noted at the emission source level.	Accommodation, Mileage claims, Working from home, Paper use, Water use, Wastewater

As part of the audit, the below criteria/documents were reviewed:

Criteria/documents	Status
Organisational boundaries	Meets requirements.
The Greenhouse Gas Emissions Inventory report	Meets requirements.
Application of the accounting principles	Meets requirements.

A total of 2 non-conformances, 6 minor non-conformances and 11 observations were raised during this visit. Full details of the findings are given in the findings log below.

Using our Data Quality Assessment tool for analysing data against completeness and assumed uncertainty an inventory "quality" can be classified as follows:

- High
- Good
- Fair
- Poor

From the analysis conducted your inventory is classified as: Good

This is not subject to any further client actions.

ADDITIONAL NOTES

The organisation needs to ensure that any claims relating to their GHG emissions do not indicate that Mainfreight Limited has gained Toitū carbonreduce or carbonzero certification.

CONCLUSION

Please refer to the separate Audit Opinion document for further information.

Level of Assurance	Reasonable and Limited
Qualifications/Limitations	Unmodified.

FINDINGS LOG

Date issued:	08/05/2023
Verifier:	Neil Gilbert
Company issued to:	Te Pukenga – New Zealand Institute of Skills and Technology

A finding marked **NCR** must be corrected before audit can be closed out, unless otherwise approved by the Certification Manager
A finding marked **mNCR** is not required to be corrected for this verification, but may need to be addressed/checked for your next inventory, or it may become a NCR. You may voluntarily correct a mNCR for completeness
A finding marked **Obs** is an observation or recommendation from the verifier that may be helpful to you
--- corrective actions are expected to be closed out within 15 days of the date raised---

Ref #	Issue	Status	Type	Comments / Agreed Corrective Actions	Date closed	Evidence sighted to close out the issue where corrective action required.
NCR1	**Waste to LFGR** Due to nature of operation a 50/50 split into General Waste and Office Waste seems more accurate than just General Waste (which has a much lower EF). When applying MfE information on LF with GR, waste amount for LFGR is 1166 t and when applying a 50/50 split, emissions increase to 466.95 t/CO2. Please update inventory accordingly.	Closed	NCR	Final decision on EF to use will be made following review of the waste data to be provided in response to RFI11.	02/06/2023	Sighted updated inventory. Client has chosen to use EF for Office waste which is higher than the suggested split, and updated emissions are now 701.5 tCO2e
NCR2	**Waste to LF with no GR** Correct EF for no LFGR doesn't seem to have been applied. Additionally, due to nature of operation a 50/50 split into General Waste and Office Waste seems more accurate. When applying MfE information on LF without GR, waste amount for no GR is 718 t and when applying a 50/50 split and EF for no GR, emissions increase to 880.27 t/CO2. Please update inventory accordingly.	Closed	NCR	Final decision on EF to use will be made following review of the waste data to be provided in response to RFI11.	02/06/2023	Sighted updated inventory. Client has chosen to use EF for Office waste which is higher than the suggested split, and updated emissions are now 1,345.5 tCO2e

Ref #	Issue	Status	Type	Comments / Agreed Corrective Actions	Date closed	Evidence sighted to close out the issue where corrective action required.
mNCR1	**Transport fuels - Petrol** 1. MIT - Majority of petrol is in fact 'Regular' and not 'Premium' as recorded. Verified totals for MIT only: Regular - 8,103.76 litres Premium - 256.82 litres Verified total figures for all business units: Regular - 1,090,905.08 litres; 2,683.94 tCO2e Premium - 24,163.72 litres; 59.91 tCO2e Not material.	Closed	mNCR	Optional to update	30/05/2023	Updated in inventory
mNCR2	**Refrigerant Gases - All** Minor discrepancies noted in the available data. Verified totals are: R404A: 6.82kg - 26.73 tCO2e R410A: 139.7kg - 479.62 tCO2e R32: 3kg - 2.03 tCO2e (as reported) R134A: 40kg - 57.20 tCO2e Not material.	Closed	mNCR	Optional to update	30/05/2023	Updated in inventory
mNCR3	**Wastewater** When including ca. 300 WBL office staff, the waste water emissions increase by 3t to 816t.	Closed	mNCR	Optional to update the inventory	30/05/2023	Updated in inventory
mNCR4	**Waste to LFGR** When including waste estimates based on staff on site for WBLs (and assuming going to LFGR), the emissions increase by 14.4tCO2e to 481.35tCO2e.	Closed	mNCR	Optional to update the inventory	02/06/2023	sighted updated inventory
mNCR5	**Biomass** EF for kg has been applied when consumption is in tonne. Emissions are 11.6tCO2e.	Closed	mNCR	Optional to update the inventory	02/06/2023	sighted updated inventory, emissions factor updated and confirmed as 31 tCO2e

