

ORGANISATION AUDIT REPORT

ISO 14064-1 Verification



Organisation:

University of Auckland

Lead Auditor	Pieter Fransen
Team members	Surandi Perera
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Report date	9 December 2021
Report reviewed by	Osana Robertson, Toitū Envirocare, 26 January 2022

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	17/11/2021-18/11/2021
Reporting year	01/01/2019-31/12/2019
Base year	01/01/2019-31/12/2019
Consolidation methodology	Operational control
Materiality threshold	5%
GHG statement	The University of Auckland has measured its greenhouse gas emissions in accordance with ISO 14064-1:2018 in respect of the operational emissions of its organisation including Auckland Uniservices Limited, all campuses and operational emissions.
Intended users	To inform the development of the University’s Net-Zero Carbon Strategy and it is intended for use by the members of the Sustainable Estate and Operations Working Group (SEOWG) and any other groups or stakeholders the SEOWG deems appropriate.
Registered office address	Clock Tower, 22 Princes St, Auckland, New Zealand
Locations visited	None
Audit Type	Verification only
Audit Stage	Desk-top audit
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 scopes	Level of Assurance	All verified emissions	Units
Category 1	Reasonable	5,667.38	tCO ₂ e
Category 2	Reasonable	7,205.50	tCO ₂ e
Category 3	Reasonable	24,768.94	tCO ₂ e
Category 3	Limited	41,166.18	tCO ₂ e
Category 4	Reasonable	2,468.38	tCO ₂ e
Category 4	Limited	13.67	tCO ₂ e

Emissions summary by scopes	Level of Assurance	All verified emissions	Units
Total gross inventory:		81,290.06	tCO ₂ e
Total net inventory:		81,290.06	tCO ₂ e
Calculated uncertainty (if reported)		0	[% or tCO ₂ e]
Emissions intensity (gross):		63.80	tCO ₂ e/\$M ¹
Double counting:		0.00	tCO ₂ e

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 University of Auckland including subsidiaries. It is noted that there are a range of activities that have previously been shown to be *de minimis* or excluded due to data is not available in the 2019 GHG report therefore these are excluded from the scope of the inventory. These include but are not limited to:

- Staff and student commuting
- Emissions from Construction and demolition
- Products and services (≤ \$99,000)
- Sinks
- Freight and Couriers
- Waste - other wastes Medical Waste
- Staff travel - reimbursement

EMISSIONS FACTORS

The emissions factors were sourced Toitū Envirocare emange programme.

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 primary	Air travel long haul (average) – staff and students Electricity Natural Gas distributed commercial

Verification Level	Emissions sources
verification was conducted varied depending on level of controls noted at the emission source level.	
<p>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 <i>de minimis</i> sources are appropriately justified. The extent to which the—verification was conducted varied depending on level of controls noted at the emission source level.</p>	<p>Air travel long haul (average) – international student Air travel short haul (average) Air travel domestic (average) Natural Gas distributed T&D losses Electricity distributed T&D losses Waste landfilled LFGR Mixed waste Steam generation CO₂e Accommodation - Australia Waste disposal recycling of Paper Enteric Fermentation Sheep Paper use - default Accommodation - United States Taxi (regular) Diesel Rental Car average (petrol) Accommodation - China Petrol R-410A Air travel short haul (average) R-407C R-404A Accommodation - India Waste landfilled LFGR Mixed waste Accommodation - Japan Diesel stationary combustion Bus travel (city) Diesel Accommodation - United Kingdom Accommodation - New Zealand Enteric Fermentation Dairy Cattle CO₂ Accommodation - South Korea N₂O Accommodation - New Zealand Accommodation - Indonesia Composting Accommodation - China (Hong Kong) Accommodation - Malaysia Accommodation - Singapore Water supply Accommodation - Thailand Rental Car average (diesel) Accommodation - Canada Accommodation - Italy Accommodation - Germany Accommodation - United Arab Emirates Accommodation - Spain Waste landfilled LFGR Mixed waste Diesel stationary combustion Accommodation - Colombia Accommodation - Netherlands LPG stationary commercial Accommodation - Vietnam Accommodation - France Accommodation - South Africa Accommodation - Poland Accommodation - Portugal</p>

Verification Level	Emissions sources
	Accommodation - Chile Accommodation - Czech Republic Accommodation - Ireland Accommodation - Argentina Accommodation - Saudi Arabia Accommodation - Belgium Accommodation - Turkey Accommodation - Austria Accommodation - Brazil Accommodation - Switzerland Accommodation - Mexico Accommodation - Egypt Accommodation - Panama Accommodation - Russian Federation Rental Car average (hybrid) CH4 Waste disposal recycling of Aluminium Waste disposal recycling of Glass Waste disposal recycling of Plastic Electricity Toitū carbonzero certified factor Ecotricity Wastewater for treatment plants (average)

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

Criteria/documents	Status
Organisational boundaries	Meets ISO 14064-1:2018 requirements.
The Greenhouse Gas Emissions Inventory report	Meets ISO 14064-1:2018 requirements.
Application of the accounting principles	Meets ISO 14064-1:2018 requirements.

A total of 2 non-conformances, 15 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 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 University of Auckland has gained Toitū carbonreduce or carbonzero certification.

CONCLUSION

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

Level of Assurance	<ul style="list-style-type: none"> • Reasonable assurance over Category 1, 2 and selected Category 3, 4, 5, 6 sources, including: CH4, CO₂, Diesel, Diesel Stationary Combustion, Enteric
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	<p>Fermentation Dairy Cattle and Sheep, LPG, N2O, Natural Gas, Petrol, Refrigerants, Electricity, Steam Generation, Staff and student air travel, Accommodation, Rental Car, Taxis, Composting, T&D Losses, Waste and Water supply".</p> <ul style="list-style-type: none"> Limited assurance over selected additional Category 3, 4 sources: Air Travel (international student), Bus Travel, Paper
Qualifications/Limitations	<ul style="list-style-type: none"> Air travel short haul and long haul inbound for international student from internal registration has a very high level of uncertainty and significant assumptions: country of citizenship, port of departure, return trip, and assumed AirNZ calculator or bird time flight used. Bus travel – medium to high uncertainty: number of km per trip calculated with high level of accuracy as route constant, but vehicle occupancy levels was assumed. Paper use - weight was assumed based on the number of reams purchased and estimated weight per ream. No site visit due to COVID-19 restrictions.

FINDINGS LOG

Date issued:	18/11/2021
Lead Auditor:	Pieter Fransen
Auditor:	Surandi Perera
Company issued to:	University of Auckland

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.
Rf11	Annual Turnover Figures not provided	Closed	RFI		18/11/2021	Updated
Rf12	IMR - excluded business units are listed. But exclusion of emission sources are not listed (Table 14 Empty)	Closed	RFI		18/11/2021	Updated
Rf13	Table 16. Significance criteria used for identifying inclusion of indirect emissions is empty	Closed	RFI		18/11/2021	Updated
Rf14	GHG stocks held - supporting information not available	Closed	RFI	To provide supporting information for stored volume and type of refrigerants register and fuels in secondary container systems.	18/11/2021	Refrigerant data and fuel data provided correct
RF16	Split of Emission between Plastic, Glass & Aluminium	Closed	RFI	Optional to update to consumption report figure to	06/12/2021	Inventory updated, and relevant data sheet provided

Ref #	Issue	Status	Type	Comments / Agreed Corrective Actions	Date closed	Evidence sighted to close out the issue where corrective action required.
				70,987,977 kWh. Also affects T&D losses.		
NCR1	Air travel short haul - Staff travel. Material difference (1.05%) in reported amounts in CorpTravel report tab.	Closed	NCR	Optional to update to consumption report figure to 26,427,303 kWh. Also affects T&D losses	03/12/2021	Inventory updated
NCR2	Revenue figure - incorrect decimal placement in IMR. Noted that possible issue with how many numbers is allowed to be inputted in IMR (will not accept 1000th unit)?	Closed	NCR	Calculated 341 t steam from consumption report. Optional to update.	03/12/2021	Updated the IMR
mNCR1	Electricity - difference between consumption report total and total in emanage. Immaterial difference of +0.16%.	Closed	mNCR	Check if there is more gas to report and provide info. Johnson Control data to send	03/12/2021	Inventory updated
mNCR2	Natural gas - immaterial difference compared to consumption report of 0.02%	Closed	mNCR	Optional to update to 8,282,205km	03/12/2021	Updated the inventory but T & D losses has not corrected
mNCR3	Steam - minor difference in calculation - 0.002%	Closed	mNCR	Optional to update to 112,981,420pkm	03/12/2021	Inventory updated
mNCR5	R410a - Aquaheat reported only 11.2 kg. 12.19 kg not documented. Immaterial difference 0.03%	Closed	mNCR	To add to risk assessment of indirect emissions and justify exclusion	03/12/2021	Inventory updated
mNCR6	Air travel domestic - Staff travel. Immaterial difference (0.0002%) in reported amounts in CorpTravel report tab.	Open	mNCR	Optional to update the inventory		
mNCR7	Air travel long haul - Staff travel. Immaterial difference (0.55%) in reported amounts in CorpTravel report tab.	Closed	mNCR	Optional to update the inventory	03/12/2021	Inventory updated

Ref #	Issue	Status	Type	Comments / Agreed Corrective Actions	Date closed	Evidence sighted to close out the issue where corrective action required.
mNCR8	Air travel reimbursed travel - excluded from the inventory due to lack of indirect measurement data (destinations, etc). Only dollar spend available. Not captured in indirect risk assessment/significance table.	Closed	mNCR	Optional to update the inventory	07/12/2021	Excluded activity in IMR
mNCR9	Waste Landfilled (collected by Green Gorilla)- Verified 1,419,363.70 kg, reported only 1,418,563,00. Immaterial difference	Closed	mNCR	Optional to update the inventory	03/12/2021	Inventory updated
mNCR10	Composting- Verified 108,126kg and reported 108,919kg. Immaterial differenced noticed against the "waste data 2019-2021.xls" file, GG 2019 tab	Closed	mNCR	Optional to update the inventory	03/12/2021	Inventory updated

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.
12. A copy of this report may be made available to intended users upon request.

