



TOITŪ ASSESSMENT REPORT

Toitū carbonreduce certification programme Verification



Organisation:
The University of Auckland

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Report date	21 August 2024
Report reviewed by	Billy Ziemann, Toitū Envirocare, 16 October 2024

AUDIT OBJECTIVES

The objective of the audit was to determine if the organisation’s GHG measurement (emissions data and calculations), GHG emissions management and reductions and marketing meets the criteria for Programme certification.

RESPONSIBILITIES

The responsible party is responsible for the preparation and fair presentation of the GHG statement in accordance with the criteria.

The verifier is responsible for expressing an opinion on the GHG statement based on the verification activities undertaken.

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 Toitū Programme Technical Requirements 3.1 Audit & Certification Technical requirements 3.0 Certification Mark Guide v 3.0
Audit date	17-18 June 2024
Reporting year	01/01/2023 to 31/12/2023
Base year	01/01/2019 to 31/12/2019
Consolidation methodology	Operational control
Materiality threshold	5%
GHG statement (certification claim)	Toitū carbonreduce organisation certified: The University of Auckland including Auckland Uniservices Limited, all campuses and operational emissions. Toitū carbonreduce certified means measuring emissions to ISO 14064-1:2018 and Toitū requirements; and managing and reducing against Toitū requirements
Intended users	The members of the Sustainable Estate and Operations Working Group and Governance Group, and the wider community of Waipapa Taumata Rau.
Registered office address	16 Princes Street, Auckland CBD, Auckland, 1010, New Zealand
Locations visited	O’Rorke Hall, 16 Mount Street, Auckland CBD, Auckland, 1010, New Zealand
Audit Type	Verification only
Activities undertaken remotely	Stage 1 & 2: Planning, execution and reporting remote. Separate onsite visit performed.

CONCLUSION

The following total emissions have been verified:

Emissions summary by scopes	All verified emissions	Mandatory Programme Boundary	Additional emissions	Units
Category 1	5,771.49	5,771.49	0.00	tCO ₂ e
Category 2	5,395.07	5,395.07	0.00	tCO ₂ e
Category 3	49,357.01	18,189.70	31,167.31	tCO ₂ e
Category 4	1,405.77	784.55	621.22	tCO ₂ e
Total inventory:	61,929.35	30,140.81	31,788.53	tCO₂e
Emissions intensity:	38.96	18.96		tCO ₂ e/\$M ¹

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.

This is the fifth year of reporting under the Toitū carbonreduce programme and the fourth year since resetting the base year to 2019. An absolute reduction in Category 1 and 2 emissions of 2,566.88 tCO₂e has been achieved against base year. A reduction in emissions intensity (for Category 1, 2 and mandatory Category 3 and 4 emissions) of 14.42 tCO₂e/\$M has been achieved based upon a 4-year rolling average, adjusted for inflation.

SCOPE AND BOUNDARIES

The scope of the emissions inventory includes all activities within the operational boundaries of The University of Auckland. It is noted that there are a range of activities that have previously been shown to be *de minimis* or that the data not systematically collected (products and services spend and staff and student commuting), or that a methodology is underway (construction and demolition waste) therefore these are excluded from the scope of the inventory. These include but are not limited to:

- Staff and student commuting;
- Products and services (≤ \$99,000);
- Sinks;
- Waste - Printer recycling;
- Construction and demolition;
- Fertiliser use - Grounds maintenance;
- Fertiliser use - Epsom Sports Field;
- Fertiliser use - Ngapouri Research Farm;
- Agricultural soils sheep;
- Manure management sheep.

EMISSIONS FACTORS

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

New Zealand Ministry for the Environment. MfE Guidance for Voluntary Greenhouse Gas Reporting, 2024. Wellington, New Zealand, published on 31 May 2024.

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

VERIFICATION PROCEDURES

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

Verification Level	Emissions sources
<p>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.</p>	<p>Natural Gas distributed commercial Electricity Air travel long haul (average) Air travel long haul (econ) Air travel short haul (econ)</p>
<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>Acetylene use CO2 Diesel Diesel stationary combustion Dry ice Enteric Fermentation Dairy Cattle Enteric Fermentation Sheep HCFC-22 (R-22, Genetron 22 or Freon 22) HFC-134a HFC-32 LPG stationary commercial Methane (CH4) N2O Petrol R-407C R-410A R-404A Steam generation - Pre-calculated (tCO2e) Accommodation Aircraft - Aérospatiale/Alenia ATR 72 Aircraft - Airbus A320 Aircraft - Cessna Light Aircraft Aircraft - De Havilland Canada DHC-8-300 Aircraft - Pilatus PC-12 Aircraft - Saab SF-340 Freight Air travel Domestic (average) Freight Air travel long haul (average) Freight Air travel short haul (average) Freight Road all trucks (average) Freight Road van (average) Petrol Rental Car average (diesel) Rental Car average (hybrid) Rental Car average (petrol) Rental Car EV - average Taxi (regular) Working from home Composting Decontamination of medical waste - Autoclaving Incineration of hazardous waste Paper use - default Recycling - Aluminium cans Recycling - Batteries (non-automotive) Recycling - Cardboard Recycling - Mixed glass Recycling - Mixed plastics</p>

Verification Level	Emissions sources
	Recycling - Paper Recycling - Steel cans Waste disposal recycling of Aluminium Waste disposal recycling of Batteries Waste disposal recycling of Glass Waste disposal recycling of Paper Waste disposal recycling of Plastic Waste disposal recycling of Steel cans Waste landfilled - Hampton Downs Wastewater for treatment plants (average) Water supply

REVIEW OF TARGETS AGAINST SCIENCE BASED AMBITION LEVELS

Whilst not a mandatory requirement of the programme, organisations are encouraged to aspire to target setting that is science aligned. Target ambition levels are considered 'science-based' if they are in line with what the latest climate science deems necessary to meet the goals of the Paris Agreement – limiting global warming to well-below 2°C above pre-industrial levels and pursuing efforts to limit warming to 1.5°C. The Toitū carbon programmes refer to the Science Based Targets Initiative (SBTi) for the latest criteria and guidance on required science based ambition levels. The review of your organisation targets concludes the following:

	Absolute reduction in direct GHG emissions and indirect GHG emissions from imported energy (Category 1 and 2 combined emissions) compared to base year	Absolute reduction targets for Toitū carbon boundary Scope 3 sources (ISO Category 3 to 6)
A. Specified target by the organisation (%)	N/A	N/A
B. Specified base year by the organisation	2019	201
C. Specified target year by the organisation	2030	2030
D. Minimum ambition for science alignment, for timeframe stated by the organisation, '1.5 degrees' classification ²	-42%	-42%
Conclusion – target commitments	<input type="checkbox"/> Target is less than science aligned ambition levels <input type="checkbox"/> Target exceeds science aligned ambition levels, '1.5 degrees' classification	<input type="checkbox"/> Target is less than science aligned ambition levels <input type="checkbox"/> Target exceeds science aligned ambition levels, '1.5 degrees' classification

² as defined by the Science Based Targets Initiative (SBTi) using the Absolute contraction approach. April 2021 version of the criteria, section 3. For the Long-term temperature goal, 1.5°C is defined as:

- Approx. 50% chance of limiting peak warming between present and 2100 to below 1.5°C
- Ambition range (global emissions pathway): ≥ 4.2 % annual linear reduction rate over target period

	Absolute reduction in direct GHG emissions and indirect GHG emissions from imported energy (Category 1 and 2 combined emissions) compared to base year	Absolute reduction targets for Toitū carbon boundary Scope 3 sources (ISO Category 3 to 6)
	<input checked="" type="checkbox"/> Insufficient information was available to review for science aligned ambition levels	<input checked="" type="checkbox"/> Insufficient information was available to review for science aligned ambition levels
Reduction performance	-18.7%	-39.3%
Required science aligned ambition level for this year	-16.8%	-16.8%
Conclusion – achievements	<input type="checkbox"/> Reduction progress is less than science aligned ambition levels <input checked="" type="checkbox"/> Reduction progress exceeds science aligned ambition levels, ‘1.5 degrees’ classification <input type="checkbox"/> Insufficient information was available to review	<input type="checkbox"/> Reduction progress is less than science aligned ambition levels <input checked="" type="checkbox"/> Reduction progress exceeds science aligned ambition levels, ‘1.5 degrees’ classification <input type="checkbox"/> Insufficient information was available to review
Comments on reduction pathway	<input checked="" type="checkbox"/> A reduction pathway has been developed for assessing feasibility of achieving the stated target <input type="checkbox"/> A reduction pathway is yet to be developed for assessing feasibility of achieving the stated target	<input checked="" type="checkbox"/> A reduction pathway has been developed for assessing feasibility of achieving the stated target <input type="checkbox"/> A reduction pathway is yet to be developed for assessing feasibility of achieving the stated target

Disclaimer: The findings of this review does not enable the organisation to claim their target is *officially validated* by the SBTi, as there are additional submission requirements such as such as the target method validity, accounting boundary, use of renewable energy and bioenergy, significance thresholds, base year and target timeframes. An official SBTi validation also requires the organisation to make a submission to the SBTi for validation review and approval.

AUDIT SUMMARY

The audit was conducted in accordance with the Programme Verification Guidelines including ISO 14064-3:2019 and the Verification and Sampling Plan.

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

Criteria/documents	Status
Organisational boundaries	Meets scheme requirements.
Application of the accounting principles	Meets scheme requirements.
Emissions Inventory and Management report: part 1	Meets scheme requirements.
Emissions Inventory and Management report part 2	Meets scheme requirements.
Use of the Toitū carbonreduce programme logo	Meets scheme requirements.
The requirement to maintain a complaints procedure	Meets scheme requirements.

Criteria/documents	Status
Purchase of renewable energy certificates meets programme criteria for target setting/offsetting	Yes.
Success of remote audit process (where relevant)	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.

A total of 1 non-conformance, 4 minor non-conformances and 4 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.

Certification to Toitū carbonreduce programme “certified organisation” is recommended. This is not subject to any further client actions.

CONCLUSION

Please refer to the separate Audit Opinion document for further information. The certification claim, along with the assurance level and any qualifications raised summarises the result of the audit process.

Level of Assurance	Reasonable categories 1 & 2 and category 3 air travel emissions from staff and students. Limited for remaining categories.
Qualifications	The opinion is unmodified.

FINDINGS LOG

Date issued:	20/06/2024
Lead Verifier:	Rhea Selwan
Verifier:	Tom Worley
Company issued to:	The University of Auckland

A finding marked NCR must be corrected before audit can be closed out, unless otherwise approved by the Programme
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.
NCR 1	Inventory management Plan: To disclose exclusions of: On farm emissions: agricultural soil, fertilisers and feed supplements (if applicable). Fertiliser use - Epsom Sports Field Fertiliser use - Grounds maintenance Other emission sources that employee commuting could also be included (optional).	Closed	NCR	To complete the exclusions table for audit review.	12/07/2024	Updated 'Excluded emissions sources and sinks' table.
mNCR 1	Significance screening for full value chain: Identify opportunities in value chain emissions. Process to be undertaken prior to next audit and included in IMR table. Table 17. Significance criteria used for	Open	mNCR	To complete for the next reporting year.		

Ref #	Issue	Status	Type	Comments / Agreed Corrective Actions	Date closed	Evidence sighted to close out the issue where corrective action required.
	identifying inclusion of indirect emissions, currently only includes the Toitu mandatory boundary.					
mNCR 2	Reduction commentary based on changes to inventory: Review your commentary in your inventory report relating to reduction movements and reference to inventory to ensure that commentary aligns with audited numbers and MfE MEG 2024 EFs.	Closed	mNCR	This will be completed prior to closing this audit. Please share the reduction pathway spreadsheet for audit review.	12/07/2024	Updated IMR commentary and relevant tables
mNCR 3	Long-term target setting: UoA acknowledges that the 2050 targets will have to be set. This is planned for the 2024 review.	Open	mNCR	To complete for the next reporting year.		
mNCR 4	The performance against the 2025 target of a 25% reduction was not disclosed in Inventory Management Plan Table 6. According to the programme's technical requirements (Technical Requirements for Organisation_v.3-1), Rule 6.5 specifies that reductions must be demonstrated every second recertification year, with progress reviewed annually. As this finding pertains to a requirement not yet met, it will be carried over to the 2025 reporting year to ensure compliance with programme rules 6.5 and 6.7 regarding emissions reduction, while also considering the intended users of the inventory.	Closed	mNCR		27/08/2024	Sighted updated inventory
Obs1	Fuel emissions: opportunity to separate petrol emissions to regular petrol and petrol premium factors, to improve accuracy.	Open	Obs	Opportunity for improvement		

Ref #	Issue	Status	Type	Comments / Agreed Corrective Actions	Date closed	Evidence sighted to close out the issue where corrective action required.
Obs2	<p>Livestock data: We recommend reporting stock movement month by month to inform changes and internal checks of stock records.</p> <p>We appreciate that the university farm is research -driven which may lead to a unique farm setting.</p> <p>We suspect overcounting, likely as lamb emissions are counted from time they are born without considering weaning. Likely immaterial.</p>	Open	Obs	Opportunity for improvement		
Obs3	We recommend developing an internal data quality rating against each emission source/category to visibly track all improvement projects and efforts.	Open	Obs	Opportunity for improvement		
Obs4	Control testing: It is recommended to identify potential controls to inform next year's audit to improve efficiency, where possible. Examples of sources with potential controls testing are air travel and energy.	Open	Obs	Opportunity for improvement		

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 and the scheme Technical Requirements.
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 and Management report.
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 other than conducting the previous verification.
9. This report has been prepared solely for the use of the organisation and Toitū Envirocare as part of an application for Toitū carbonreduce programme certification. 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

Toitū carbonreduce programme

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



The University of Auckland

Prepared by (lead author): María José Baldoni, Associate Director, Sustainable Estate and Operations

Dated: 14 October 2024

Verification status: Reasonable categories 1 & 2 and category 3 air travel emissions from staff and students. Limited for remaining categories

Measurement period: 01 January 2023 to 31 December 2023

Base year period: 01 January 2019 to 31 December 2019

Approved for release by:

A handwritten signature in purple ink, appearing to read "Simon Neale".