Ref #	Issue	Status	Type	Comments / Agreed Corrective Actions	Date closed	Evidence sighted to close out the issue where corrective action required.
mNCR6	**Flights** Final verified numbers are: Domestic (economy): 8,464,896 pkm Long haul (economy): 1,015,169 pkm Long haul (premium economy): 447,831 pkm Long haul (business): 26,858 pkm Short haul (economy): 744,970 pkm Short haul (business): 12,407 pkm Note particular difference with UCOL data for which only domestic economy flights could be identified in the data. Reported data includes short and long haul flights for UCOL but these were not supported by the underlying data. Not material to the inventory.	Closed	mNCR	Optional to update	30/05/2023	Updated in inventory. Slight recalculations undertaken by client. Checked and accepted.
OBS1	**Transport fuels - All** Where fuel data is missing, consideration could be given to estimating the missing fuel quantities using the average fuel consumption data (which is available in the Fleet Assessment spreadsheet) rather than only calculating an estimated tCO2e figure. This will provide an additional check on estimates used for missing fuel data.	Open	Obs	For the client to consider		
OBS2	**Refrigerant Gases - All** It is noted that the GWP figures used to calculate the tCO2e for refrigerant gases appear to be based on the IPCC AR4 data and not AR5 as stated in the GHG Report. The differences are not however material to the inventory.	Closed	Obs	For the client to consider	30/05/2023	Updated Efs applied.
OBS3	**Unavailable data** It is noted that a number of subsidiary organisations over which Te Pukenga has control are not included in the inventory due to the lack of available data. It is noted that Te Pūkenga aims to improve its data collection for future inventories and this is strongly encouraged.	Closed	Obs	For the client to consider	30/05/2023	A mention of this has been added to the report

Ref #	Issue	Status	Type	Comments / Agreed Corrective Actions	Date closed	Evidence sighted to close out the issue where corrective action required.
OBS4	**GHG Report** The following observations are made with respect to the GHG Report with references to the ISO14064-1: 2018 standard in parentheses where relevant: 1. The person responsible for the report could be specified (9.3.1 b). 2. Section 7 and Table 2 could be clarified so as to identify those business units that have been explicitly excluded from the inventory and why. Table 2 currently also includes business units for which no data is available, which is not an explicit exclusion per se. Data unavailability might be more appropriately recorded in Section 10. 3. Consideration could be given to adding a description on the sources of biogenic emissions. GHG Report identified 667 tCO2e are biogenic (9.3.1 g). 4. Exclusions. Section 9. Fertilizer and welding gases also? 5. Section 10 (Uncertainty) starts with a reference to Section 9, but this perhaps should be a reference to Section 6 instead. Further, Section 10 could be expanded so as to provide a clearer explanation as to how uncertainty has been assessed (e.g. quantitative or qualitative approaches) and the impacts of uncertainty on the inventory (9.3.1 p). 6. Consideration could be given to having a separate section in the GHG report on the emission factors used (9.3.1 o).	Closed	Obs	For the client to consider	30/05/2023	1. Added in report. 2. Exclusion table has been updated. 3. No change made. 4. Added in report. 5. Added in report. 6. No new section, but more detail added in section 10.
OBS5	**Inventory** Consideration could be given to presenting some emission sources in slightly greater detail in the final inventory so as to help with transparency for the intended user. This includes for example: a) Transport fuels could be presented as different fuel	Open	Obs	For the client to consider		