GREENHOUSE GAS EMISSIONS INVENTORY AND MANAGEMENT REPORT

Prepared in accordance with ISO 14064-1:2018



The University of Auckland

Prepared by (lead author): María José Baldoni Project Manager, Sustainability and Environment

Dated: 20 January 2022

Verification status: Reasonable and Limited Assurance

Measurement period: 01 January 2019 to 31 December 2019

Base year period: 01 January 2019 to 31 December 2019

Approved for release by:

Simon Neale, Director Property Services

DISCLAIMER

The template has been provided by Enviro-Mark Solutions Limited (trading as Toitū Envirocare). While every effort has been made to ensure the template is consistent with the requirements of ISO 14064-1:2018, Toitū Envirocare does not accept any responsibility whether in contract, tort, equity or otherwise for any action taken, or reliance placed on it, or for any error or omission from this report. The template should not be altered (i.e. the black text); doing so may invalidate the organisation's claim that its inventory is compliant with the ISO 14064-1:2018 standard.

This work shall not be used for the purpose of obtaining emissions units, allowances, or carbon credits from two or more different sources in relation to the same emissions reductions, or for the purpose of offering for sale carbon credits which have been previously sold.

The consolidation approach chosen for the greenhouse gas inventory should not be used to make decisions related to the application of employment or taxation law.

This report shall not be used to make public greenhouse gas assertions without independent verification and issue of an assurance statement by Toitū Envirocare.

AVAILABILITY

This report is available internally to support the development of the University's Net-Zero Carbon Strategy.

REPORT STRUCTURE

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

Chapter 1, the Emissions Inventory Report, includes the inventory details and forms the measure step of the organisation's application for Programme certification. The inventory is a complete and accurate quantification of the amount of GHG emissions and removals that can be directly attributed to the organisation's operations within the declared boundary and scope for the specified reporting period. The inventory has been prepared in accordance with the 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 Removals¹. Where relevant, the inventory is aligned with industry or sector best practice for emissions measurement and reporting.

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

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

¹ Throughout this document 'GHG Protocol' means the *GHG Protocol Corporate Accounting and Reporting Standard* and 'ISO 14064-1:2018' means the international standard *Specification with Guidance at the Organizational Level for Quantification and Reporting of Greenhouse Gas Emissions and Removals*.

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EXECUTIVE SUMMARY

This is the annual greenhouse gas (GHG) emissions inventory and management report for The University of Auckland covering the measurement period 01 January 2019 to 31 December 2019.²

Table 1: Inventory summary

Category (ISO 14064-1:2018)	Scopes (ISO 14064-1:2006)	2019
Category 1: Direct emissions	Scope 1	5,667.38
Category 2: Indirect emissions from imported energy	Scope 2	7,205.50
Category 3: Indirect emissions from transportation	Scope 3	65,935.12
Category 4: Indirect emissions from products used by organisation		2,482.05
Category 5: Indirect emissions associated with the use of products from the organisation		0.00
Category 6: Indirect emissions from other sources		0.00
Total direct emissions		5,667.38
Total indirect emissions		75,622.67
Total gross emissions		81,290.06
Category 1 direct removals		0.00
Certified renewable electricity certificates		0.00
Purchased emission reductions		0.00
Total net emissions		81,290.06

² Throughout this document “emissions” means “GHG emissions”.

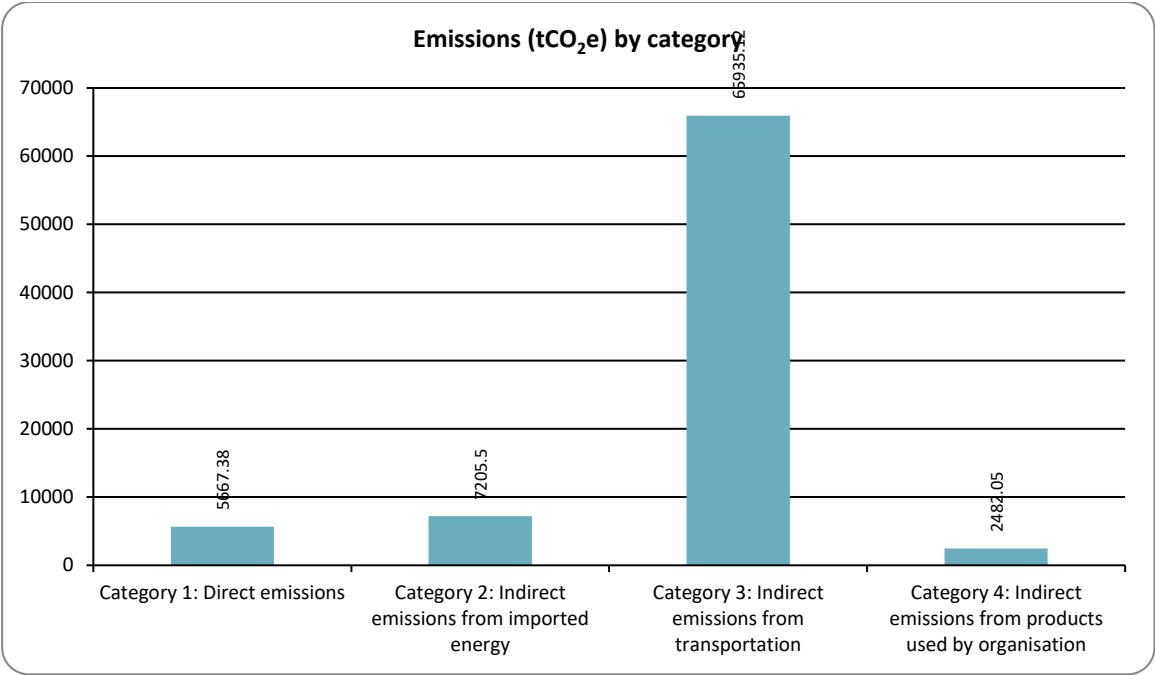


Figure 1: Emissions (tCO₂e) by Category for this measurement period

CHAPTER 1: EMISSIONS INVENTORY REPORT

1.1. INTRODUCTION

This report is the annual greenhouse gas (GHG) emissions inventory and management report for The University of Auckland.

The overall purpose of this report is to inform the development of the University's Net-Zero Carbon Strategy and associated implementation plans. The main objective is to identify the Greenhouse Gas emissions profile of the University in a manner that is consistent with best practice and latest international standards.

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

1.2. EMISSIONS INVENTORY RESULTS

Table 2: GHG emissions inventory summary for this measurement period

Measurement period: 01 January 2019 to 31 December 2019.

Category	Toitū carbon mandatory boundary (tCO ₂ e)	Additional emissions (tCO ₂ e)	Total emissions (tCO ₂ e)
Category 1: Direct emissions	5,667.38 CH ₄ , CO ₂ , Diesel stationary combustion, Diesel, Enteric Fermentation Dairy Cattle, Enteric Fermentation Sheep, LPG stationary commercial, N ₂ O, Natural Gas distributed commercial, Petrol, R-404A, R-407C, R-410A	0.00	5,667.38
Category 2: Indirect emissions from imported energy	7,205.50 Electricity Toitū carbonzero certified factor Ecotricity, Electricity, Steam generation CO ₂ e	0.00	7,205.50
Category 3: Indirect emissions from transportation	30,013.79	35,921.33 Air travel long haul (average), Air travel short haul (average)	65,935.12

Category	Toitū carbon mandatory boundary (tCO ₂ e)	Additional emissions (tCO ₂ e)	Total emissions (tCO ₂ e)
	Accommodation - Argentina, Accommodation - Australia, Accommodation - Austria, Accommodation - Belgium, Accommodation - Brazil, Accommodation - Canada, Accommodation - Chile, Accommodation - China (Hong Kong), Accommodation - China, Accommodation - Colombia, Accommodation - Czech Republic, Accommodation - Egypt, Accommodation - France, Accommodation - Germany, Accommodation - India, Accommodation - Indonesia, Accommodation - Ireland, Accommodation - Italy, Accommodation - Japan, Accommodation - Malaysia, Accommodation - Mexico, Accommodation - Netherlands, Accommodation - New Zealand, Accommodation - Panama, Accommodation - Poland, Accommodation - Portugal, Accommodation - Russian Federation, Accommodation - Saudi Arabia, Accommodation - Singapore, Accommodation - South Africa, Accommodation - South Korea, Accommodation - Spain, Accommodation - Switzerland, Accommodation - Thailand, Accommodation - Turkey, Accommodation - United Arab Emirates, Accommodation - United Kingdom, Accommodation - United States, Accommodation - Vietnam, Air travel domestic (average), Air travel long haul (average), Air travel short haul (average), Bus travel (city), Rental Car average (diesel), Rental Car average (hybrid), Rental Car average (petrol), Taxi (regular)		
Category 4: Indirect emissions from products used by organisation	2,305.93 Composting, Electricity distributed T&D losses, Natural Gas distributed T&D losses, Waste disposal recycling of Aluminium, Waste disposal recycling of Glass, Waste disposal recycling of Paper, Waste disposal recycling of Plastic, Waste landfilled LFGR Mixed waste, Wastewater for treatment plants (average)	176.12 Paper use - default, Water supply	2,482.05
Category 5: Indirect emissions associated with the use of products from the organisation	0.00	0.00	0.00
Category 6: Indirect emissions from other sources	0.00	0.00	0.00
Total direct emissions	5,667.38	0.00	5,667.38
Total indirect emissions	39,525.22	36,097.46	75,622.67
Total gross emissions	45,192.60	36,097.46	81,290.06
Category 1 direct removals	0.00	0.00	0.00
Certified renewable electricity certificates	0.00	0.00	0.00
Purchased emission reductions	0.00	0.00	0.00