Simon Neale, Chief Property Officer

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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 publicly available via web <https://www.auckland.ac.nz/en/about-us/about-the-university/the-university/sustainability-and-environment/sustainable-campus-and-operations/net-zero-carbon/reports.html>

REPORT STRUCTURE

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

Chapter 1, the Emissions Inventory Report, includes the inventory details and forms the measure step of the organisation's application for Programme certification. The inventory is a complete and accurate quantification of the amount of GHG emissions and removals that can be directly attributed to the organisation's operations within the declared boundary and scope for the specified reporting period. The inventory has been prepared in accordance with the requirements of the Programme¹, which is based on the Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (2004) and ISO 14064-1:2018 Specification with Guidance at the Organization Level for

¹ Programme refers to the Toitū carbonreduce, Toitū net carbonzero and the Toitū climate positive programmes.

Quantification and Reporting of Greenhouse Gas Emissions and Removals². Where relevant, the inventory is aligned with industry or sector best practice for emissions measurement and reporting.

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

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

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

² Throughout this document 'GHG Protocol' means the *GHG Protocol Corporate Accounting and Reporting Standard* and 'ISO 14064-1:2018' means the international standard *Specification with Guidance at the Organizational Level for Quantification and Reporting of Greenhouse Gas Emissions and Removals*.

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EXECUTIVE SUMMARY

This is the annual greenhouse gas (GHG) emissions inventory and management report for Waipapa Taumata Rau | The University of Auckland covering the measurement period 01 January 2023 to 31 December 2023.³

The University's emissions in 2023 are 25% lower than in 2019 and 30% higher than in 2022. While this indicates the upward trend observed post Covid-19 has become established, it also shows that the emissions have not 'bounced back' to baseline levels. Given the ambitious targets Waipapa Taumata Rau set for its net zero carbon trajectory, the 25% below baseline is a significant achievement that reflects efforts across activities of the University. Out of a total of 61,929 tCO₂e, 30% were as a result of work related air travel and another 48% the result of international students air travel. In 2023, work related air travel involved over 36M less kilometres travelled and produced almost 40% less emissions than in 2019. Emissions resulting from energy and fuel accounted for 17% of the total in 2023, remaining 21% lower than the baseline and 2% higher than in 2022. The 2023 waste data shows a decrease in waste sent to landfill and an increase in recyclables recovered against 2019 baseline. Inter annual trends show an increase in overall quantities across all included waste streams since 2022. A total of 610 tCO₂e from waste sources. This represents just under 1% of the University's total carbon profile. The inclusion of construction waste in future inventories as part of the progressive pathway will likely change this proportion. Overall, the University has maintained a smaller carbon profile since the baseline. However, established upward trends of the last couple of years signal more work is needed to ensure the trends are aligned with the ambitious targets of Te Taumata Tukuwaro-kore heading into the 2025 target review year.

Table 1: Inventory summary

Category (ISO 14064-1:2018)	Scopes (ISO 14064-1:2006)	2019	2022	2023
Category 1: Direct emissions (tCO ₂ e)	Scope 1	5,667.38	5,485.52	5,771.49
Category 2: Indirect emissions from imported energy (location-based method*) (tCO ₂ e)	Scope 2	8,066.06	5,432.63	5,395.07
Category 3: Indirect emissions from transportation (tCO ₂ e)	Scope 3	65,935.12	35,181.44	49,357.02
Category 4: Indirect emissions from products used by organisation (tCO ₂ e)		2,799.14	1,276.34	1,405.77
Category 5: Indirect emissions associated with the use of products from the organisation (tCO ₂ e)		0.00	0.00	0.00
Category 6: Indirect emissions from other sources (tCO ₂ e)		0.00	0.00	0.00
Total direct emissions (tCO₂e)		5,667.38	5,485.52	5,771.49
Total indirect emissions* (tCO₂e)		76,800.31	41,890.42	56,157.86
Total gross emissions* (tCO₂e)		82,467.70	47,375.94	61,929.35
Category 1 direct removals (tCO ₂ e)		0.00	0.00	0.00
Purchased emission reductions (tCO ₂ e)		0.00	0.00	0.00
Total net emissions (tCO₂e)		82,467.70	47,375.94	61,929.35

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

³ Throughout this document "emissions" means "GHG emissions". Unless otherwise stated, emissions are reported as tonnes of carbon dioxide equivalent (tCO₂e).

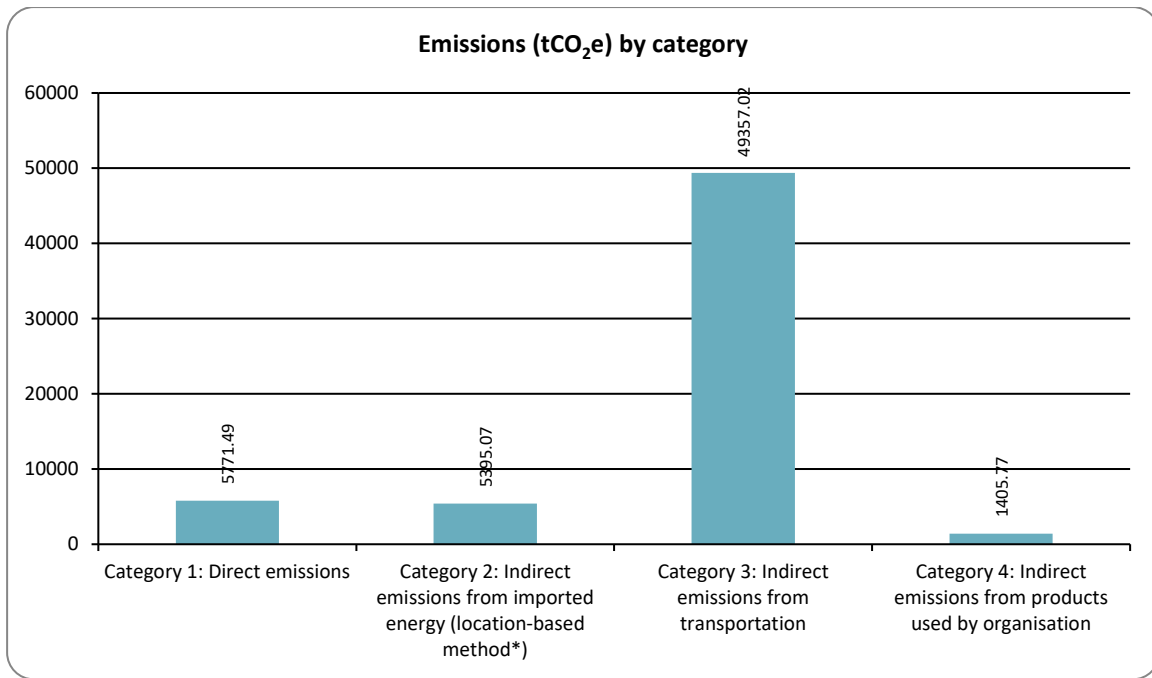


Figure 1: Emissions (tCO₂e) by Category for this measurement period

CHAPTER 1: EMISSIONS INVENTORY REPORT

1.1. INTRODUCTION

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

The overall purpose of this report is to support the implementation of Te Taumata Tukuwaro-kore | Net Zero Carbon Strategy and associated Sustainable Estate and Operations initiatives and 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: Emissions inventory summary for this measurement period

Measurement period: 01 January 2023 to 31 December 2023.

Category	Toitū carbon mandatory boundary (tCO ₂ e)	Additional emissions (tCO ₂ e)	Total emissions (tCO ₂ e)
Category 1: Direct emissions	5,771.49 Acetylene use, CO ₂ , Diesel stationary combustion, Diesel, Dry ice, Enteric Fermentation Sheep, LPG stationary commercial, Natural Gas distributed commercial, Petrol, R-404A, R-410A	0.00	5,771.49
Category 2: Indirect emissions from imported energy (location-based method*)	5,395.07 Electricity Toitū carbonzero certified factor Ecotricity, Electricity Toitū carbonzero certified factor Prime Energy, Electricity, Steam generation - Pre-calculated (tCO ₂ e)	0.00	5,395.07
Category 3: Indirect emissions from transportation	18,189.71 Air passenger transport (spend-based), Air travel domestic (average), Air travel long haul (business), Air travel long haul (econ), Air travel long haul (econ+), Air travel long haul (first), Air travel short haul (average), Air travel short haul (econ), Air travel short haul b/f class, Aircraft - Aérospatiale/Alenia ATR 72, Aircraft - Airbus A320, Aircraft - Cessna Light Aircraft, Aircraft - De Havilland Canada DHC-8-300, Aircraft - Pilatus PC-12, Aircraft - Saab SF-340, Freight Air travel Domestic (average), Freight Air travel long haul (average), Freight Air travel short haul (average), Freight Road all trucks (average), Freight Road van (average), Petrol, Rental Car average (diesel), Rental Car average (hybrid), Rental Car average (petrol), Rental Car EV - average, Taxi (regular)	31,167.31	49,357.02

Category	Toitū carbon mandatory boundary (tCO ₂ e)	Additional emissions (tCO ₂ e)	Total emissions (tCO ₂ e)
		Accommodation - Australia, Accommodation - Austria, Accommodation - Belgium, Accommodation - Brazil, Accommodation - Canada, Accommodation - Caribbean Region, Accommodation - Chile, Accommodation - China (Hong Kong), Accommodation - China, Accommodation - Colombia, Accommodation - Czech Republic, Accommodation - Egypt, Accommodation - Fiji, Accommodation - Finland, Accommodation - France, Accommodation - French Polynesia, Accommodation - Germany, Accommodation - Greece, Accommodation - Hungary, Accommodation - India, Accommodation - Indonesia, Accommodation - Ireland, Accommodation - Italy, Accommodation - Japan, Accommodation - Kazakhstan, Accommodation - Macau, China, Accommodation - Malaysia, Accommodation - Mexico, Accommodation - Morocco, Accommodation - Netherlands, Accommodation - New Zealand, Accommodation - Oman, Accommodation - Philippines, Accommodation - Poland, Accommodation - Portugal, Accommodation - Qatar, Accommodation - Romania, Accommodation - Saudi Arabia, Accommodation - Singapore, Accommodation - Slovak Republic, Accommodation - South Africa, Accommodation - South Korea, Accommodation - Spain, Accommodation - Switzerland, Accommodation - Taiwan, Accommodation - Thailand, Accommodation - Turkey, Accommodation - United Arab Emirates, Accommodation - United Kingdom, Accommodation - United States, Accommodation - Vietnam, Accommodation (spend-based), Air travel long haul (average), Air travel short haul (average), Working from home	

Category	Toitū carbon mandatory boundary (tCO ₂ e)	Additional emissions (tCO ₂ e)	Total emissions (tCO ₂ e)
Category 4: Indirect emissions from products used by organisation	784.55 Decontamination of medical waste - Autoclaving, Electricity distributed T&D losses, Electricity Toitū carbonzero certified factor Ecotricity (T & D losses), Electricity Toitū carbonzero certified factor Prime Energy (T & D losses), Incineration of clinical waste, Incineration of hazardous waste, Natural Gas distributed T&D losses, Waste landfilled - Hampton Downs	621.22 Composting, Paper use - default, Recycling - Aluminium cans, Recycling - Batteries (non-automotive), Recycling - Card, Recycling - Mixed glass, Recycling - Mixed plastics, Recycling - Paper, Recycling - Steel cans, Waste disposal recycling of Aluminium, Waste disposal recycling of Batteries, Waste disposal recycling of Glass, Waste disposal recycling of Paper, Waste disposal recycling of Plastic, Waste disposal recycling of Steel cans, Wastewater for treatment plants (average), Water supply	1,405.77
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	5,771.49	0.00	5,771.49
Total indirect emissions*	24,369.33	31,788.53	56,157.86
Total gross emissions*	30,140.81	31,788.53	61,929.35
Category 1 direct removals	0.00	0.00	0.00
Purchased emission reductions	0.00	0.00	0.00
Total net emissions	30,140.81	31,788.53	61,929.35
Emissions intensity		Mandatory emissions	Total emissions
Built environment (gross tCO ₂ e / m ²)		0.40	0.83
Equivalent Full Time Student (gross tCO ₂ e / per FTE per annum)		0.85	1.75
FTE & EFTS - Full-time employees and Equivalent full-time students combined (gross tCO ₂ e / per FTE per annum)		0.72	1.49
Full Time Employee (gross tCO ₂ e / per FTE per annum)		4.76	9.78
Operating revenue (gross tCO ₂ e / \$Millions)		18.96	38.96