Ref #	Issue	Status	Type	Comments / Agreed Corrective Actions	Date closed	Evidence sighted to close out the issue where corrective action required.
	types (diesel, petrol regular and petrol premium) not least because some fuel types are material to the inventory and others are not. b) Flights could be presented as domestic, short haul and long haul, even if the different classes are not presented. c) Accommodation. Suggest to spread emissions into different regions in inventory, i.e. NZ, Australia and rest of world for ease of reference when starting the reduction journey.					
OBS6	**Taxi & Mileage claims** Strongly suggest streamlining accounting codes for Taxi/Uber use and mileage claims across business units in order to improve data quality. Currently data quality is very low with high uncertainty, particularly for taxi/uber. Many BU reported no taxi emissions despite air travel which is unlikely and creates high uncertainty around data.	Open	Obs	For the client to consider		
OBS7	**Recycled waste** Although CNGP does not require to report emissions from recycled waste, an effective sustainability strategy would aim to reduce recycled waste.	Open	Obs	For the client to consider		
OBS8	**Waste** The waste amounts vary greatly between different BUs regardless of the number of people on site. There seem to be little relevance between people on site and waste amounts which raises concerns about certainty of supplier data or data collection methods.	Open	Obs	For the client to consider		
OBS9	**FTE Number** The total FTE number across all sites was noted to be slightly different in different spreadsheets. For future inventories a single FTE figure to be used in relevant calculations would be recommended.	Open	Obs	For the client to consider		

Ref #	Issue	Status	Type	Comments / Agreed Corrective Actions	Date closed	Evidence sighted to close out the issue where corrective action required.
OBS10	**Paper Disposal** Ting used for confidential office paper disposal. If accurate reports are available this data could be included in future audits.	Open	Obs	For the client to consider		
OBS11	**Liabilities** Gas bottles (including many PG cylinders) noted at all sites visited. Diesel fuel tank observed at Ara, Christchurch. The volumes of these stored gases and fuels could be recorded as liabilities in future GHG reports.	Open	Obs	For the client to consider		

NOTES

1. The detailed audit findings and calculations are given in the Verification Plan and Working Papers associated with this audit. These contain proprietary verification methodologies and remain confidential to Toitū Envirocare.
2. The audit is based upon sampling and as such nonconformities may exist that have not yet been identified.
3. We have reviewed the company's GHG emissions inventory for the period. The inventory is based on historical information which is stated in accordance with the requirements of ISO 14064-1:2018.
4. The scope of the review was limited to personnel interview, analytical review procedures applied to GHG emissions data, and review of the input of data into the emissions inventory. Based on our review the inventory is compliant with the requirements of ISO 14064-1:2018.
5. A **non-conformance (NCR)** indicates that the auditor has found a non-conformance with scheme Technical Requirements (audit criteria) and requires you to take the appropriate corrective action and provide evidence of this correction within two weeks. This may require resubmission of an updated Emissions Inventory Report and Emissions Management and Reduction Plan.
6. A **minor non-conformance (mNCR)** which the auditor has found which is not material to the outcome of the inventory, but to which a failure to address in the preparation of future inventories could lead to a major Non-Conformance (NCR).
7. **Observations** made by your auditor are strongly advised but the actions are not required for the organisation to be recommended for certification.
8. Neither Toitū Envirocare nor the auditor has any interest in the organisation, other than in our capacity as assurance providers. We have not carried out any work with this business prior to this review.
9. This report has been prepared solely for the use of the organisation and Toitū Envirocare as part of a GHG verification in accordance with relevant international standards as outlined in the audit criteria above. It may be relied on solely by the organisation and Toitū Envirocare for that purpose only. Toitū Envirocare does not accept or assume any responsibility to any person other than the organisation in relation to the statements or findings expressed or implied in this report.
10. Any correspondence regarding this audit report should be directed to your Lead Auditor.
11. A copy of this report has been provided to the nominated client contact.
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