Category	Toitū carbon mandatory boundary (tCO ₂ e)	Additional emissions (tCO ₂ e)	Total emissions (tCO ₂ e)
Total net emissions	45,192.60	36,097.46	81,290.06
Emissions intensity			
		Mandatory emissions	Total emissions
Built environment (gross tCO ₂ e / m ²)		0.072	0.13
Equivalent Full Time Student (gross tCO ₂ e / per FTE per annum)		1.31	2.35
Operating revenue (gross tCO ₂ e / \$Millions)		35.47	63.80

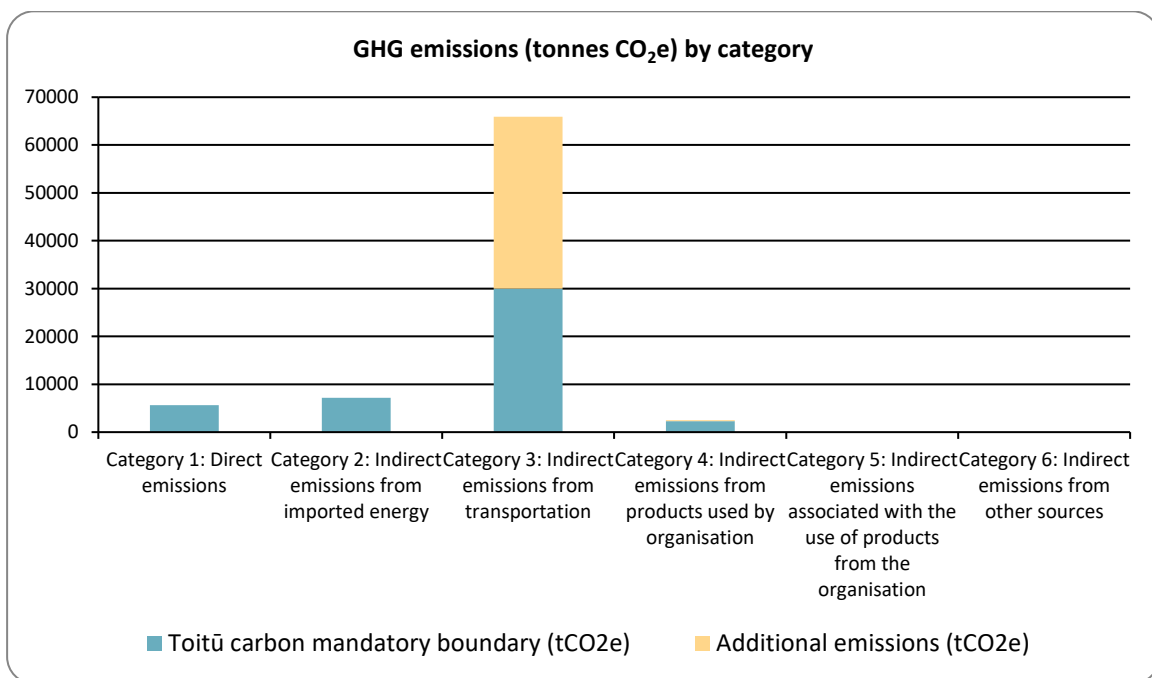


Figure 2: GHG emissions (tonnes CO₂e) by category

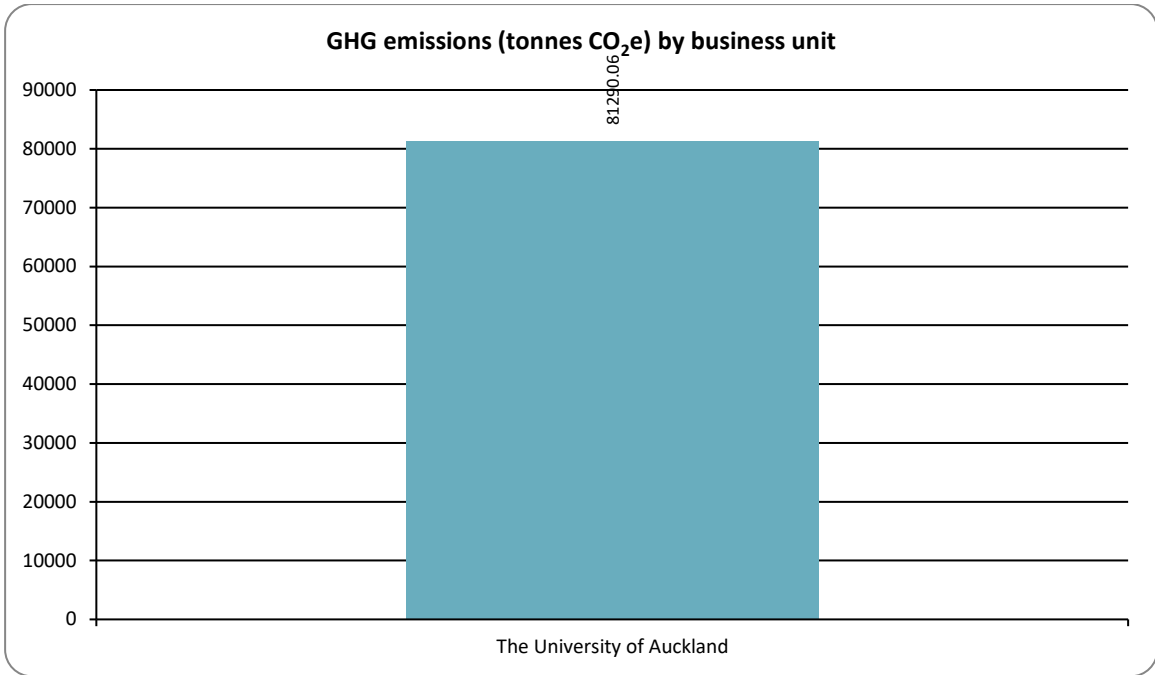


Figure 3: GHG emissions (tonnes CO₂e) by business unit

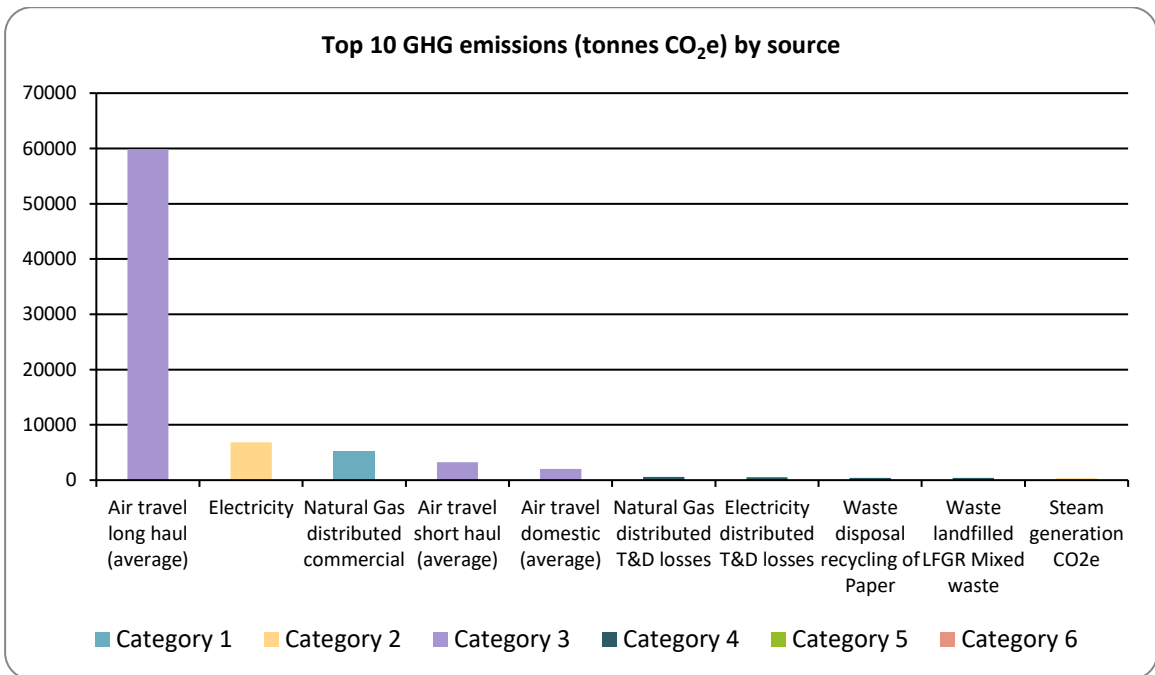


Figure 4: Top 10 GHG emissions (tonnes CO₂e) by source

1.3. ORGANISATIONAL CONTEXT

1.3.1. Organisation description

The University of Auckland was founded in 1883 as a constituent college of the University of New Zealand. Under the University of Auckland Act 1961, the college became an autonomous university. The University is administered under the 1961 Act and the Education Act 1989 and its amendments.

The University's governing body is the Council, which comprises elected staff and students; a member appointed to advise on Māori issues; a member appointed from the alumni; Council appointees; and Ministerial appointees. The Vice-Chancellor is also a member of Council.

Council is chaired by the Chancellor, who is a lay member of Council.

Under the Education Act 1989, Council has the following functions:

- Appoint a chief executive
- Carry out long-term planning for the University
- Adopt the Investment Plan
- Ensure that the institution is managed in accordance with the Investment Plan
- Determine the policies of the institution in relation to the carrying out of the Investment Plan and, subject to the State Sector Act 1988, the management of its affairs.

In 2019, the University had 34,521 Equivalent Full Time Students (EFTS) and 5,968 Full Time Equivalent Staff (FTE), occupied 119 premises in New Zealand, 84 of which are owned by the University. The principal activities of the University and AUL are the provision of teaching and research services.