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

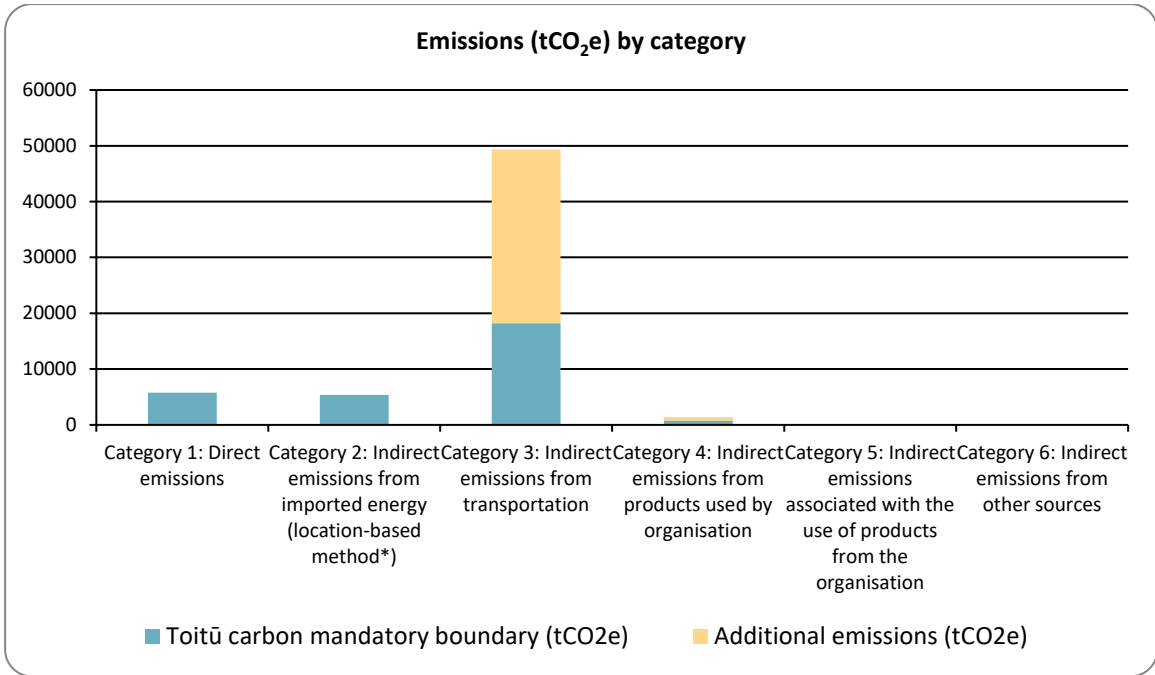


Figure 2: Emissions (tCO₂e) by category

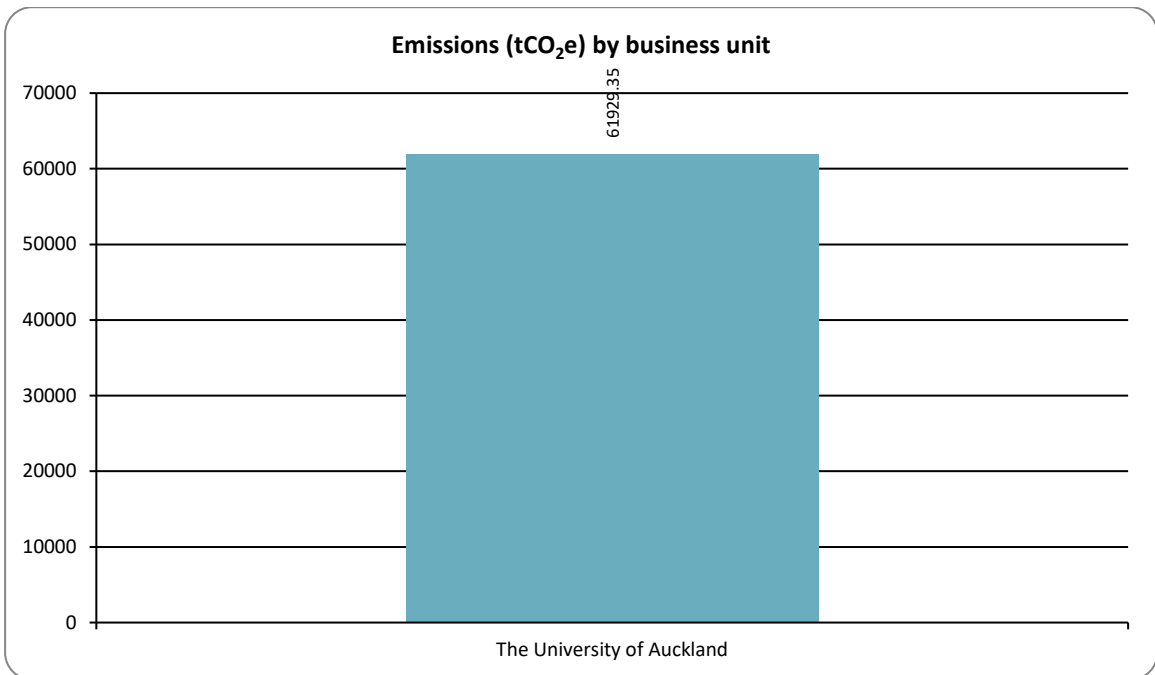


Figure 3: Emissions (tCO₂e) by business unit

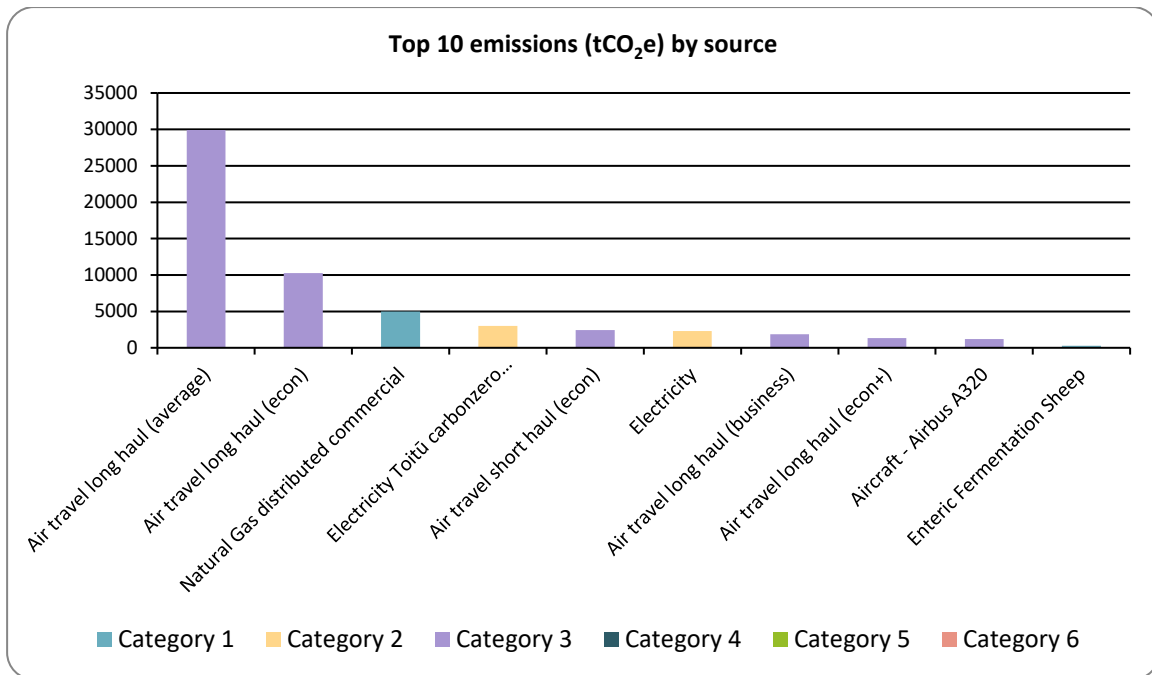


Figure 4: Top 10 emissions (tCO₂e) by source

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

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

The University of Auckland aligns to location-based reporting for tracking energy related emissions and reductions over time.

The University purchased all of the energy it consumed in 2023 and is committed to engaging and influencing suppliers to improve the carbon performance of the energy it requires for its activities. Sustainability and carbon attributes are part of electricity tendering process for selecting suppliers. In 2023, the University implemented and continued with projects to phase out fossil-fuel use by replacing energy sources such as gas with electricity. The University also increased the portion of certified carbon zero electricity supply to over 55% and continued to utilise Renewable Energy Certificates on the remaining procured electricity. In doing so, the University formally expresses its commitment to clean energy and support to phase out fossil fuel use in electricity generation in Aotearoa.

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.

Contractual instruments are applicable for this reporting period.

Waipapa Taumata Rau | The University of Auckland consumed 73,722,186 kWh of electricity in 2023. A total of 41,772,158 kWh were carbonZero certified. In addition, the University purchased 31,950,020 kWh NZECS certificates covering the period of January to December 2023.

Table 3. Dual reporting of indirect emissions from imported energy

Category	Location-based methodology (tCO ₂ e)	Market-based methodology (tCO ₂ e)
Category 1: Direct emissions	5,771.49	5,771.49
Category 2: Indirect emissions from imported energy	5,395.07	27.50
Category 3: Indirect emissions from transportation	49,357.02	49,357.02
Category 4: Indirect emissions from products used by organisation	1,405.77	1,183.04
Category 5: Indirect emissions associated with the use of products from the organisation	0.00	0.00
Category 6: Indirect emissions from other sources	0.00	0.00
Total direct emissions	5,771.49	5,771.49
Total indirect emissions	56,157.86	50,567.56
Total gross emissions	61,929.35	56,339.05
Category 1 direct removals	0.00	0.00
Total net emissions	61,929.35	56,339.05

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 and Training Act 2020 and its amendments.

In 2023, Waipapa Taumata Rau, University of Auckland celebrated its 140th anniversary. The University's governing body is the Council which comprises elected staff and student representatives, a member appointed to advise on Māori issues, a member appointed from the alumni, Council appointees to provide specified skills, and Ministerial appointees. The Vice Chancellor is also a member of Council. The Council is chaired by the Chancellor, who is a lay member of Council.

Under the Education and Training Act 2020, Council has the following functions:

- Appoint a chief executive (Vice-Chancellor)
- 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 Services Act 2020, the management of its affairs.

In 2023, the University had 35,337 Equivalent Full Time Students (EFTS) and 6,330 Full Time Equivalent Staff (FTE), occupied 119 premises in New Zealand, 88 of which are owned by the University. The principal activities of the University and Auckland UniServices Limited (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. As part of this vision, Waipapa Taumata Rau made a commitment to Net Zero reflected in 'Te Taumata Tukuwaro kore | Net Zero Carbon Strategy' 2022. The strategy includes a progressive pathway for a Net Zero trajectory. Toitū's CarbonReduce certification provides support and assurance to the University's carbon reduction efforts and progress.

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. The contents of this report are important to better understand the emissions profile of the University and to identify effective pathways to net-zero that reflect the commitments and aspirations of Taumata Teitei.

Climate Change Impacts

In 2023, the University joined efforts with other universities and tertiary institutions, via the tertiary Education Sector Climate Futures Group to develop the Climate Change Scenarios for the Aotearoa NZ Tertiary Education Sector. Exploring the different scenarios for the sector was a key step to better understand climate-related risks and opportunities and inform climate adaptation planning at each individual university and tertiary institution.

The project was developed with New Zealand's External Reporting Board (XRB) standards in mind and took a best practice approach. It provided valuable insights that will better inform Waipapa Taumata Rau's planning and add more depth to the complex process of adequately assessing climate related risks and opportunities for the University. Especially those related to societal responses to climate change.

The full report can be found on the web: <https://www.auckland.ac.nz/en/about-us/about-the-university/the-university/sustainability-and-environment/sustainable-campus-and-operations/net-zero-carbon/climate-change-sector-scenarios.html>

Some key impacts the University had previously identified have also been identified for the wider sector by this report and include:

- Disruption of campus activities and limited access to facilities (both built and non-built parts of the estate)
- Risk of temporary or extended isolation due to major infrastructure such as airports and other transport hubs becoming compromised, with severe implications for staff and students (both domestic and international) being able to fully participate in campus activities.
- Risk of building stock becoming no longer fit for purpose under increased temperature or as a result social changes regarding 'on campus' presence and other transition risks.
- Risk of associated financial implications of all the above

1.3.2. Statement of intent

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

Intended use and users

This report is intended for use by the members of the Sustainable Estate and Operations Governance Group, and the wider community of Waipapa Taumata Rau. Understanding the emissions profile and progress towards Net Zero by all members of the University is essential to foster collective efforts towards carbon reduction across all University's operations.

Other schemes and requirements

The inventory is expected to align with best practice in GHG measuring and reporting, especially with ISO14064-1:2018. Alignment with international and local schemes such as the Science Based Targets Initiative (SBTi) and the New Zealand Carbon Neutral Government Programme (CNGP) are also intended.

1.3.3. Person responsible

Simon Neale, Chief Property Officer is responsible for overall emission inventory measurement and reduction performance, as well as reporting results to top management. Simon Neale, Chief Property Officer 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

Abdon Dantas, Head of Space and Property, Planning and Capital Projects

Ainslie Moore, Deputy Director, International Office

Amorita Volschenk, Senior Technologist, Technical Services

Ben Hollies, Campus Service Manager, Facilities Management, Property Services

Brett Chapman-Richards, Senior Planning Analyst, Planning and Information Office

Chip McKenzie, Space Planning Analyst, Planning and Capital Projects, Property Services

Dhanuka Liyanage, Procurement Manager, Strategic Procurement

Doug Oliver, Campus Services Co-Ordinator, Facilities Management, Property Services

Emmet Mackle, Associate Director Facilities, Facilities Management, Property Services

Fiona Moffat Procurement Manager, Strategic Procurement

Gina Schutte, Snr Finance Business Partner, Finance Business Advisory

Grant McEwen, Facilities Manager, Facilities Management, Property Services

Greg Inman, Snr Energy Efficiency Engineer, Facilities Management, Property Services

Gregg Pardoe, Livestock and Facility Manager, Liggins Institute

Harry Tetteroo, Procurement Manager, Strategic Procurement

Karyn Floyd, International Student Support Services Manager, International Office

Kerrin Grigg, Compliance Analyst, One Finance

Lee Bentley, Data Centre Tech Specialist, Connect, Digital Services

Mannat Choksi, Energy Manager, Facilities Management, Property Services

Marama Nakamura, Carbon and Sustainability Project Administrator - Data reconciliation and document management

María José Baldoni, Carbon Auditor - ISO 14064-3:2019 (Accredited 2021)

Marissa Ellaway, Waste Minimisation Specialist, Facilities Management, Property Services

Muru Mohan, Asset Manager, Facilities Management, Property Services

Natalia Abrego, Chemical Safety Advisor, Health and Safety

Philip Kirkham, Campus Operations Manager, Facilities Management, Property Services

Shem Marigold, Campus Services Manager, Facilities Management

Stephen Murrell, Finance Business Partner, Finance Business Advisory

Stewart Hinks, Campus Services Manager, Facilities Management

Steve Haywood, Asset Information Specialist, Facilities Management

Tony Johns, Campus Service Manager, Facilities Management, Property Services

Yu-Shu Hwang, Snr Financial Insights Analyst, International Office

The Environment and Sustainability checks completeness, accuracy, and overall integrity of data, recording any limitations and assumptions in the summary data sheet and supporting documents, including a comprehensive list of definitions for the measures included in this report.

Assoc. Director Sustainable Estate and Operations María José Baldoni, Carbon Auditor - ISO 14064-3:2019 (Accredited 2021)

Carbon and Sustainability Project Administrator, Marama Nakamura, Carbon and Sustainability Project Administrator - Data reconciliation and document management

Top management commitment

The University has made a commitment to net zero in its Vision 2030 and Strategic Plan 2025, Taumata Teitei and in 2022 published Te Taumata Tukuwaro-kore | Net Zero Carbon Strategy and Te Rautaki Aronga Toitū | Sustainability Strategy. Taumata Teitei is the key document in the University's cycle of planning, delivery and accountability. It sets out a vision to be internationally recognised for its unique contribution to fair, ethical and sustainable societies, and establishes sets of priorities within five strategic portfolios. Priority 5 states: A commitment to achieve net-zero carbon status and to publish meaningful metrics of the University's progress towards overall sustainability. Annual progress toward achieving carbon and environmental sustainability priorities is reported under the Statement of Service Performances, 'KPI 24 Net CO₂ emissions' and 'KPI 25 Environmental sustainability measures' in the University's Annual Report.

Management involvement

The University's Chief Property Officer leads the direction of the delivery plans supported by the Associate, Sustainable Estate and Operations and the Environment and Sustainability team and in collaboration with service teams across the University. The emissions inventory measurement and reduction performance monitoring are part of the overall remit, including reporting results to leadership. The Environment and Sustainability team works with internal senior partners in other divisions to seek data from existing data bases and third-party suppliers, providing guidance, templates and subject matter expertise, including around maturity progress and data improvement.

The Chief Property Officer also chairs the Sustainable Estate and Operations Governance Group. Membership of the governance group includes, Kaiarataki Pro Vice-Chancellor (Māori), Chief Financial Officer, Director of Planning and Information Office, Chief Digital Officer and Director of Campus Life.

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 considering changes to international best practice, including expectations to set baselines no earlier than 2015.

Measurement period of this report: 01 January 2023 to 31 December 2023

Reporting will be done annually with an alignment to the University financial reporting year which coincides with the calendar year.

Alignment to financial reporting year which coincides with calendar year.

1.3.5. Organisational boundary and consolidation approach

An operational control consolidation approach was used to account for emissions.⁴

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 its operations 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 China and has a branch in the Kingdom of Saudi Arabia although both are currently in the process of liquidation and will be deregistered once all regulatory requirements have been met. 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 health care, 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.

⁴control: 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.

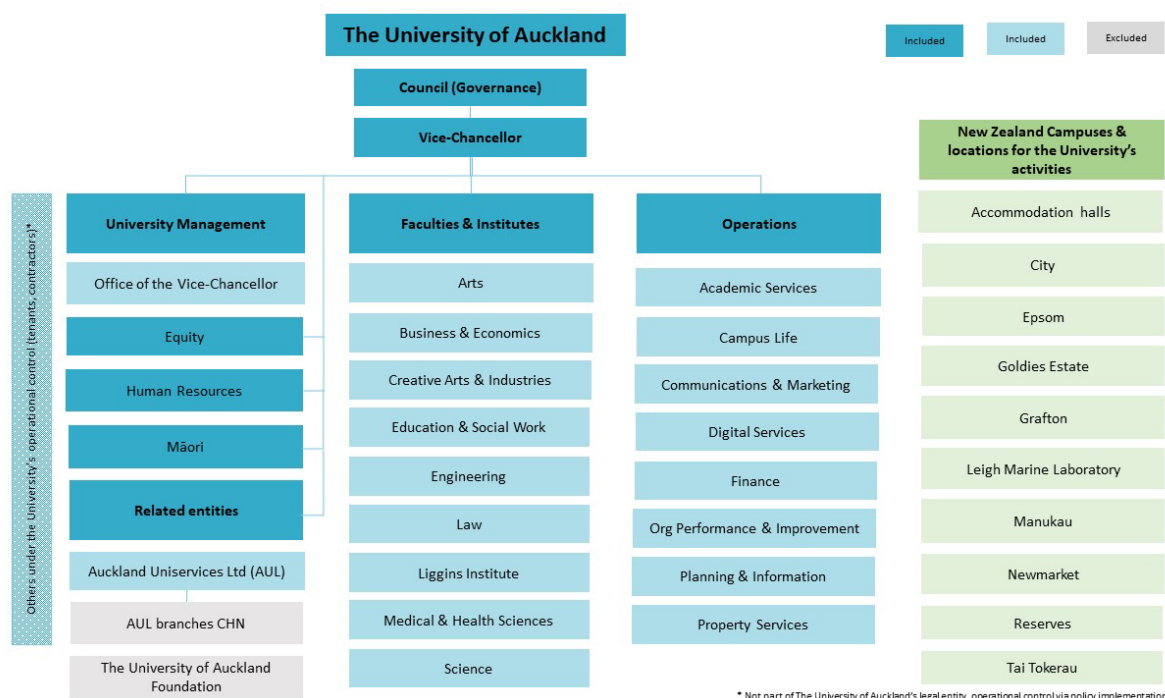


Figure 5: Organisational structure

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

FULL ADDRESS	FACILITY	FACILITY_OWNERSHIP	FACILITY_PRIMARY_USE	REGION_NAME
, , ,	256	UCONST	ACAD	CITY CAMPUS
1 WYNYARD ST, AK CNTRL, AUCKLAND, 1010	240	OWNED	ACAD	CITY CAMPUS
10 CARLTON GORE RD, GRAFTON, AUCKLAND, 1023	632	OWNED	RESID	GRAFTON CAMPUS
10 GRAFTON RD, AK CNTRL, AUCKLAND, 1010	220	OWNED	ACAD	CITY CAMPUS
10 SYMONDS ST, AK CNTRL, AUCKLAND, 1010	201	OWNED	ACAD	CITY CAMPUS
109 RANFURLY RD, EPSOM, AUCKLAND, 1023	6E9	OWNED	ADMIN	EPSOM CAMPUS
11 PARK AVE, GRAFTON, AUCKLAND, 1023	511	OWNED	SERVICE	GRAFTON CAMPUS
1-11 SHORT ST, AK CNTRL, AUCKLAND, 1010	810	LEASED	ADMIN	CITY CAMPUS
12 GRAFTON RD, AK CNTRL, AUCKLAND, 1010	260	OWNED	ACAD	CITY CAMPUS
12 SYMONDS ST, AK CNTRL, AUCKLAND, 1010	211	OWNED	INFRA	CITY CAMPUS

FULL ADDRESS	FACILITY	FACILITY_OWNERSHIP	FACILITY_PRIMARY_USE	REGION_NAME
128 ANZAC AVE, AK CNTRL, AUCKLAND, 1010	818	LEASED	RESID	CITY CAMPUS
13 ALEXANDER ST, WRE, WHANGAREI, 0110	6WA	OWNED	ACAD	WHANGAREI CAMPUS
14 SYMONDS ST, AK CNTRL, AUCKLAND, 1010	215	OWNED	ACAD	CITY CAMPUS
14 WHITAKER PL, GRAFTON, AUCKLAND, 1010	436	OWNED	RESID	CITY CAMPUS
14A SYMONDS ST, AK CNTRL, AUCKLAND, 1010	126	OWNED	INFRA	CITY CAMPUS
15 EDEN CRES, AK CNTRL, AUCKLAND, 1010	802	LEASED	ACAD	CITY CAMPUS
15 SYMONDS ST, AK CNTRL, AUCKLAND, 1010	331	OWNED	INFRA	CITY CAMPUS
16 MOUNT ST, AK CNTRL, AUCKLAND, 1010	614	OWNED	RESID	CITY CAMPUS
16 PRINCES ST, AK CNTRL, AUCKLAND, 1010	123	OWNED	RESID	CITY CAMPUS
16 ST MARTIN'S LN, GRAFTON, AUCKLAND, 1010	601	OWNED	RESID	CITY CAMPUS
16 SYMONDS ST, AK CNTRL, AUCKLAND, 1010	216	OWNED	ACAD	CITY CAMPUS
16 WYNYARD ST, AK CNTRL, AUCKLAND, 1010	251	OWNED	SERVICE	CITY CAMPUS
160 GOAT ISLAND RD, LEIGH, AUCKLAND, 0985	604	OWNED	ACAD	RESEARCH STATIONS
17 EDEN CRES, AK CNTRL, AUCKLAND, 1010	803	OWNED	ADMIN	CITY CAMPUS
17 SYMONDS ST, AK CNTRL, AUCKLAND, 1010	310	UCONST	SERVICE	CITY CAMPUS
18 CARRICK PL, MT EDEN, AUCKLAND, 1024	581	OWNED	ACAD	GRAFTON CAMPUS
18 CAUSEWAY RD, Waiheke , AUCKLAND, 1081	681	OWNED	INFRA	RESEARCH STATIONS
18 PRINCES ST, AK CNTRL, AUCKLAND, 1010	107	OWNED	SERVICE	CITY CAMPUS
18 SYMONDS ST, AK CNTRL, AUCKLAND, 1010	207	OWNED	ACAD	CITY CAMPUS
18 WATERLOO QUADRANT, AK CNTRL, AUCKLAND, 1010	804	OWNED	ADMIN	CITY CAMPUS

FULL ADDRESS	FACILITY	FACILITY_OWNERSHIP	FACILITY_PRIMARY_USE	REGION_NAME
18 WYNYARD ST, AK CNTRL, AUCKLAND, 1010	225	OWNED	ACAD	CITY CAMPUS
19-26 NICHOLLS LANE, PARNELL, AUCKLAND, 1010	831	LEASED	RESID	CITY CAMPUS
19A PRINCES ST, AK CNTRL, AUCKLAND, 1010	135	LEASED	ADMIN	CITY CAMPUS
1A WYNYARD ST, AK CNTRL, AUCKLAND, 1010	247	OWNED	INFRA	CITY CAMPUS
2 ALFRED ST, AK CNTRL, AUCKLAND, 1010	BWALL	OWNED	INFRA	CITY CAMPUS
2 HOSPITAL ROAD, HORAHORA, WHANGAREI, 0110	6WHOS	LEASED	ACAD	GRAFTON CAMPUS
20 SYMONDS ST, AK CNTRL, AUCKLAND, 1010	401	OWNED	ADMIN	CITY CAMPUS
20 WHITAKER PL, GRAFTON, AUCKLAND, 1010	431	OWNED	ACAD	CITY CAMPUS
20 WYNYARD ST, AK CNTRL, AUCKLAND, 1010	273	OWNED	ADMIN	CITY CAMPUS
22 PRINCES ST, AK CNTRL, AUCKLAND, 1010	105	OWNED	ACAD	CITY CAMPUS
22 SYMONDS ST, AK CNTRL, AUCKLAND, 1010	423	OWNED	ACAD	CITY CAMPUS
222 BEALEY AVE, CHCH CNTRL, CHRISTCHURCH, 8013	676	LEASED	ADMIN	OTHER LOCATIONS
23 SYMONDS ST, AK CNTRL, AUCKLAND, 1010	301	OWNED	ACAD	CITY CAMPUS
23 SYMONDS ST; 40 WELLESLEY ST EAST, AK CNTRL; AK CNTRL, AUCKLAND; AUCKLAND, 1010; 1010	302	OWNED	ACAD	CITY CAMPUS
24 PRINCES ST, AK CNTRL, AUCKLAND, 1010	103	OWNED	ADMIN	CITY CAMPUS
24 SYMONDS ST, AK CNTRL, AUCKLAND, 1010	409	OWNED	SERVICE	CITY CAMPUS
2-6 PARK AVE, GRAFTON, AUCKLAND, 1023	529	OWNED	ACAD	GRAFTON CAMPUS
26 SYMONDS ST, AK CNTRL, AUCKLAND, 1010	410	OWNED	SERVICE	CITY CAMPUS
261 MORRIN RD, ST JOHNS, AUCKLAND, 1072	705	LEASED	INFRA	TAMAKI
262 KHYBER PASS, NEWMARKE, AUCKLAND, 1023	901	OWNED	ACAD	NEWMARKET CAMPUS