Commitment to certification

The University's Vision 2030 is to become internationally recognised for its unique contribution to fair, ethical and sustainable societies. This is expressed in 'Taumata Teitei

Vision 2030 and Strategic Plan 2025' developed collectively with input from all sectors of the University in 2020 and published in 2021.

GHG Reporting

One of the key commitments expressed in Taumata Teitei is to achieve Net-Zero Carbon status and to publish meaningful metrics of the University's progress towards overall sustainability. This report is part of the initial steps taken to better understand the emissions profile of the University and to identify effective pathways to net-zero that reflect the spirit of Taumata Teitei.

Climate Change Impacts

1.3.2. Statement of intent

The intended uses of this inventory are:

Intended use and users

This report is has been prepared to inform the development of the University's Net-Zero Carbon Strategy and it is intended for use by the members of the Sustainable Estate and Operations Working Group (SEOWG) and any other groups or stakeholders the SEOWG deems appropriate.

Other schemes and requirements

The inventory is expected to align with best practice in GHG measuring and reporting, especially with ISO 14064-1:2018. The Sustainable Estates and Operations working group will also assess potential alignment with international and local schemes such as the Science Based Targets Initiative (SBTi) and corresponding standards for Net-Zero target validation as well as the recently launched New Zealand Carbon Neutral Government Programme (CNGP).

1.3.3. Person responsible

Maria Jose Baldoni, Project Manager, Sustainability and Environment is responsible for overall emission inventory measurement and reduction performance, as well as reporting results to top management. Maria Jose Baldoni, Project Manager, Sustainability and Environment has the authority to represent top management and has financial authority to authorise budget for the Programme, including Management projects and any Mitigation objectives.

State any other people/entities involved

Fiona Moffat Procurement Manager, One Finance

Harry Tetteroo, Procurement Manager, One Finance,

Gary Granger, Procurement Manager, One Finance

Russell Baillie, Energy Manager, Facilities Management, Property Services

Mark Neal, Waste Minimisation Specialist, Facilities Management, Property Services

Tim Sinclair, Manager Space and Property, Property Services

Ainslie Moore, Deputy Director, International Office

María José Baldoni, Carbon Auditor - ISO 14064-1:2018 (Accredited 2021)

Top management commitment

Management involvement

1.3.4. Reporting period

Base year measurement period: 01 January 2019 to 31 December 2019

This period January to December corresponds to the University of Auckland's overall reporting period. The University has been reporting carbon emissions from utilities (electricity, water, gas), waste disposal, paper consumption and staff air travel since 2011. The change in base year to 2019 responds to a more comprehensive approach taken in light of changes to international best practice, including expectations to set baselines no earlier than 2015.

Measurement period of this report: 01 January 2019 to 31 December 2019

The year 2019 was selected as a 'typical' and representative year for the University's activities and one for which data was sufficiently available.

1.3.5. Organisational boundary and consolidation approach

An operational control consolidation approach was used to account for emissions.³

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

Justification of consolidation approach

The operational control approach was chosen as the University has control over the operations of its units and service divisions and has authority to introduce operating policies and corresponding implementation plans.

Organisational structure

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

The University of Auckland was established by The University of Auckland Act 1961. The University of Auckland (the University), Auckland UniServices Limited (AUL), and the University of Auckland Foundation (the Foundation) are all controlled entities and together form 'the Group'. AUL operates in Hong Kong and China and has a branch in the Kingdom of Saudi Arabia. The principal activities of the University and AUL are the provision of teaching and research services. The principal activities of the Foundation are raising and stewardship of funds for charitable purposes and advancement of education and healthcare, assistance of students to pursue courses of study at the University of Auckland, and the general advancement of the University.

The central office of the University's management is located at the Clock Tower, 22 Princes St, Auckland, New Zealand.

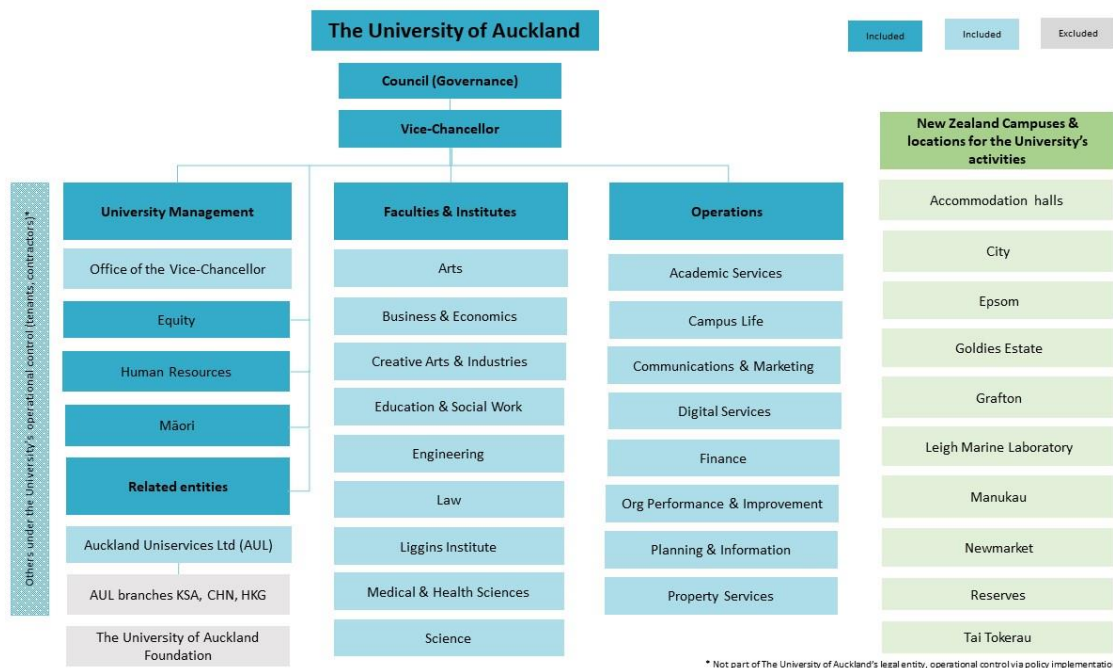


Figure 5: Organisational structure

³control: the organisation accounts for all GHG emissions and/or removals from facilities over which it has financial or operational control. equity share: the organisation accounts for its portion of GHG emissions and/or removals from respective facilities.

Table 3. Brief description of business units, sites and locations included in this emissions inventory

Physical location	Facility	Facility type	Description
3A Symonds St, Auckland Central, Auckland, 1010	SPECIAL	CENTRAL ADMIN	CAMPUS LIFE, COMMUNAL, DIGITAL SERVICES & UNIVERSITY MANAG
24 Princes St, Auckland Central, Auckland, 1010	OFFICE	CENTRAL ADMIN	ACADEMIC SERVICES, COMS & MARKETING, INTERNATIONAL & UNIVERSITY MANAG
7 Symonds St, Auckland Central, Auckland, 1010	GENERAL	CENTRAL ADMIN	CAMPUS LIFE, DIGITAL SERVICES, ENGINEERING, PROPERTY SERVICES & SCIENCE
22 Princes St, Auckland Central, Auckland, 1010	GENERAL	CENTRAL ADMIN	ACADEMIC SERVICES, COMS & MARKETING, DIGITAL SERVICES, EQUITY & UNIVERSITY MANAG
22 Princes St, Auckland Central, Auckland, 1010	OFFICE	CENTRAL ADMIN	DIGITAL SERVICES, EQUITY & UNIVERSITY MANAG
5 Symonds St, Auckland Central, Auckland, 1010	LABS	CENTRAL ADMIN	DIGITAL SERVICES
5 Symonds St, Auckland Central, Auckland, 1010	LABS	FACULTY	SCIENCE
18 Princes St, Auckland Central, Auckland, 1010	SPECIAL	CENTRAL ADMIN	CAMPUS LIFE
5 Alfred St, Auckland Central, Auckland, 1010	STUDY	CENTRAL ADMIN	DIGITAL SERVICES, LIBRARIES & LEARNING SERVICES
3 Symonds St, Auckland Central, Auckland, 1010	LABS	FACULTY	SCIENCE
3A Symonds St, Auckland Central, Auckland, 1010	LABS	FACULTY	SCIENCE
5 Symonds St, Auckland Central, Auckland, 1010	GENERAL	FACULTY	CAI
3A Symonds St, Auckland Central, Auckland, 1010	GENERAL	CENTRAL ADMIN	DIGITAL SERVICES, EQUITY & LIBRARIES & LEARNING SERVICES
3A Symonds St, Auckland Central, Auckland, 1010	GENERAL	FACULTY	SCIENCE
3A Symonds St, Auckland Central, Auckland, 1010	GENERAL	CENTRAL ADMIN	UNIVERSITY MANAG
5 Symonds St, Auckland Central, Auckland, 1010	GENERAL	CENTRAL ADMIN	DIGITAL SERVICES
3 Symonds St, Auckland Central, Auckland, 1010	SUPPORT	CENTRAL ADMIN	PROPERTY SERVICES
16 Princes St, Auckland Central, Auckland, 1010	RESID	CENTRAL ADMIN	CAMPUS LIFE
3 Symonds St, Auckland Central, Auckland, 1010	SPECIAL	FACULTY	SCIENCE
31 Princes St, Auckland Central, Auckland, 1010	SPECIAL	CENTRAL ADMIN	DIGITAL SERVICES & STRATEGIC ENGAGEMENT

Physical location	Facility	Facility type	Description
25 Princes St, Auckland Central, Auckland, 1010	SPECIAL	FACULTY	CAI
19A Princes St, Auckland Central, Auckland, 1010	OFFICE	CENTRAL ADMIN	STRATEGIC ENGAGEMENT
17 Wynyard St, Auckland Central, Auckland, 1010	GENERAL	FACULTY & CENTRAL ADMIN	ARTS, COMMUNAL, DIGITAL SERVICES, EDUCATION, ENGINEERING, LIBRARIES & LEARNING SERVICES, PROPERTY SERVICES & SCIENCE
10 Symonds St, Auckland Central, Auckland, 1010	GENERAL	CENTRAL ADMIN & FACULTY	DIGITAL SERVICES. ENGINEERING, PROPERTY SERVICES, SCIENCE & CAMPUS LIFE
14A Symonds St, Auckland Central, Auckland, 1010	GENERAL	FACULTY & CENTRAL ADMIN	ARTS, CAI & DIGITAL SERVICES
18 Symonds St, Auckland Central, Auckland, 1010	GENERAL	FACULTY & CENTRAL ADMIN	ARTS, CAI & DIGITAL SERVICES
12 Symonds St, Auckland Central, Auckland, 1010	GENERAL	FACULTY	ARTS
14 Symonds St, Auckland Central, Auckland, 1010	GENERAL	FACULTY & CENTRAL ADMIN	ARTS & STRATEGIC ENGAGEMENT
16 Symonds St, Auckland Central, Auckland, 1010	GENERAL	FACULTY	ARTS
8 Grafton Rd, Auckland Central, Auckland, 1010	GENERAL	FACULTY & CENTRAL ADMIN	ARTS, DIGITAL SERVICES & LIBRARIES & LEARNING SERVICES
10 Grafton Rd, Auckland Central, Auckland, 1010	GENERAL	FACULTY	ARTS
18 Wynyard St, Auckland Central, Auckland, 1010	SPECIAL	FACULTY	ARTS
3 Alten Rd, Auckland Central, Auckland, 1010	SPECIAL	CENTRAL ADMIN	CAMPUS LIFE
6 Symonds St, Auckland Central, Auckland, 1010	SPECIAL	FACULTY	CAI
16 Wynyard St, Auckland Central, Auckland, 1010	SPECIAL	FACULTY & CENTRAL ADMIN	COMMUNAL, ARTS & DIGITAL SERVICES
12 Grafton Rd, Auckland Central, Auckland, 1010	GENERAL	FACULTY & CENTRAL ADMIN	ARTS, BUSINESS & ECON, CAMPUS LIFE, COMMUNAL, COMS & MARKETING, DIGITAL SERVICES, PROPERTY SERVICES & SCIENCE
20 Wynyard St, Auckland Central, Auckland, 1010	OFFICE	FACULTY & CENTRAL ADMIN	ARTS, DIGITAL SERVICES, STRATEGIC ENGAGEMENT, ARTS & COMMUNAL
23 Symonds St, Auckland Central, Auckland, 1010	LABS	FACULTY & CENTRAL ADMIN	CAMPUS LIFE, DIGITAL SERVICES, ENGINEERING, PROPERTY SERVICES & SCIENCE
40 Wellesley St East, Auckland Central, Auckland, 1010	GENERAL	CENTRAL ADMIN & COMMERCIAL	CAMPUS LIFE, COMMERCIAL, COMMUNAL, DIGITAL SERVICES & SCIENCE

Physical location	Facility	Facility type	Description
38 Princes St, Auckland Central, Auckland, 1010	GENERAL	FACULTY & CENTRAL ADMIN	DIGITAL SERVICES, SCIENCE, DIGITAL SERVICES & SCIENCE
23 Symonds St, Auckland Central, Auckland, 1010	GENERAL	FACULTY	SCIENCE
34 Princes St, Auckland Central, Auckland, 1010	OFFICE	FACULTY & CENTRAL ADMIN	CAMPUS LIFE & SCIENCE
17 Symonds St, Auckland Central, Auckland, 1010	SPECIAL	CENTRAL ADMIN & COMMERCIAL	CAMPUS LIFE, COMMERCIAL & EQUITY
9 Symonds St, Auckland Central, Auckland, 1010	STUDY	FACULTY & CENTRAL ADMIN	ARTS, CAMPUS LIFE, COMMUNAL, INTERNATIONAL & LIBRARIES & LEARNING SERVICES
9 Symonds St, Auckland Central, Auckland, 1010	SUPPORT	CENTRAL ADMIN	CAMPUS LIFE
4 Alfred St, Auckland Central, Auckland, 1010	OFFICE	CENTRAL ADMIN	CAMPUS LIFE
20 Symonds St, Auckland Central, Auckland, 1010	OFFICE	FACULTY & CENTRAL ADMIN	CAMPUS LIFE, COMMUNAL, DIGITAL SERVICES & ENGINEERING
20 Symonds St, Auckland Central, Auckland, 1010	STUDY	FACULTY & CENTRAL ADMIN	BUSINESS & ECON, CAI, COMMUNAL, DIGITAL SERVICES, ENGINEERING, LIBRARIES & LEARNING SERVICES & SCIENCE
7 Grafton Rd, Auckland Central, Auckland, 1010	GENERAL	FACULTY & CENTRAL ADMIN	COMMUNAL, DIGITAL SERVICES, ENGINEERING & PROPERTY SERVICES
9 Grafton Rd, Auckland Central, Auckland, 1010	OFFICE	FACULTY	ARTS
24 Symonds St, Auckland Central, Auckland, 1010	SPECIAL	FACULTY & CENTRAL ADMIN	CAI, DIGITAL SERVICES, ENGINEERING, LIBRARIES & LEARNING SERVICES, PROPERTY SERVICES & CAMPUS LIFE
26 Symonds St, Auckland Central, Auckland, 1010	GENERAL	FACULTY & CENTRAL ADMIN	CAI & DIGITAL SERVICES
26 Symonds St, Auckland Central, Auckland, 1010	PARKING	FACULTY	ARTS & CAI
26 Symonds St, Auckland Central, Auckland, 1010	GENERAL	FACULTY & CENTRAL ADMIN	CAI & DIGITAL SERVICES
26 Symonds St, Auckland Central, Auckland, 1010	SPECIAL	FACULTY & CENTRAL ADMIN	CAI & ENGINEERING
22 Symonds St, Auckland Central, Auckland, 1010	SPECIAL	FACULTY & CENTRAL ADMIN	CAI, DIGITAL SERVICES, LIBRARIES & LEARNING SERVICES & ENGINEERING
20 Whitaker Pl, Grafton, Auckland, 1010	LABS	FACULTY & CENTRAL ADMIN	CAI & DIGITAL SERVICES
20 Whitaker Pl, Grafton, Auckland, 1010	STUDY	FACULTY & CENTRAL ADMIN	CAI & DIGITAL SERVICES
44 Symonds Street, Grafton, Auckland, 1010	RESID	CENTRAL ADMIN	CAMPUS LIFE

Physical location	Facility	Facility type	Description
58 Symonds St, Grafton, Auckland, 1010	OFFICE	CENTRAL ADMIN	DIGITAL SERVICES & UNIVERSITY MANAG
58 Symonds St, Grafton, Auckland, 1010	PARKING	FACULTY & CENTRAL ADMIN	DIGITAL SERVICES & SCIENCE
14 Whitaker Pl, Grafton, Auckland, 1010	RESID	CENTRAL ADMIN	CAMPUS LIFE
70 Symonds St, Grafton, Auckland, 1010	OFFICE	FACULTY & CENTRAL ADMIN	DIGITAL SERVICES, ENGINEERING & RESEARCH INST
30 Whitaker Place, Grafton, Auckland, 1010	RESID	CENTRAL ADMIN	CAMPUS LIFE
5 Whitaker Place , Grafton, Auckland, 1010	RESID	CENTRAL ADMIN	CAMPUS LIFE
85 Park Rd, Grafton, Auckland, 1023	GENERAL	FACULTY & CENTRAL ADMIN	DIGITAL SERVICES, MEDICINE, RESEARCH INST & MEDICINE
85 Park Rd, Grafton, Auckland, 1023	LABS	FACULTY & CENTRAL ADMIN	DIGITAL SERVICES, MEDICINE, PROPERTY SERVICES, RESEARCH INST, CAMPUS LIFE, DIGITAL SERVICES & LIBRARIES & LEARNING SERVICES
2 Boyle Cres, Grafton, Auckland, 1023	GENERAL	FACULTY & CENTRAL ADMIN	CAMPUS LIFE, COMMUNAL, DIGITAL SERVICES, LIBRARIES & LEARNING SERVICES, MEDICINE & RESEARCH INST
28 Park Ave, Grafton, Auckland, 1023	GENERAL	FACULTY & CENTRAL ADMIN	COMMERCIAL, COMMUNAL, DIGITAL SERVICES, MEDICINE & SCIENCE
11 Park Ave, Grafton, Auckland, 1023	GENERAL	CENTRAL ADMIN	CAMPUS LIFE
70 Seafield View Rd, Grafton, Auckland, 1023	RESID	CENTRAL ADMIN	CAMPUS LIFE
2-6 Park Ave, Grafton, Auckland, 1023	LABS	FACULTY	ENGINEERING & SCIENCE
93 Grafton Rd, Grafton, Auckland, 1010	OFFICE	FACULTY	MEDICINE
89-91 Grafton Rd, Grafton, Auckland, 1010	OFFICE	COMMERCIAL	COMMERCIAL
89-91 Grafton Rd, Grafton, Auckland, 1010	OFFICE	FACULTY	MEDICINE
18 Carrick Pl, Mt Eden, Auckland, 1024	SPECIAL	FACULTY	SCIENCE
16 St Martins Lane, Grafton, Auckland, 1010	RESID	CENTRAL ADMIN	CAMPUS LIFE
27 Whitaker Pl, Grafton, Auckland, 1010	RESID	CENTRAL ADMIN	CAMPUS LIFE
160 Goat Island Rd, Leigh, Auckland, 0985	LABS	FACULTY & CENTRAL ADMIN	LIBRARIES & LEARNING SERVICES & SCIENCE