FULL ADDRESS	FACILITY	FACILITY_OWNERSHIP	FACILITY_PRIMARY_USE	REGION_NAME
27 WHITAKER PL, GRAFTON, AUCKLAND, 1010	602	OWNED	RESID	CITY CAMPUS
2739 STATE HIGHWAY 5 RD2, WAIOTAPU, REPOROA, 3083	6RA	LEASED	ACAD	GRAFTON CAMPUS
28 PARK AVE, GRAFTON, AUCKLAND, 1023	507	OWNED	ACAD	GRAFTON CAMPUS
28-38 STANLEY ST, AK CNTRL, AUCKLAND, 1010	838	LEASED	RESID	CITY CAMPUS
3 ALTEN RD, AK CNTRL, AUCKLAND, 1010	241	OWNED	SERVICE	CITY CAMPUS
3 SYMONDS ST, AK CNTRL, AUCKLAND, 1010	110	OWNED	ACAD	CITY CAMPUS
30 WHITAKER PLACE, GRAFTON, AUCKLAND, 1010	440	OWNED	RESID	CITY CAMPUS
31 PRINCES ST, AK CNTRL, AUCKLAND, 1010	130	LEASED	ADMIN	CITY CAMPUS
32 THOMAS PEACOCK PL, ST JOHNS, AUCKLAND, 1072	714	OWNED	SERVICE	TAMAKI
33 EPSOM AVE, EPSOM, AUCKLAND, 1023	6E3	OWNED	SERVICE	EPSOM CAMPUS
34 PRINCES ST, AK CNTRL, AUCKLAND, 1010	311	OWNED	SERVICE	CITY CAMPUS
35 WHITAKER PL, GRAFTON, AUCKLAND, 1010	441	OWNED	RESID	CITY CAMPUS
368 KHYBER PASS, NEWMARKE, AUCKLAND, 1023	907	OWNED	ACAD	NEWMARKET CAMPUS
38 PRINCES ST, AK CNTRL, AUCKLAND, 1010	303	OWNED	ACAD	CITY CAMPUS
38 SEAFIELD VIEW RD, GRAFTON, AUCKLAND, 1023	623	OWNED	RESID	GRAFTON CAMPUS
3A SYMONDS ST, AK CNTRL, AUCKLAND, 1010	108	OWNED	INFRA	CITY CAMPUS
4 ALFRED ST, AK CNTRL, AUCKLAND, 1010	322	OWNED	ADMIN	CITY CAMPUS
4 NEILPARK DR, ET, AUCKLAND, 2013	650	LEASED	SERVICE	OTHER LOCATIONS
40 SEAFIELD VIEW RD, GRAFTON, AUCKLAND, 1023	643	OWNED	RESID	GRAFTON CAMPUS
44 SYMONDS STREET, GRAFTON, AUCKLAND, 1010	434	OWNED	RESID	CITY CAMPUS

FULL ADDRESS	FACILITY	FACILITY_OWNERSHIP	FACILITY_PRIMARY_USE	REGION_NAME
49-51 SYMONDS ST, GRAFTON, AUCKLAND, 1010	620	OWNED	ADMIN	CITY CAMPUS
5 ALFRED ST, AK CNTRL, AUCKLAND, 1010	109	OWNED	ACAD	CITY CAMPUS
5 SYMONDS ST, AK CNTRL, AUCKLAND, 1010	106	OWNED	ACAD	CITY CAMPUS
5 SYMONDS ST; 22 PRINCES ST, AK CNTRL; AK CNTRL, AUCKLAND; AUCKLAND, 1010; 1010	119	OWNED	ACAD	CITY CAMPUS
5 WHITAKER PLACE , GRAFTON, AUCKLAND, 1010	450	LEASED	RESID	CITY CAMPUS
50 SEAFIELD VIEW RD, GRAFTON, AUCKLAND, 1023	628	OWNED	RESID	GRAFTON CAMPUS
54 EPSOM AVE, EPSOM, AUCKLAND, 1023	6E4	OWNED	ADMIN	EPSOM CAMPUS
55 SYMONDS ST, GRAFTON, AUCKLAND, 1010	616	LEASED	RESID	CITY CAMPUS
5-7 WYNYARD ST, AK CNTRL, AUCKLAND, 1010	242	OWNED	SERVICE	CITY CAMPUS
58 SYMONDS ST, GRAFTON, AUCKLAND, 1010	435	OWNED	ADMIN	CITY CAMPUS
6 OSTERLEY WAY, MANUKAU, AUCKLAND, 2104	654	LEASED	ACAD	SOUTH AUCKLAND CAMPUS
6 SYMONDS ST, AK CNTRL, AUCKLAND, 1010	250	OWNED	ACAD	CITY CAMPUS
60 EPSOM AVE, EPSOM, AUCKLAND, 1023	6ER	OWNED	ACAD	EPSOM CAMPUS
62 SEAFIELD VIEW RD, GRAFTON, AUCKLAND, 1023	629	OWNED	RESID	GRAFTON CAMPUS
67 SYMONDS ST, GRAFTON, AUCKLAND, 1010	619	LEASED	ADMIN	CITY CAMPUS
6R CARLTON GORE RD, GRAFTON, AUCKLAND, 1023	621	OWNED	RESID	GRAFTON CAMPUS
7 CITY ROAD, GRAFTON, AUCKLAND, 1010	617	LEASED	ADMIN	CITY CAMPUS
7 GRAFTON RD; 5 GRAFTON RD, AK CNTRL; AK CNTRL, AUCKLAND; AUCKLAND, 1010; 1010	405	OWNED	ACAD	CITY CAMPUS
7 KITSON PLACE, ST JOHNS, AUCKLAND, 1072	765	LEASED	INFRA	TAMAKI

FULL ADDRESS	FACILITY	FACILITY_OWNERSHIP	FACILITY_PRIMARY_USE	REGION_NAME
7 SYMONDS ST, AK CNTRL, AUCKLAND, 1010	104	OWNED	ACAD	CITY CAMPUS
70 SEAFIELD VIEW RD, GRAFTON, AUCKLAND, 1023	523	OWNED	ADMIN	GRAFTON CAMPUS
70 STANLEY ST, AK CNTRL, AUCKLAND, 1010	840	LEASED	SERVICE	CITY CAMPUS
70 SYMONDS ST, GRAFTON, AUCKLAND, 1010	439	LEASED	ADMIN	CITY CAMPUS
74 EPSOM AVE, EPSOM, AUCKLAND, 1023	6EA	OWNED	ACAD	EPSOM CAMPUS
74 SHORTLAND ST, AK CNTRL, AUCKLAND, 1010	820	OWNED	ACAD	CITY CAMPUS
78 EPSOM AVE, EPSOM, AUCKLAND, 1023	6EKT	OWNED	ACAD	EPSOM CAMPUS
8 GRAFTON RD, AK CNTRL, AUCKLAND, 1010	219	OWNED	ACAD	CITY CAMPUS
8 PARK AVE, GRAFTON, AUCKLAND, 1023	528	OWNED	ACAD	GRAFTON CAMPUS
829 CAMERON ROAD, TRG STH, TAURANGA, 3112	6TP	LEASED	ACAD	GRAFTON CAMPUS
85 PARK RD, GRAFTON, AUCKLAND, 1023	501	OWNED	ACAD	GRAFTON CAMPUS
85 PARK RD; 2 BOYLE CRES, GRAFTON; GRAFTON, AUCKLAND; AUCKLAND, 1023; 1023	505	OWNED	ACAD	GRAFTON CAMPUS
9 EDEN CRES, AK CNTRL, AUCKLAND, 1010	801	LEASED	ADMIN	CITY CAMPUS
9 GLASGOW TCE, GRAFTON, AUCKLAND, 1023	509	OWNED	RESID	GRAFTON CAMPUS
9 GRAFTON RD, AK CNTRL, AUCKLAND, 1010	408	OWNED	ADMIN	CITY CAMPUS
9 SYMONDS ST, AK CNTRL, AUCKLAND, 1010	315	OWNED	SERVICE	CITY CAMPUS
9 WYNYARD ST, AK CNTRL, AUCKLAND, 1010	202	OWNED	INFRA	CITY CAMPUS
93 GRAFTON RD, GRAFTON, AUCKLAND, 1010	532	LEASED	ADMIN	GRAFTON CAMPUS
ARAWA STREET, ROTORUA, ROTORUA, 3010	6RH	LEASED	ACAD	GRAFTON CAMPUS
HOSPITAL RD, OTAHUHU, AUCKLAND, 1062	699	LEASED	ACAD	GRAFTON CAMPUS

FULL ADDRESS	FACILITY	FACILITY_OWNERSHIP	FACILITY_PRIMARY_USE	REGION_NAME
LEVEL 1, KAHUI MANAAKI BLDG, NORTH SHORE HOSPITAL, TAKAPUNA, AUCKLAND, 0620	674	LEASED	ACAD	GRAFTON CAMPUS
LEVEL 2, 68 OXFORD TERRACE, CHCH CNTRL, CHRISTCHURCH, 8011	671	LEASED	ADMIN	OTHER LOCATIONS
LEVEL 3, SNELGARD BLDG, WAITAKERE HOSPITAL, LINCOLN RD, HENDERSN, AUCKLAND, 0610	673	LEASED	ACAD	GRAFTON CAMPUS
MULLINS RD, Ardmore, PAPAURA, 2582	622	OWNED	ACAD	RESEARCH STATIONS
PRINCES ST, AK CNTRL, AUCKLAND, 1010	112	OWNED	INFRA	CITY CAMPUS
PRIVATE BAG 92019; 3A SYMONDS ST, AK CNTRL; AK CNTRL, AUCKLAND; AUCKLAND, 1142; 1010	102	OWNED	SERVICE	CITY CAMPUS
SELWYN ST, HM CTRL, HAMILTON, 3204	695	LEASED	ACAD	GRAFTON CAMPUS
UNIT 6 - 950 FERRY ROAD, FERRYMEAD, CHRISTCHURCH, 8023	663	LEASED	ADMIN	OTHER LOCATIONS
UNIT A, LEVEL 3, 50 DEVON STREET WEST, NEW PLYMOUTH CENTRAL, NEW PLYMOUTH, 4310	675	LEASED	ADMIN	OTHER LOCATIONS
WILMA RD, Waiheke, WAIHEKE ISLAND, 1081	687	OWNED	RESID	RESEARCH STATIONS

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 China and the Kingdom of Saudi Arabia are also excluded from the GHG emissions boundary as these are not under the University's operational control and are currently in the process of liquidation. Both will be deregistered once all regulatory requirements have been met.

CHAPTER 2: EMISSIONS MANAGEMENT AND REDUCTION REPORT

2.1. EMISSIONS REDUCTION RESULTS

In 2023, the University's carbon profile continued to show an overall upward trend compared to the previous year. Total emissions in 2023 were 61,929 tCO₂e, 31% higher than in 2022, indicating there is still a lot of work to do to return to the ambitious path of absolute reduction expressed in the targets. However, this general upward trend has not been strong enough to indicate a return to levels of 2019. Considering that 2023 is the first full year of the University's activities not being directly influenced by Covid-19, it is encouraging to see that emissions have not 'fully bounced back' and that efforts to limit emissions are happening across most key activities.

The three key sources of emissions for this reporting period were once again air travel and associated accommodation, electricity, and gas. Emissions from waste are also included in the target commitments and are closely monitored.

Work related air travel represented 28% of the total gross emissions, 8% more than in 2022. This activity has emissions 80% higher than in 2022. Despite the increase, work-related air travel remains 40% lower than the 2019 baseline.

The indirect emissions from imported energy (location-based method) dropped 1% since 2022 to 5,395 tCO₂e. The slight drop was the result of emission factor changes. The University's consumption of electricity (kWh) has increased 8% from 2022, and an increase of approximately 3,000,000 kWh against the 2019 baseline. This trend is expected as part of decarbonisation efforts as gas consumption and resulting emissions have both decreased by 3.4 and 3.3 % respectively since 2019. Decarbonisation efforts also include purchasing certified carbon zero electricity and ensuring 100% renewable electricity sourcing via Renewable Energy Certificates for any portion of electricity that is not carbon zero certified.