Physical location	Facility	Facility type	Description
16 Mount St, Auckland Central, Auckland, 1010	RESID	CENTRAL ADMIN	CAMPUS LIFE
55 Symonds St, Grafton, Auckland, 1010	RESID	CENTRAL ADMIN	CAMPUS LIFE
67 Symonds St, Grafton, Auckland, 1010	OFFICE	COMMERCIAL	COMMERCIAL
49-51 Symonds St, Grafton, Auckland, 1010	OFFICE	CENTRAL ADMIN & COMMERCIAL	ACADEMIC SERVICES, COMMERCIAL, DIGITAL SERVICES, FINANCIAL SERVICES, HUMAN RESOURCES, PROPERTY SERVICES & UNIVERSITY MANAG
6R Carlton Gore Rd, Grafton, Auckland, 1023	RESID	CENTRAL ADMIN	CAMPUS LIFE
Mullins Rd, Ardmore, Papakura, 2582	SPECIAL	FACULTY	ENGINEERING & SCIENCE
38 Seafield View Rd, Grafton, Auckland, 1023	RESID	CENTRAL ADMIN	CAMPUS LIFE
50 Seafield View Rd, Grafton, Auckland, 1023	RESID	CENTRAL ADMIN	CAMPUS LIFE
62 Seafield View Rd, Grafton, Auckland, 1023	RESID	CENTRAL ADMIN	CAMPUS LIFE
10 Carlton Gore Rd, Grafton, Auckland, 1023	RESID	CENTRAL ADMIN	CAMPUS LIFE
8 Claybrook Rd, Parnell, Auckland, 1052	RESID	CENTRAL ADMIN	CAMPUS LIFE
Claybrook Rd, Parnell, Auckland, 1052	RESID	CENTRAL ADMIN	CAMPUS LIFE
40 Seafield View Rd, Grafton, Auckland, 1023	RESID	CENTRAL ADMIN	CAMPUS LIFE
4 Neilpark Dr, East Tamaki, Auckland, 2013	SPECIAL	CENTRAL ADMIN	LIBRARIES & LEARNING SERVICES
18 Causeway Rd, Surfdale, Waiheke, Auckland, 1081	SPECIAL	CENTRAL ADMIN	CAMPUS LIFE
18 Causeway Rd, Waiheke, Auckland, 1081	SPECIAL	CENTRAL ADMIN	CAMPUS LIFE
54 Epsom Ave, Epsom, Auckland, 1023	OFFICE	FACULTY	EDUCATION
74 Epsom Ave, Epsom, Auckland, 1023	GENERAL	FACULTY & CENTRAL ADMIN	DIGITAL SERVICES, EDUCATION, PROPERTY SERVICES, COMMERCIAL, LIBRARIES & LEARNING SERVICES & CAMPUS LIFE
74 Epsom Ave, Epsom, Auckland, 1023	SPECIAL	CENTRAL ADMIN	CAMPUS LIFE
78 Epsom Ave, Epsom, Auckland, 1023	SPECIAL	FACULTY & CENTRAL ADMIN	DIGITAL SERVICES, EDUCATION, PROPERTY SERVICES

Physical location	Facility	Facility type	Description
74 Epsom Ave, Epsom, Auckland, 1023	SUPPORT	FACULTY & CENTRAL ADMIN	PROPERTY SERVICES, COMMERCIAL & EDUCATION
60 Epsom Ave, Epsom, Auckland, 1023	GENERAL	FACULTY & CENTRAL ADMIN	CAMPUS LIFE, DIGITAL SERVICES, EDUCATION
13 Alexander St, Whangarei, Whangarei, 0110	GENERAL	FACULTY & CENTRAL ADMIN	EDUCATION, DIGITAL SERVICES & LIBRARIES & LEARNING SERVICES
261 Morrin Rd, St Johns, Auckland, 1072	SPECIAL	CENTRAL ADMIN	DIGITAL SERVICES
32 Thomas Peacock Pl, St Johns, Auckland, 1072	UNCLASS	FACULTY & CENTRAL ADMIN	CAMPUS LIFE, LIBRARIES & LEARNING SERVICES & SCIENCE
7 Kitson Place, St Johns, Auckland, 1072	SPECIAL	FACULTY	SCIENCE
9 Eden Cres, Auckland Central, Auckland, 1010	OFFICE	FACULTY & CENTRAL ADMIN	CAMPUS LIFE, DIGITAL SERVICES, LAW & LIBRARIES & LEARNING SERVICES
15 Eden Cres, Auckland Central, Auckland, 1010	STUDY	CENTRAL ADMIN	LIBRARIES & LEARNING SERVICES
17 Eden Cres, Auckland Central, Auckland, 1010	OFFICE	FACULTY & CENTRAL ADMIN	DIGITAL SERVICES & LAW
18 Waterloo Quadrant, Auckland Central, Auckland, 1010	OFFICE	FACULTY & CENTRAL ADMIN	CAI, COMMUNAL, COMS & MARKETING, DIGITAL SERVICES, EDUCATION, SCIENCE & UNIVERSITY MANAG
1-11 Short St, Auckland Central, Auckland, 1010	OFFICE	FACULTY & CENTRAL ADMIN	ARTS, CAMPUS LIFE, DIGITAL SERVICES, LAW, PROPERTY SERVICES, SCIENCE, UNIPRESS & UNIVERSITY MANAG
74 Shortland St, Auckland Central, Auckland, 1010	SPECIAL	FACULTY	CAI
74 Shortland St, Auckland Central, Auckland, 1010	SPECIAL	CENTRAL ADMIN	COMMUNAL
74 Shortland St, Auckland Central, Auckland, 1010	SPECIAL	CENTRAL ADMIN	DIGITAL SERVICES
19-26 Nicholls Lane, Parnell, Auckland, 1010	RESID	CENTRAL ADMIN	CAMPUS LIFE
70 Stanley St, Auckland Central, Auckland, 1010	SPECIAL	CENTRAL ADMIN & COMMERCIAL	CAMPUS LIFE & COMMERCIAL
262 Khyber Pass, Newmarket, Auckland, 1023	SPECIAL	FACULTY & CENTRAL ADMIN	ENGINEERING, DIGITAL SERVICES, ENGINEERING, PROPERTY SERVICES & SCIENCE
262 Khyber Pass, Newmarket, Auckland, 1023	LABS	FACULTY & CENTRAL ADMIN	DIGITAL SERVICES, ENGINEERING & SCIENCE
262 Khyber Pass, Newmarket, Auckland, 1023	SUPPORT	FACULTY	ENGINEERING

1.3.6. Excluded business units

The University Foundation is excluded from the GHG emissions boundary as it is not under the operational control of the University. The principal activities of the Foundation are raising and stewardship of funds for charitable purposes and advancement of education and healthcare, assistance of students to pursue courses of study at the University of Auckland, and the general advancement of the University.

The Auckland UniServices Limited (AUL) operations in Hong Kong, China and the Kingdom of Saudi Arabia branch are also excluded from the GHG emissions boundary as not under the University's operational control.

APPENDIX 1: DETAILED GREENHOUSE GAS INVENTORY

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

Table 4. Direct GHG emissions, quantified separately for CO₂, CH₄, N₂O, NF₃, SF₆ and other appropriate GHG groups (HFCs, PFCs, etc.)

Category	CO ₂	CH ₄	N ₂ O	NF ₃	SF ₆	HFC	PFC	Desflurane	Sevoflurane	Isoflurane	Emissions total (tCO ₂ e)
Direct emissions from stationary combustion	5,136.19	10.71	2.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5,149.45
Direct emissions from mobile combustion	183.20	0.74	3.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	187.26
Process emissions/removals arising from industrial processes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Direct fugitive emissions arising from the release of GHGs in anthropogenic systems	44.95	0.00	0.00	0.00	0.00	141.01	0.00	0.00	0.00	0.00	185.96
Direct emissions from land use, land-use change and forestry	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Direct removals from land use, land-use change and forestry	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Agriculture - Enteric Fermentation	0.00	144.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	144.72
Total gross emissions	5,364.34	156.17	5.87	0.00	0.00	141.01	0.00	0.00	0.00	0.00	5,667.38

Table 5. Non-biogenic, biogenic anthropogenic and biogenic non-anthropogenic CO₂ emissions and removals by category

Category	Anthropogenic biogenic CO₂ emissions	Anthropogenic biogenic (CH₄ and N₂O) emissions (tCO₂e)	Non-anthropogenic biogenic (tCO₂e)
Category 1: Direct emissions	0.00	144.72	0.00
Category 2: Indirect emissions from imported energy	0.00	0.00	0.00
Category 3: Indirect emissions from transportation	0.00	0.00	0.00
Category 4: Indirect emissions from products used by organisation	0.00	543.29	0.00
Category 5: Indirect emissions associated with the use of products from the organisation	0.00	0.00	0.00
Category 6: Indirect emissions from other sources	0.00	0.00	0.00
Total gross emissions	0.00	688.01	0.00

A1.1 REPORTING BOUNDARIES

A1.1.1 Emission source identification method and significance criteria

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

The following methods were used to identify relevant sources:

1. Preliminary gap analysis conducted in 2019 to assess monitoring and reporting of greenhouse gas emissions since 2011
2. Direct communication with relevant staff
3. Review of main categories of expenditure reports
4. Direct communication with key suppliers and in some cases development of new templates for reporting to ensure data was complete, accessible and that measures and metrics were correctly defined.

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

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

Additional detail on significance criteria used, by source and sink, is included in Appendix 2.

A1.1.2 Included sources and activity data management

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

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

Table 6 provides detail on the categories of emissions included in the GHG emissions inventory, an overview of how activity data were collected for each emissions source, and an explanation of any uncertainties or assumptions made based on the source of activity data. Detail on estimated numerical uncertainties are reported in Appendix 1.

Data collection for this baseline inventory was initiated in 2020. Although some of the measures had been monitored since 2011, some updates were necessary to ensure the 2019 baseline data was aligned with ISO 14064-1:2018.

Table 6. GHG emissions activity data collection methods and inherent uncertainties and assumptions

GHG emissions category	GHG emissions source or sink subcategory	Overview of activity data and evidence	Explanation of uncertainties or assumptions around your data and evidence	Use of default and average emissions factors	Pre-verified data
Category 1: Direct emissions and removals	Direct emissions from stationary combustion	LPG from BOC and Natural Gas from Energy and utilities manager	It is assumed the supplier has provided complete and accurate invoice data	Preferred unit and emission factor selected to report on these sources	No
	Direct emissions from mobile combustion	Diesel Stationary Combustion (fire pumps from Fire Safety contractor and campus generator from contractor, Diesel (for intercampus shuttle bus from Murphy's report and rest from fuel cards) and Petrol from fuel cards	It is assumed the supplier has provided complete and accurate invoice data. For the generator data medium uncertainty, no systematic report generated - confirmation from contractor	Preferred unit and emission factor selected to report on these sources	No
	Direct fugitive emissions arising from the release of GHGs in anthropogenic systems	CH ₄ , CO ₂ , N ₂ O and refrigerants (R-404A, R-407C and R-410A) from Supplier Annual Report (BOC+ Aquaheat)	UoA prepared a reporting template and requested suppliers to fill it in, following MfE 2019 guidelines for monitoring and reporting of GHG. Top up and leakage assumed as equal during measurement period.	Preferred unit and emission factor selected to report on these sources	No
	Other direct agricultural emissions	Enteric Fermentation Dairy Cattle and Sheep from Farm and Reserves Managers	It is assumed that Leigh Marine Lab communications and Liggins Research Farm Laboratory, Wai-o-tapu are complete and accurate	Preferred unit and emission factor selected to report on these sources	No
Overall assessment of uncertainty for Category 1 emissions and removals			Low to Medium		
Category 2: Indirect GHG emissions from imported energy	Indirect emissions from imported electricity	Electricity from Energy pro	It is assumed that the reports from Energy pro are complete and accurate	Preferred unit and emission factor selected to report on these sources	No

GHG emissions category	GHG emissions source or sink subcategory	Overview of activity data and evidence	Explanation of uncertainties or assumptions around your data and evidence	Use of default and average emissions factors	Pre-verified data
	Indirect emissions from imported energy	Steam generation CO ₂ e from ADHB	It is assumed that the invoices from ADHB are complete and accurate	Preferred unit and emission factor selected to report on these sources	No
Overall assessment of uncertainty for Category 2 emissions and removals			Low		
Category 3: Indirect GHG emissions from transportation	Emissions from client and visitor transport	Air travel short haul and long haul inbound for international student from internal registration	Very High uncertainty. Significant assumptions: Country of citizenship = selected port of departure, return trip assumed. AirNZ calculator or bird time flight used	Preferred unit and emission factor selected to report on these sources	No
	Emissions from Business travel	Taxis from invoices and rental car supplier	Rental car and Taxi have low uncertainties as it comes from supplier monthly reports. Bus Med to high uncertainty - number of km per trip calculated with high level of accuracy as route constant, but vehicle occupancy levels were assumed. This is a one-off item, Tamaki Campus closed and no more intercampus transport in 2020	Supplier engagement will allow to improve on the data quality and indicator reported against	No
	Emissions from Business travel	Bus travel from internal register	Med to high uncertainty - number of km per trip calculated with high level of accuracy as route constant, but vehicle occupancy levels was assumed. This is a one-off item, Tamaki Campus closed and no more intercampus transport in 2020		
	Emissions from Business travel	Accommodation, Air travel domestic and short haul from Orbit report.	Low uncertainty, supplier reports include 'room nights'. Room nights = visitor nights (the total number of rooms a planner commits to occupy at the hotel in exchange for a specific contracted rate). Where no emission factor available for country or data point missing, NZ room nights assumed (i.e., some overestimation likely due to NZ's highest emission factors). For air travel PKM data was used to report.	Preferred unit and emission factor selected to report on these sources	yes - orbit

GHG emissions category	GHG emissions source or sink subcategory	Overview of activity data and evidence	Explanation of uncertainties or assumptions around your data and evidence	Use of default and average emissions factors	Pre-verified data
Overall assessment of uncertainty for Category 3 emissions and removals			High		
Category 4: Indirect GHG emissions from products used by organization	Emissions from purchased goods and services	Paper use from supplier report	Paper weight was assumed based on the number of reams purchased and estimated weight per ream. Assumed number of reams purchased mean number of reams used	Preferred unit and emission factor selected to report on these sources	
	Emissions from purchased fuel and energy related activities	Electricity T&D Losses and Natural Gas T&D losses	No uncertainties, supplier electricity were assumed be accurate and complete	Preferred unit and emission factor selected to report on these sources	no
	Emissions from the disposal of solid waste	Waste sent to landfill, recycling of paper from supplier report	Waste data presents unique challenges due to nature of the catchment, the way in which weights are taken and data processed before reaching Facilities Management team. Cardboard component was incorporated using emission factor for paper as no dedicated emission factor available.	Preferred unit and emission factor selected to report on these sources	no
	Emissions from the use of services not included elsewhere	Water supply from watercare	It is assumed that the reports from watercare are complete and accurate	Preferred unit and emission factor selected to report on these sources	no
Overall assessment of uncertainty for Category 4 emissions and removals			Medium		

GHG emissions category	GHG emissions source or sink subcategory	Overview of activity data and evidence	Explanation of uncertainties or assumptions around your data and evidence	Use of default and average emissions factors	Pre-verified data
Overall assessment of uncertainty for all emissions and removals			Low/Medium/High		

A1.1.3 Excluded emissions sources and sinks

Emissions sources in Table 7 have been identified and excluded from this inventory.

Table 7. GHG emissions sources excluded from the inventory

Business unit	GHG emissions source or sink	GHG emissions category	Reason for exclusion
The University of Auckland	Staff and student commuting	Indirect - Category 3 (Emissions from transportation)	No data available for 2019 - Closest source of data is from Auckland Transport Surveys which are conducted every two years, none in 2019. No data available on staff commuting.
The University of Auckland	Construction and demolition	Indirect - category 4 - (From products and services used by the organisation)	No data available for 2019 as these data have not been systematically collected directly or via contractors to date. Construction and demolition emission sources are deemed material to the University's given the role buildings and the estate in general play in the provision of educational and research activities.
The University of Auckland	Products and services (≤ \$99,000)	Indirect - category 4 - (From products and services used by the organisation)	Data is not systematically collected in a way that enables analysis of this kind, mostly due to \$ not always suitable unit of collection for applying emission factors. 16 Nov 2021 new tool available to screen significance to be used for this category for future inventories.
The University of Auckland	Sinks		No data available on sinks for 2019 - these data has not been systematically collected to date.
The University of Auckland	Freight and Couriers		Data available for 2019 only in \$spent. Key metric not available. Materiality assessment using \$ resulted in item considered <i>de minimis</i> - Recommendation to improve data collection due to mandatory category - best practice.
The University of Auckland	Waste - other wastes Medical Waste	Indirect - category 4 - (From products and services used by the organisation)	Data available for 2019. No dedicated emission factor available. Materiality assessment using \$ resulted in item considered <i>de minimis</i> - recommendation to query contractor about emission factor
The University of Auckland	Staff travel - reimbursement	Indirect - Category 3 (Emissions from transportation)	Data available for 2019 only in \$spent. Metrics km, litres, pNgts not available. Materiality assessment using \$ resulted in item considered <i>de minimis</i> - Recommendation to adjust data due to mandatory category - best practice

A1.2 QUANTIFIED INVENTORY OF EMISSIONS AND REMOVALS

A1.2.1 Calculation methodology

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

$$\text{Emissions} = \text{activity data} \times \text{emissions factor}$$

The quantification approach(es) has not changed since the previous measurement period

All emissions were calculated using Toitū emanage with emissions factors and Global Warming Potentials provided by the Programme (see Appendix 1 - data summary.xls). Global Warming Potentials (GWP) from the IPCC fifth assessment report (AR5) are the preferred GWP conversion⁴.

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

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

A1.2.2 Liabilities

A1.2.2.1 GHG STOCKS HELD

HFCs⁵, 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 8).

GHG stocks have been reported in this inventory and added into the GHG Stock Liability questionnaire.

Table 8. HFCs, PFCs and SF₆ GHG emissions liabilities

GHG gas stock held	Quantity (kg)	Potential liability (tCO ₂ e)
Diesel stationary combustion	57,990.00	157.14
HCFC-22 (R-22, Genetron 22 or Freon 22)	678.00	1,227.18
HFC-134a	6,434.00	9,200.62
R-404A	6.00	23.53
R-407C	126.20	223.88
R-410A	1,437.10	3,000.66
Total	66,671.30	13,833.01

A1.2.3 Supplementary results

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

A1.2.3.1 CONTRACTUAL INSTRUMENTS FOR GHG ATTRIBUTES

Contractual instruments are any type of contract between two parties for the sale and purchase of energy bundled with attributes about the energy generation, or for unbundled attribute claims. This includes Renewable Energy Certificates.

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

⁵ HFC stock liabilities for systems under 3 kg can be excluded.