Table 5: Comparison of historical GHG inventories

Category	2019	2020	2021	2022	2023
Category 1: Direct emissions (tCO ₂ e)	5,667.38	5,723.70	5,426.74	5,485.52	5,771.49
Category 2: Indirect emissions from imported energy (location-based method*) (tCO ₂ e)	8,066.06	8,058.39	7,865.56	5,432.63	5,395.07
Category 3: Indirect emissions from transportation (tCO ₂ e)	65,935.12	4,252.51	1,906.21	35,181.44	49,357.02
Category 4: Indirect emissions from products used by organisation (tCO ₂ e)	2,799.14	1,552.13	1,461.75	1,276.34	1,405.77
Category 5: Indirect emissions associated with the use of products from the organisation (tCO ₂ e)	0.00	0.00	0.00	0.00	0.00
Category 6: Indirect emissions from other sources (tCO ₂ e)	0.00	0.00	0.00	0.00	0.00
Total direct emissions (tCO₂e)	5,667.38	5,723.70	5,426.74	5,485.52	5,771.49

Category	2019	2020	2021	2022	2023
Total indirect emissions* (tCO₂e)	76,800.31	13,863.02	11,233.52	41,890.42	56,157.86
Total gross emissions* (tCO₂e)	82,467.70	19,586.71	16,660.26	47,375.94	61,929.35
Category 1 direct removals (tCO ₂ e)	0.00	0.00	0.00	0.00	0.00
Purchased emission reductions (tCO ₂ e)	0.00	0.00	0.00	0.00	0.00
Total net emissions (tCO₂e)	82,467.70	19,586.71	16,660.26	47,375.94	61,929.35
Emissions intensity					
Built environment (gross tCO ₂ e / m ²)	0.13	0.028	0.024	0.069	0.83
Built environment (gross mandatory tCO ₂ e / m ²)	0.071	0.028	0.023	0.032	0.40
Equivalent Full Time Student (gross tCO ₂ e / per FTE per annum)	2.39	0.57	0.45	1.32	1.75
Equivalent Full Time Student (gross mandatory tCO ₂ e / per FTE per annum)	1.30	0.56	0.43	0.61	0.85
FTE & EFTS - Full-time employees and Equivalent full-time students combined (gross tCO ₂ e / per FTE per annum)	2.04	0.49	0.39	1.13	1.49
FTE & EFTS - Full-time employees and Equivalent full-time students combined (gross mandatory tCO ₂ e / per FTE per annum)	1.11	0.47	0.37	0.52	0.72
Full Time Employee (gross tCO ₂ e / per FTE per annum)	13.81	3.27	2.78	7.75	9.78
Full Time Employee (gross mandatory tCO ₂ e / per FTE per annum)	7.54	3.20	2.64	3.58	4.76
Operating revenue (gross tCO ₂ e / \$Millions)	64.72	15.88	12.20	34.01	38.96
Operating revenue (gross mandatory tCO ₂ e / \$Millions)	35.31	15.50	11.57	15.72	18.96

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

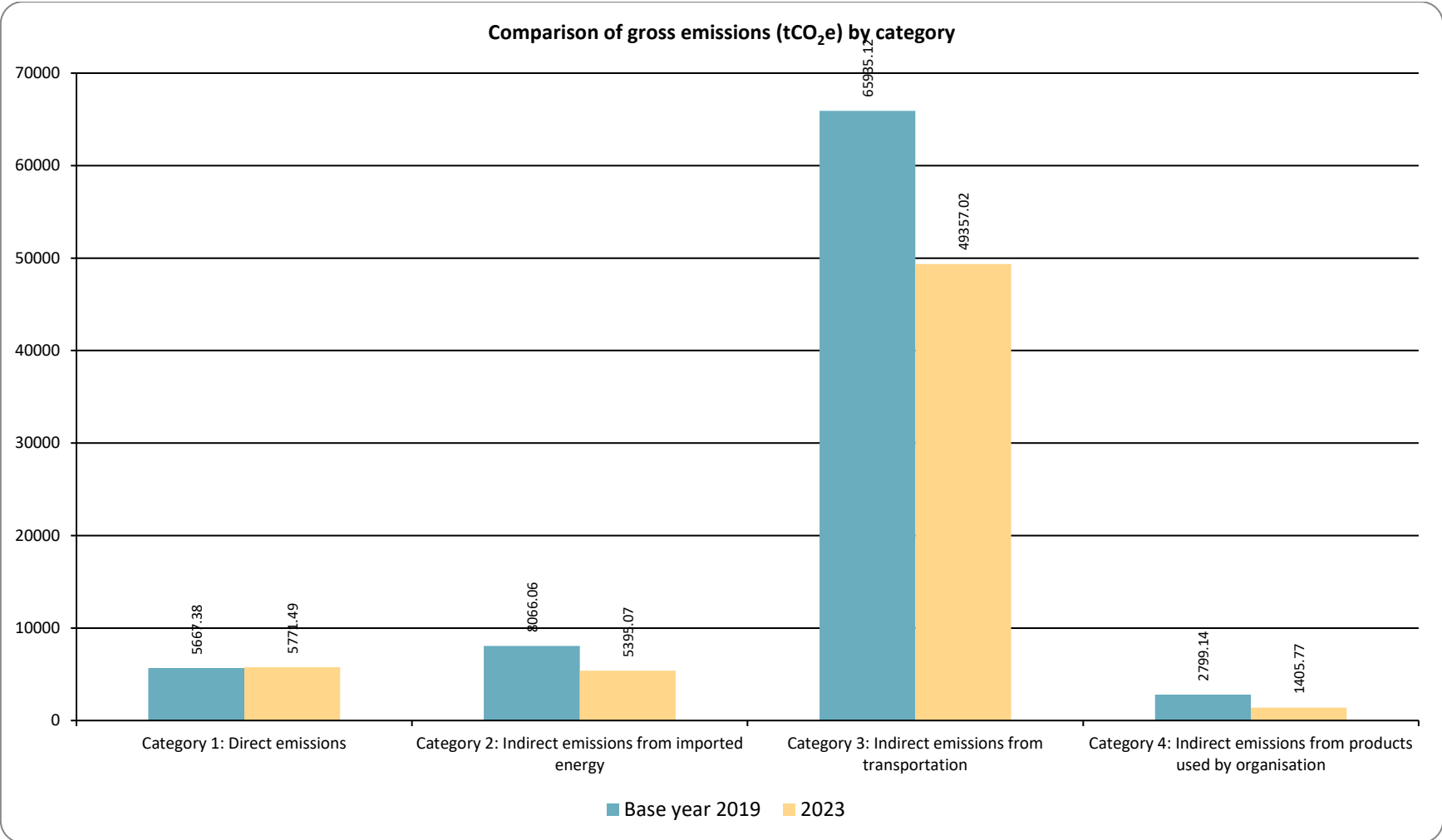


Figure 6: Comparison of gross emissions (tCO₂e) by category between the reporting periods



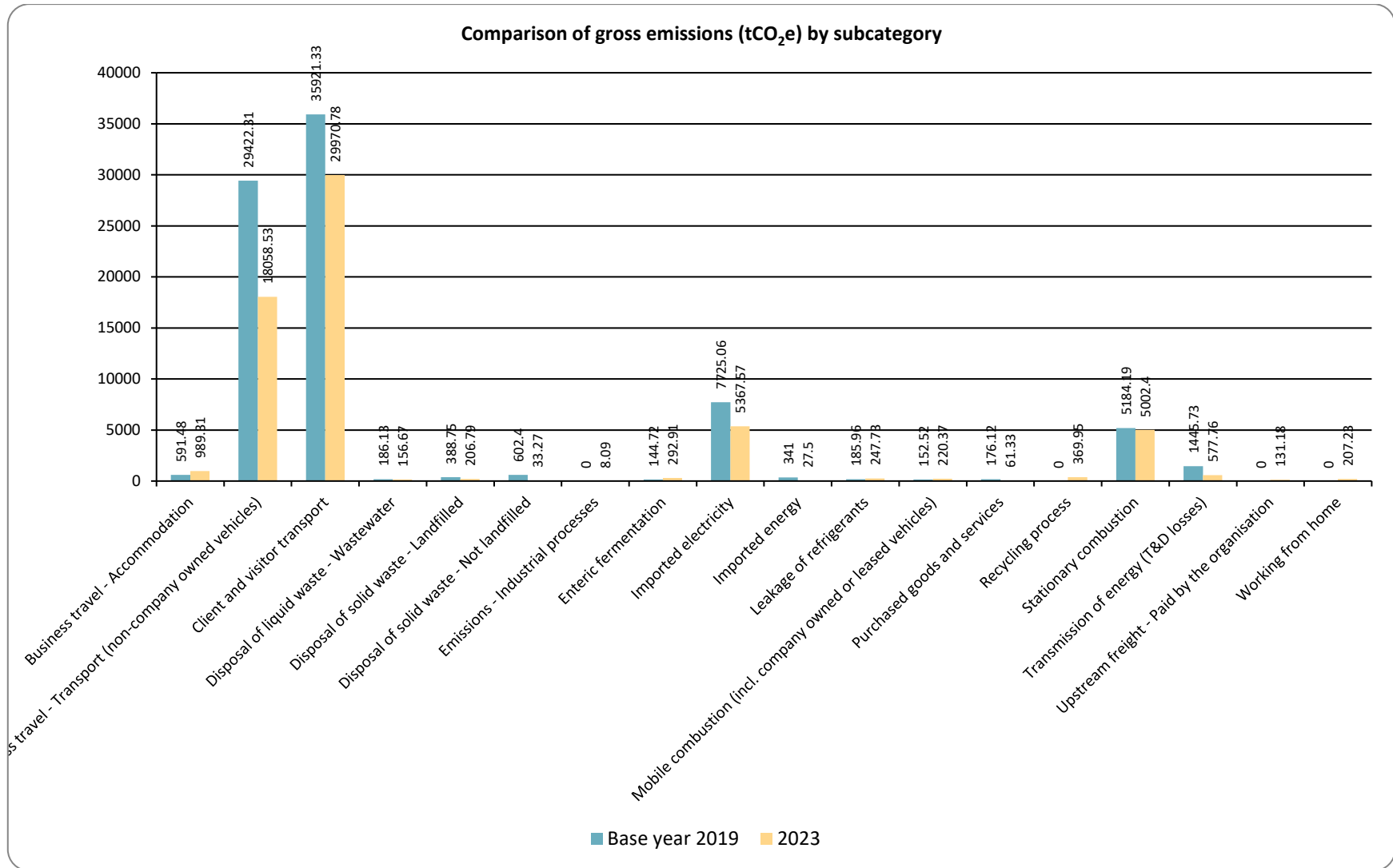


Figure 7: Comparison of gross emissions (tCO₂e) by subcategory between the reporting periods

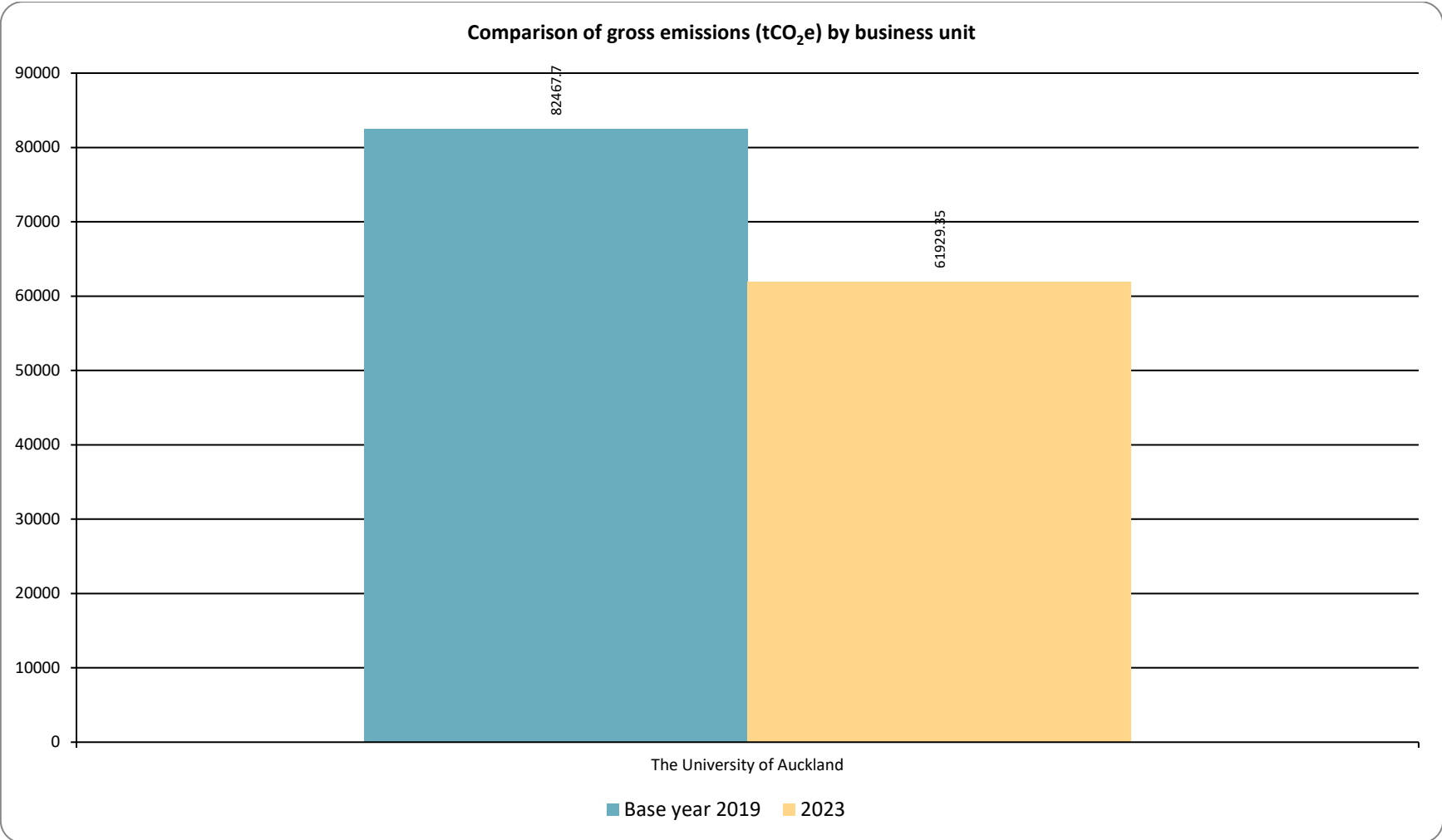


Figure 8: Comparison of gross emissions (tCO₂e) by business unit between the reporting periods