APPENDIX 2: SIGNIFICANCE CRITERIA USED

Table 9. Significance criteria used for identifying inclusion of indirect emissions

Emission source	Magnitude: Where an indirect source was anticipated or assumed to be quantitatively substantial when compared to international standards requirements	Ability to influence and engage: where the University has a reasonable ability to monitor and reduce emissions and engage staff and students	Main significance criterion: Measuring will inform decision making on Net-Zero Carbon Strategy for the University (intended use and users)	Included in the inventory
Accommodation	√ This indirect source of emissions was assumed to be quantitatively substantial not necessarily in itself but as a direct result of another indirect source, 'staff and student work related air travel'.	√	√	YES
Air travel domestic, Short and Long haul (average) : : Work related (staff and students)	√	√ (measured and reported since 2011)	√	YES
Air travel short and long haul (average) : Category 3 - Emissions from Client and visitor transport : International students inbound	√ This source was anticipated to be quantitatively substantial.		√	YES
Bus travel (city) : : Tamaki - City loop Student Bus	Any source of emission that involves the direct use of fuel by the University and is under is considered significant	√		YES
Direct fugitive emissions arising from the release of GHGs	ALL Categories 1 and 2 deemed significant in principle			YES
Composting :		√	√	YES
Diesel : : Fuel cards		√	√	YES
Diesel : : Inter Campus Staff Shuttle		√	√	YES

Emission source	Magnitude: Where an indirect source was anticipated or assumed to be quantitatively substantial when compared to international standards requirements	Ability to influence and engage: where the University has a reasonable ability to monitor and reduce emissions and engage staff and students	Main significance criterion: Measuring will inform decision making on Net-Zero Carbon Strategy for the University (intended use and users)	Included in the inventory
Diesel stationary combustion : : City campus generator		√	√	YES
Diesel stationary combustion : : Fire pumps		√	√	YES
Electricity : : Purchased electricity	ALL Categories 1 and 2 deemed significant in principle			YES
Electricity distributed T&D losses : Category 4 - Emissions from purchased fuel and energy related activities	ALL Energy T&D losses deemed significant in principle			YES
Electricity Toitū carbonzero certified factor Ecotricity : Category 2 - Indirect emissions from imported electricity	Not applicable for 2019 - only 2020 onwards due to supplier certification			n/a
Enteric Fermentation Dairy Cattle : : Leigh Marine Lab			√	YES
Enteric Fermentation Sheep : : Liggins Research Farm Laboratory, Wai-o-tapu.			√	YES
LPG stationary commercial :	ALL Categories 1 and 2 deemed significant in principle		√	YES
Natural Gas distributed commercial :	ALL Categories 1 and 2 deemed significant in principle		√	YES
Natural Gas distributed T&D losses : Category 4 - Emissions from the transmission of energy	ALL Energy T&D losses deemed significant in principle		√	YES

Emission source	Magnitude: Where an indirect source was anticipated or assumed to be quantitatively substantial when compared to international standards requirements	Ability to influence and engage: where the University has a reasonable ability to monitor and reduce emissions and engage staff and students	Main significance criterion: Measuring will inform decision making on Net-Zero Carbon Strategy for the University (intended use and users)	Included in the inventory
Paper use - default : Category 4 - Emissions from purchased goods		√ (measured and reported since 2011)	√	YES
Petrol : : Fuel cards		√	√	YES
Rental Car average (all fuel types) :		√	√	YES
Steam generation CO ₂ e : : Purchased from ADHB	ALL Categories 1 and 2 deemed significant in principle			YES
Taxi (regular) :		√	√	YES
Waste disposal recycling of Aluminium: Category 4 - Emissions from the disposal of solid waste : From 'Bottles&Cans' collected for recycling		√	√	YES
Waste disposal recycling of Glass : Category 4 - Emissions from the disposal of solid waste : From 'Bottles&Cans' collected for recycling		√	√	YES
Waste disposal recycling of Paper :		√	√	YES
Waste disposal recycling of Plastic : Category 4 - Emissions from the disposal of solid waste : From 'Bottles&Cans' collected for recycling		√	√	YES
Waste landfilled LFGR Mixed waste : Category 4 - Emissions from the disposal of solid waste : 2019 only - 2020 onwards Hampton Downs e factor applies		√	√	YES

Emission source	Magnitude: Where an indirect source was anticipated or assumed to be quantitatively substantial when compared to international standards requirements	Ability to influence and engage: where the University has a reasonable ability to monitor and reduce emissions and engage staff and students	Main significance criterion: Measuring will inform decision making on Net-Zero Carbon Strategy for the University (intended use and users)	Included in the inventory
Waste landfilled LFGR Mixed waste : Category 4 - Emissions from the disposal of solid waste : Decant/clearout waste remaining after diversion		√	√	YES
Waste landfilled LFGR Mixed waste : Category 4 - Emissions from the disposal of solid waste : Skip bins from Faculties and Service Divisions		√	√	YES
Water supply		√	√	YES

APPENDIX 3: REFERENCES

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

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

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

APPENDIX 4: REPORTING INDEX

This report template aligns with ISO 14064-1:2018. The following table cross references the requirements against the relevant section(s) of this report.

Section of this report	ISO 14064-1:2018 clause	Organisational Technical Requirement rule
Cover page	9.3.1 b, c, r 9.3.2 d,	TR8.2, TR8.3
Availability	9.2 g	
Chapter 1: Emissions Inventory Report		
1.1. Introduction	9.3.2 a	
1.2. Emissions inventory results	9.3.1 f, h, j	TR4.14
1.3. Organisational context	9.3.1 a	
1.3.1. Organisation description	9.3.1 a	
1.3.2. Statement of intent		TR4.2
1.3.3. Person responsible	9.3.1 b	
1.3.4. Reporting period	9.3.1 l	TR5.1, TR5.8
1.3.5. Organisational boundary and consolidation approach	9.3.1.d	TR4.3, TR4.5, TR4.7, TR4.11
1.3.6. Excluded business units		
Chapter 2: Emissions Management and Reduction Report		
2.1. Emissions reduction results	9.3.1 f, h, j, k 9.3.2 j, k	TR4.14, TR6.18
2.2. Significant emissions sources		
2.3. Emissions reduction targets		TR6.1, TR6.2, TR6.4, TR6.6, TR6.8,
2.4. Emissions reduction projects	9.3.2 b	TR6.8, TR6.11, TR6.12, TR6.13, TR6.14, TR6.15
2.5. Staff engagement		TR6.1, TR6.9
2.6. Key performance indicators		TR6.19
2.7. Monitoring and reporting	9.3.2 h	TR6.2
Appendix 1: Detailed greenhouse gas inventory	9.3.1 f, g	TR4.9, TR4.15
A1.1 Reporting boundaries		
A1.1.1 Emission source identification method and significance criteria	9.3.1 e	TR4.12, TR4.13
A1.1.2 Included emissions sources and activity data collection	9.3.1 p, q 9.3.2 i	TR5.4, TR5.6, TR5.17, TR5.18,
A1.1.3 Treatment of biogenic emissions and removals	9.3.1 g	TR4.15
A1.1.4 Excluded emissions sources and sinks	9.3.1 i	TR5.21, TR5.22, TR5.23
A1.2 Quantified inventory of emissions and removals		
A1.2.1 Calculation methodology	9.3.1 m, n, o, t	
A1.2.2 Historical recalculations		
A1.2.3 Liabilities		
A1.2.3.1 GHG stocks held		TR4.18
A1.2.3.2 Land-use liabilities	9.3.3.	TR4.19
A1.2.4 Supplementary results		

A1.2.4.1 Contractual instruments for GHG attributes	9.3.3	TR4.16, TR4.17
A1.2.4.2 Carbon credits and offsets	9.3.3.3	
A1.2.4.3 Purchased or developed reduction or removal enhancement projects	9.3.2 c	
A1.2.4.4 Double counting and double offsetting		
Appendix 2: Significance criteria used	9.3.1.e	TR4.12
Appendix 3: Certification mark use		TR3.6
Appendix 4: References		
Appendix 5: Reporting index		



INDEPENDENT AUDIT OPINION Toitū Verification

TO THE INTENDED USERS

Organisation subject to audit: University of Auckland

Audit Criteria: ISO 14064-1:2018
ISO 14064-3:2019
Audit & Certification Technical Requirements 3.0

Responsible Party: University of Auckland

Intended users: To inform the development of the University's Net-Zero Carbon Strategy and it is intended for use by the members of the Sustainable Estate and Operations Working Group (SEOWG) and any other groups or stakeholders the SEOWG deems appropriate.

Registered address: Clock Tower, 22 Princes St, Auckland, New Zealand

Inventory period: 01/01/2019-31/12/2019

Inventory report: GHG Report -2019 V3

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 and 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. 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 Natural gas, Electricity and Air Travel records to confirm accuracy of source data into calculations;
- recalculation and retracing of emissions

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:

- Air travel short haul and long haul inbound for international student from internal registration has a very high level of uncertainty and significant assumptions: country of citizenship, port of departure, return trip, and assumed AirNZ calculator or bird time flight used.

- Bus travel – medium to high uncertainty: number of km per trip calculated with high level of accuracy as route constant, but vehicle occupancy levels was assumed.

VERIFICATION LEVEL OF ASSURANCE

	tCO ₂ e	Level of Assurance
Category 1	5,667.38	Reasonable
Category 2	7,205.50	Reasonable
Category 3	24,768.94	Reasonable
Category 3	41,166.18	Limited
Category 4	2,468.38	Reasonable
Category 4	13.67	Limited
Total inventory	81,290.06	

RESPONSIBLE PARTY'S GREENHOUSE GAS ASSERTION (CERTIFICATION CLAIM)

The University of Auckland has measured its greenhouse gas emissions in accordance with ISO 14064-1:2018 in respect of the operational emissions of its organisation including Auckland Uniservices Limited, all campuses and operational emissions.

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

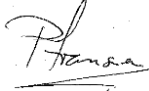

Based on the procedures we have performed and the evidence we have obtained, nothing has come to our attention that causes us to believe that the emissions, removals and storage defined in the inventory report:

- 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 not subject to verification. 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 verification requirements. 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:	Pieter Fransen	Name:	Osana Robertson
Position:	Verifier, Toitū Envirocare	Position:	Certifier, Toitū Envirocare
Signature:		Signature:	
Date verification audit:	17/11/2021-18/11/2021	Date:	26/01/2022
Date opinion expressed:	21/01/2022		