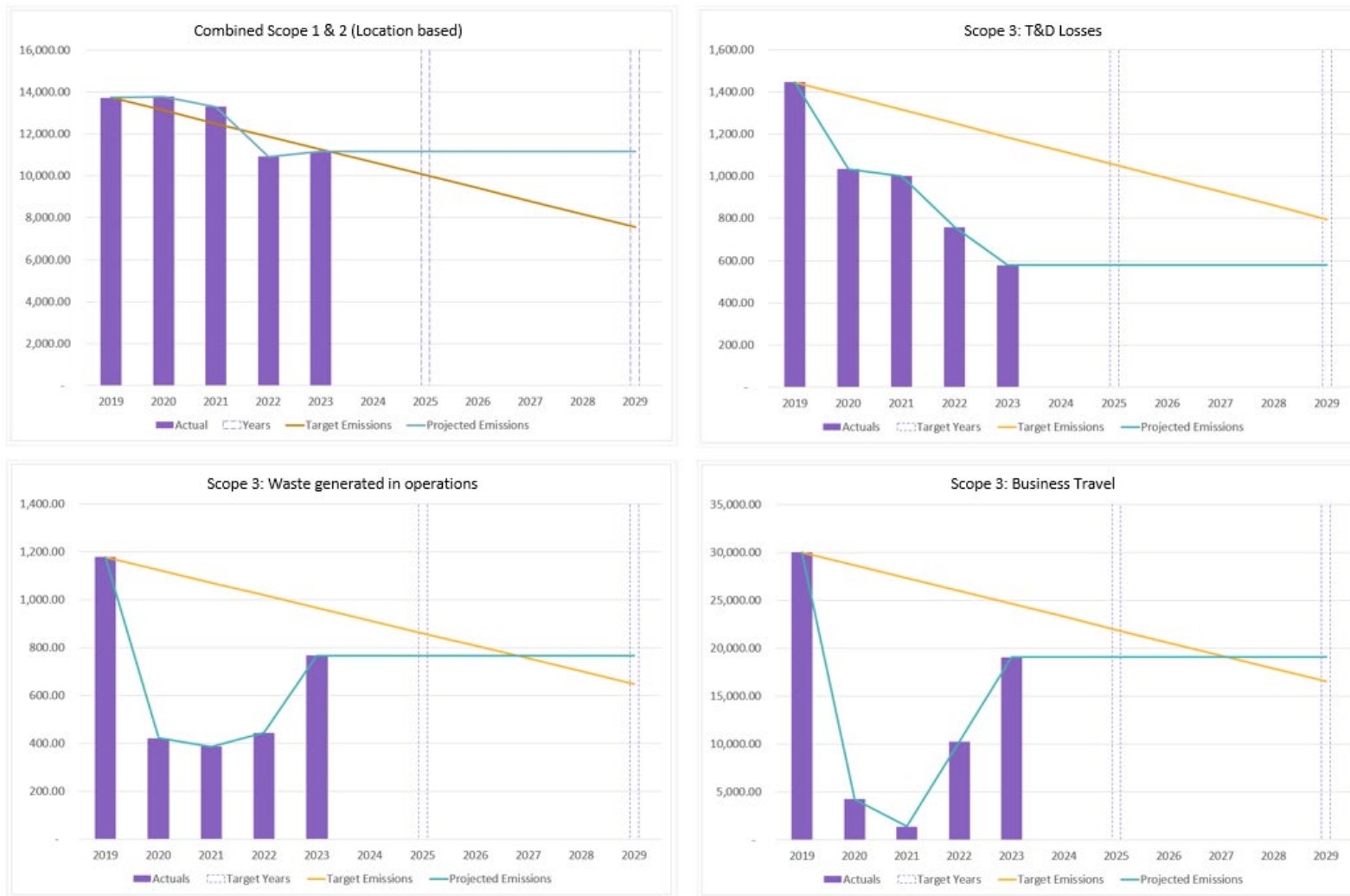


Figure 9: Performance against target since base year



Table 6. Performance against plan

Te Taumata Tukuwarokore Net Zero Carbon Progressive Pathway - Target name	Baseline period	Target date	Reduction target	Type of target (intensity or absolute)	Current performance (tCO₂e)	Current performance (%)	Comments	Interim target date	Interim reduction target	Current performance against 2025 interim target
Work related Air travel, staff and students	2019	2030	50%	Absolute	17,825	-39.02	Performance is based on verified 2019 figures	2025	25%	Achieved and surpassed
Energy and fuel	2019	2030	50%	Absolute	10,618	-15.55	Performance is based on verified 2019 figures	2025	25%	Further 9.45% reduction required
Waste	2019	2030	50%	Absolute	610	-38.44	Performance is based on verified 2019 figures	2025	25%	Achieved and surpassed



2.2. SIGNIFICANT EMISSIONS SOURCES

Significant sources

Due to Aotearoa's geographical isolation, air travel is carbon intensive and makes a significant contribution to the University's carbon profile and is responsible for 17,825.18 tCO₂e in 2023. Despite the large increase in both, pkm and emissions of 83% and 80% respectively from the previous year, work related air travel emissions are 40% lower than the 2019 baseline. In the case of long-haul international air travel, the proportion is even greater, 44% less emissions than the baseline and almost 30% less pkm travelled.

In 2023, Waipapa Taumata Rau made important efforts to curve the upward trends by incorporating carbon criteria to the University's travel policy. The new, updated policy was published in November 2023, making 2024 the first full year of the new policy in place and the ability to better assess successful implementation as air travel is an important aspect of developing and maintaining for global partnerships, research, and international engagement in academic conferences.

Activities responsible for generating significant emissions

As noted in the progressive pathway to Net Zero, the University identified a second significant source of carbon that is comprised of all Energy and Fuel (both stationary and non-stationary). The University has a large portfolio of buildings, complex facilities and fleet to deliver its services to staff and students as well as general public. Electricity and gas are the main sources of energy related emissions and these require the most attention. Continued efforts to phase out gas and procure carbon zero electricity have resulted in a 21% decrease in emissions since the baseline. The challenge ahead is to strengthen efforts to avoid bouncing back and enable a solid downward trajectory as set out in the ambitious targets. Taking current emission factors, this means the University is still 1.7M kWh (or 331 tCO₂e) of gas away from target zone 2023. In addition, there has been an upward trend in vehicle fuel consumption and associated emissions that although less significant, still requires further investigation.

Influences over the activities

Emissions from waste are another significant source for the University. One which is highly visible and captures much attention from students, staff and the wider university community. In 2023, overall waste activity (including composting and transportation and processing of recyclable materials) increased by 12% against 2022 and the University sent 1,563 tonnes of waste to landfill. A complete year of campus based activities, including a return to in person events could explain this increase. This trend was not reflected in the emissions resulting from waste sent to landfill. Emission factor changes for gas collecting landfill in Hampton Downs resulted in a 15% decrease from the previous year.

As part of improving the understanding of emissions for the waste category, this inventory includes the processing of recyclable materials collected, not just their transportation. As a result, the emissions from recyclables increased to 378 tCO₂e highlighting the limitations of relying on waste diversion via recycling schemes as an effective emission reduction strategy and the need to concentrate efforts on the prevention of waste via procurement and choices of products and services offering on campus.

In addition, the composting component of the waste category has also increased 22% from 2022, both by quantity (kg) and tCO₂e.

When comparing to the 2019 baseline, emissions are still 38% lower for the overall waste category, driven exclusively by emission factor that considers the gas collection in landfills. However, when looking at quantities (kg), there has been a 0.5% increase since the baseline. This suggests that increased opportunities for waste diversion, recovery and recycling alone will not be enough to curve upward trends across all categories and signals the need for increased focus on procurement practices.

Significant sources that cannot be influenced

Waipapa Taumata Rau was the first University in New Zealand to formally recognize the materiality of International Student Air Travel for its carbon profile. In 2023, this activity accounted for over 48% of the emissions in the GHG inventory. The University is committed to improving the way it understands and estimates the emissions from international students air travel and continues to improve the methodology

to estimate these emissions. Given there is no operational control over students' mode of travel, this activity is outside of the University's carbon mitigation boundary. The University will continue to engage with its international student community to both improve outcomes in terms of carbon emissions and education of climate conscious travelers.

2.3. EMISSIONS REDUCTION TARGETS

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

Targets have been set as part of the commitments of Te Taumata Tukuwaro-kore | Net Zero Carbon Strategy, published in Q4 2022.

As anticipated, 2023 activity is showing a more complete picture of performance against targets. This year, the University's operations are no longer under the level of influence Covid-19 had in prior years. Although performance trends are no longer showing on track to meet the ambitious targets of the Net Zero progressive pathway, the data shows that efforts to avoid 'going back to normal' in relation to the greenhouse gas emissions of Waipapa Taumata Rau's activities have been successful.

Emissions from Staff and Students Work Related Air Travel were 39% lower than in 2019. Energy and fuel related emissions show a decrease of 15.5%, while emissions from waste are more than 38% below the baseline.

The collective efforts, especially those across divisions with key operational responsibilities are producing visible, tangible results. The next two years will be critical as implementation plans continue to mature and projects and initiatives increase the level of ambition. The emissions recorded in 2024, together with the trends observed today, will guide the review of targets in 2025.

Table 7. Emission reduction targets

Progressive pathway and targets - Te Taumata Tukuwaro-kore -Net Zero Carbon Strategy, November 2022						
Ambition level	Source	2022	2023	2024	2025	2030
Net Zero boundary (GHG baseline 2019)	<ul style="list-style-type: none"> - Travel (work related) - Energy - Waste (landfill and recycling) 	Develop Implementation Plan	Launch implementation plan	Launch implementation plan	25 % Reduction Target	50% Reduction Target
Extended Net Zero boundary (GHG baseline 2019 gaps)	<ul style="list-style-type: none"> - Travel (international students inbound) - Waste: construction and demolition - Working from home - Staff and student commuting - Freight and couriers 	Start/improve data gathering	Establish / Improve baseline	Set Targets		Achieve target set in 2024
Data improvement, monitoring (2025 target review cycle)	<ul style="list-style-type: none"> - Embodied Carbon (from materials) - Information and Communication Technology - Food on campus 	Develop	Start data gathering	Assess significance	Set targets / develop implementation plan	Achieve targets set in 2025
Mitigation programme for residual emissions	- Mitigation boundary	Establish mitigation boundary	Develop a well-informed, evidence-based carbon mitigation programme	Develop a well-informed, evidence-based carbon mitigation programme	Begin mitigation programme	Achieve Net Zero Trajectory Status



2.4. EMISSIONS REDUCTION PROJECTS

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

Table 8. Projects to reduce emissions

Measure: see Net Zero Carbon Progressive Pathway in: Te Taumata Tukuwaro- kore Net Zero Carbon Strategy	Project	Detail	Responsibility	Status/Completion date/BAU	Potential co- benefits	Potential unintended consequences	Actions to minimise unintended consequence
Work related air travel	Include environmental and carbon principles in the University's travel policy.		Strategic Procurement	Completed	Some potential for cost savings although with cost of air travel increases post Covid-19 savings are not expected to be as significant.	Research and teaching connections and collaboration may be debilitated, research may be delayed or disrupted. Also risk of University weakening its global standing due to less physical presence and interaction on international forums.	Consultation and engagement pre and post policy update. https://www.auckland.ac.nz/en/about-us/about-the-university/policy-hub/enabling-environment/finance-capital-risk/travel/travel-policy.html

Measure: see Net Zero Carbon Progressive Pathway in: Te Taumata Tukuwaro- kore Net Zero Carbon Strategy	Project	Detail	Responsibility	Status/Completion date/BAU	Potential co- benefits	Potential unintended consequences	Actions to minimise unintended consequence
	Create Air Travel Dossier in the new Enterprise Management System to provide better tools for Managers to assist decision making about air travel.		Strategic Procurement, Planning & Information Office, Sustainability Office	Version 1 published Q4 2023	Improved alignment with the University's data governance strategy.	None anticipated	n/a
Energy and Fuel	B201 - Elimination fossil fuel consumption on-site with all electric HVAC, central plant and domestic hot water to be generated through electric reverse cycle air source heat pumps.	The new 201 building does not use any natural gas. All the buildings cooling, heating, and domestic hot water demands are met with heatpumps.	Property Services	completed			
	B201- Low and Zero Global Warming Potential refrigerants in all large chillers and heat pumps	This is expected to reduce emissions associated with refrigerant leakage by over 80%.	Property Services	completed			



Measure: see Net Zero Carbon Progressive Pathway in: Te Taumata Tukuwarokore Net Zero Carbon Strategy	Project	Detail	Responsibility	Status/Completion date/BAU	Potential co-benefits	Potential unintended consequences	Actions to minimise unintended consequence
	B201- photovoltaic arrays providing 10% of the buildings energy.	Two PV arrays (L10 and L6) generate renewable electricity for the building. In the first three months of monitoring, the PV arrays have generated 38,560 kWh of electricity, making up 10.83% of the building's total electricity usage.	Property Services	Completed			
	B201- The building's glazing uses a Low-E double-glazed insulating glass unit with a spectrally selective coating to minimise solar gain whilst providing high levels of daylight. The new glazing provides both a 70% reduction in solar gains over the original glazing and halves the building's annual heating demand.	In the first 3 months, the building has an energy use intensity of 70 kWh per m ² per annum which is more than 50% lower than a standard NZGBC building (150 kWh per m ² per annum).	Property Services	Completed			



Measure: see Net Zero Carbon Progressive Pathway in: Te Taumata Tukuwarokore Net Zero Carbon Strategy	Project	Detail	Responsibility	Status/Completion date/BAU	Potential co-benefits	Potential unintended consequences	Actions to minimise unintended consequence
	The new building envelope reduces the whole of building energy consumption by over 25% and is targeting an air permeability of 5.0 m ³ /hr/m ² at 50Pa which will make it the first and largest building in New Zealand to be pressure tested for air permeability.		Property Services	Completed			
	B250 Removed gas boiler for space heating . Part of Sector 200 - Decarbonisation via East power infrastructure upgrade. Electrification and decarbonisation of the building and the district heating network it supports.	Annual verified energy savings of 254,937 kWh or \$11,409 or 51.96 tCO ₂ -eq	Property Services	Completed			



Measure: see Net Zero Carbon Progressive Pathway in: Te Taumata Tukuwaro- kore Net Zero Carbon Strategy	Project	Detail	Responsibility	Status/Completion date/BAU	Potential co- benefits	Potential unintended consequences	Actions to minimise unintended consequence
	Waipapa Marae - Replaced all gas heating and kitchen equipment with electricity.	Monitoring under way to assess energy savings.	Property Services	Completed			
	Waipapa Marae - Replaced all gas heating and kitchen equipment with electricity.			Completed			
	Waipapa Marae Installed efficient underfloor heating and new LED light fittings			Completed			
	B260- Audit recommendations implemented including:	The B260 chiller optimisation and upgrade to VSD was completed and implemented— annual savings of 320,866 kWh or \$60,000 were achieved.	Property Services	Completed			



Measure: see Net Zero Carbon Progressive Pathway in: Te Taumata Tukuwaro- kore Net Zero Carbon Strategy	Project	Detail	Responsibility	Status/Completion date/BAU	Potential co- benefits	Potential unintended consequences	Actions to minimise unintended consequence
	B260 chiller upgrades. Modification of two of the three main building chillers (not data centre) to be more energy efficient.			Completed			
	B_OCH Old Choral Hall - Changed plans for consented gas and heating systems and replaced with electric reverse cycle heat pumps	Confirmed, project will not have gas as energy source.	Property Services	Construction Underway			
	B620 Carpark Lighting Upgrades	Converting to high efficiency lighting devices	Property Services	Construction Underway			
	B260 Carpark Lighting Upgrade	Converting to high efficiency lighting devices	Property Services	Construction Underway			
	500 Sector Lecture Theatre Lighting Upgrades	Converting to high efficiency lighting devices	Property Services	Completed Jan 2024			



Measure: see Net Zero Carbon Progressive Pathway in: Te Taumata Tukuwaro- kore Net Zero Carbon Strategy	Project	Detail	Responsibility	Status/Completion date/BAU	Potential co- benefits	Potential unintended consequences	Actions to minimise unintended consequence
	B620 Cycling End of Trip Facilities	Three showers, a drying room, lockers and powerpoints are now available to support cyclists at the end of their commute.	Property Services	Completed	Co-benefits include increased wellness for cyclists, via increased hygiene and security.		
	B614 O'Rorke Dining Heating	Dining and study spaces gas heaters were converted to electrical devices.	Property Services	Completed			
	Review of Fleet (owned and leased) to inform management improvements and next steps		Property Services	Completed			
Waste	B_OCH Old Choral Hall - Construction waste recovery/recycling and diversion from landfill	1 of 2 participating projects for Phase 1 of C&D waste assessment and monitoring . <ul style="list-style-type: none"> • Total Waste Generated: 803 tonnes • Waste Recovery: 490 tonnes (61%) • Waste to Landfill: 313 tonnes (39%) 	Property Services	In progress	This will enable Phase 2 and 3, streamlining of C&D waste monitoring and reduction via contractor engagement.		



Measure: see Net Zero Carbon Progressive Pathway in: Te Taumata Tukuwarokore Net Zero Carbon Strategy	Project	Detail	Responsibility	Status/Completion date/BAU	Potential co-benefits	Potential unintended consequences	Actions to minimise unintended consequence
	B_201 - Construction waste recovery/recycling and diversion from landfill (this is a GreenStar 6 Desing and Built)	2 of 2 participating projects for Phase 1 of C&D waste assessment and monitoring. <ul style="list-style-type: none"> • Total Waste Generated: 7,124 tonnes • Waste Recovery: 6,432 tonnes (90%) • Waste to Landfill: 706 tonnes (10%) 	Property Services	Completed	This will enable Phase 2 and 3, streamlining of C&D waste monitoring and reduction via contractor engagement.		
	Waipapa Marae - Used equipment re-homed via online auction to avoid waste.		Property Services	Completed			
	UoA wide - Formalised process to prevent furniture from going to landfill. Waste diversion from landfill - Repurpose and rehome furniture and other materials from decants and refurbishments		Property Services	In progress			



Measure: see Net Zero Carbon Progressive Pathway in: Te Taumata Tukuwarokore Net Zero Carbon Strategy	Project	Detail	Responsibility	Status/Completion date/BAU	Potential co-benefits	Potential unintended consequences	Actions to minimise unintended consequence
	UoAEvents - Pizza guidelines to limit amount of pizza boxes	Pizza guidelines publicly available online.	Campus Life	Completed			
Progressive pathway - Net zero extended boundary	Wynyard Street	Sustainable streetscape. Prioritising people and biodiversity over cars and improve the way water flows on the land, much improved accessibility lungs. Increase biodiversity through a range of native plantings and integration of a planted lung which includes a rain garden. Improvement in resilience of the estate infrastructure (underground services routes and storm water drainage future proofed.	Property Services	In progress	improved amenity for staff, students and visitors, improved accessibility, well-being, security and lighting, increased distinctive sense of place and visible presence demonstrating the cultural narrative, improved traffic flow and site safety.		



Measure: see Net Zero Carbon Progressive Pathway in: Te Taumata Tukuwarokore Net Zero Carbon Strategy	Project	Detail	Responsibility	Status/Completion date/BAU	Potential co-benefits	Potential unintended consequences	Actions to minimise unintended consequence
	Newmarket landscape	Original project design (concrete mass and gravel) reviewed and adjusted to significantly reduce impervious surface, enable stormwater treatment and improve biodiversity. Create a nature rich environment including trees planting to provide shade, attract wildlife and increase biodiversity, add covered and uncovered seating, Enabling Stormwater Treatment – raised boardwalk and improved flood resilience. A sustainable solution for a challenging site that tends to create water pools at the low point.	Property Services	In progress	integration of a cultural narrative specific to Newmarket and its place in Aotearoa, Improved site access, Improved Site Safety, Improve circulation and amenities.		



Measure: see Net Zero Carbon Progressive Pathway in: Te Taumata Tukuwarokore Net Zero Carbon Strategy	Project	Detail	Responsibility	Status/Completion date/BAU	Potential co-benefits	Potential unintended consequences	Actions to minimise unintended consequence
	University of Auckland Community Garden	Underway. Feasibility and concept stage	Property Services, Environment and Sustainability sponsored	In progress	Co-benefits may include enhanced wellness, connection to nature and a sense of community for staff and students, increased understanding of biodiversity, urban food production, composting and sustainable living. Potential to utilise garden site in formal teaching, learning, and research in addition to extracurricular contexts.		



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

Table 9. Projects to improve data quality

Emissions source	Actions to improve data quality	Responsibility	Completion date
Staff and student work related air travel	<p>Stage 3: Automated file transfer of reports (flights boarded data)</p> <p>Stage 4: Supplier implemented the latest Ministry of Environment emission factors into the reports from September 2023</p> <p>Stage 5: The supplier can apply 'Aircraft specific' emission factors (Source MfE) to the reports. We improved our data quality by shifting our method of carbon calculation to 'Aircraft specific' emission factors, instead of using 'Aircraft size' (large, medium and small aircraft emission factors). Using the more granular 'Aircraft specific' factors will provide us with more accurate data.</p>	<p>Planning and Information Office</p> <p>Strategic Procurement Environment and Sustainability Office (SME)</p>	<p>Stage 3: August 2023</p> <p>Stage 4: September 2023</p> <p>Stage 5: May 2024</p>
Client and visitor transport (International student air travel)	<ul style="list-style-type: none"> Worked with the Planning and Information office to better use existing definitions to improve assumptions of this data set with high uncertainty. Subset of students with international residency in the calendar year, cross-referenced with moderate confidence campus location data 	<p>Planning and Information Office</p> <p>Environment and Sustainability Office</p>	Complete April 2024
Waste to landfill	<ul style="list-style-type: none"> Supplier engagement to continue improving reports and address data gaps. Site monitoring to improve completeness of the University's waste profile Identify special wastes and processes and added to the inventory Internal waste dashboard implemented Waste audit planned for May 2024 (it has been actioned). This will improve understanding of waste composition and areas for intervention. Waste Management Services review completed. Waste reduction and innovation focused contract is under development for going to market in 2024. 	Waste Minimisation Specialist	In progress
Composting (Food waste)	<ul style="list-style-type: none"> Monitoring of food hall scans to compare with waste data in waste dashboard. Monitoring new buildings and cafes to ensure food waste diversion and obtain data. 	Waste Minimisation Specialist	In progress
Recycling	<p>Supplier engagement to identify recycling streams and process.</p> <p>Stage 1: Emissions of transportation of reported recycling waste.</p> <p>Stage 2: Included emissions of recycling process in addition to the transport.</p>	<p>Environment and Sustainability Team</p> <p>Waste Minimisation Specialist</p>	<p>Stage 1: Pre-2023</p> <p>Stage 2: Jan 2023</p>

Emissions source	Actions to improve data quality	Responsibility	Completion date
Refrigerants and other gases	<ul style="list-style-type: none"> • Supplier engagement to continue improving reports. • Updated report templates to include the latest AR6 GWP values. 	Chemical Risk Team Environment and Sustainability Team Facilities Management Strategic Procurement	1/12/2023
Electricity	Current multi-year projects	Energy, Facilities Management	
	<p>1. New utilities monitoring and reporting system</p> <p>The new ESP system is in its final stages of completion. This to significantly improve functionality and ability to capture and assess utility bills, consolidate and streamline data sources and improved reporting capabilities.</p>		In progress - Estimated completion Dec 2024
	<p>2. Check meter upgrades: upgrading once a month manually read meters to meters that give 15-minute interval data. Both these projects enable better identification of reduction opportunities. This is a multi-year project. Several check meters have been upgraded to smart meters.</p> <ul style="list-style-type: none"> • Last year, check meters at 315 were upgraded to ToU meters. • This year, four gas retail meters will be connected to an ESP logger to provide hourly data to assist with decarbonisation projects. • In addition, energy/heat meters will be installed in buildings that come up for decarbonisation. 	Energy, Facilities Management	In progress
Utilities	Building 201 Project	Energy, Facilities Management	In progress
	Extensive electrical, thermal and water metering to measure and report on the environmental performance of the building. Due to extensive electrical, thermal, and water metering, we can regularly report on building performance and investigate issues during the building tuning phase.		
Freight	<ul style="list-style-type: none"> • Supplier engagement to continue improving reports. • Requested to include weight (kg) and origin/destination when possible, and to specify what type of carriers/vehicles are used for each freight provider. 	Strategic Procurement Environment and Sustainability Office	In progress

Emissions source	Actions to improve data quality	Responsibility	Completion date
Working from Home	Used survey data from the 'Office Space Audit 2022/2023' which showed higher percentages of professional staff working from home on Thursdays and Fridays. When compared with the two polls the data supports the assumption that staff work from home 2 days/week.	Environment and Sustainability Office Space and Planning	1/12/2023
Staff reimbursements	Staff reimbursement \$NZD data can be applied to a specific emission source, e.g. Accommodation (spend-based), Petrol (\$), Air passenger transport (spend-based). This was previously excluded due to de minimis, but with improved granularity of data and specific emission factors we have included this in the inventory.	Strategic Procurement	1/12/2023
Enteric Fermentation Sheep	A more detailed report of farm stock provided by livestock and facility manager. The farm stock record reports on opening stock, purchases, sales, and lost sheep throughout the year. As we do not know exactly how long the animal was on the land, assumptions are made based on the data provided.	Liggins Research Farm Laboratory Environment and Sustainability Office	1/04/2024

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

Table 10. Projects to prevent emissions from liabilities

Liability source	Actions to prevent emissions	Responsibility	Completion date
Refrigerants accidental release from units	Engage contractors to ensure adequate maintenance and servicing of units.	Property Services, Facilities Management	Ongoing
Refrigerants and other gases, accidental release	Consolidate location monitoring (asset and research related gas holdings)	Property Services and Chemical Risk Team	Estimated Q4 2024

2.5. STAFF ENGAGEMENT

Net Zero Carbon commitments are included in the University's strategic plans under the Enabling Environment priority. This is available to all staff and also publicly available via web. In addition, there is direct engagement with individual staff as part of the Sustainable Estate and Operations Working Group and Governance Group. Members engage with each other as well as colleagues across service divisions on key implementation initiatives.

Other active engagement with staff and students during 2023 included:

- Accommodation Services Green Your Room Challenge: The annual Green Your Room challenge, launched at Earth Hour and lasting 5 weeks, involves student residents in all accommodation buildings. Residents are invited to make environmental lifestyle pledges in the areas of transport, energy, waste, and water. In 2023, 50% of residents participated and 1872 pledges were made in total. In two halls, green teams were formed, one of which set up a small scale student-run composting system and herb garden.

- The Sustainability team also form a part of the Events Coordination Group (ECG) to assist in implementation of the Sustainable Events Guide and provide subject matter expertise for university events.
- Sustainability and Environment team had stalls in all large University events such as Open day for students and ASPIRE, the professional staff conference.

2.6. KEY PERFORMANCE INDICATORS

Additional KPIs are in line with University's existing service performance indicators included in the Annual Report.

Table 11. Key Performance Indicators (KPIs).

KPI	Rationale of using the additional KPI
GFA (Gross Floor Area)	In line with University's existing environmental service performance indicators included in the Annual Reporting
EFTS (Equivalent Full Time Student)	In line with University's existing service performance indicators included in the Annual Reporting
FTE (Full Time Employee)	In line with University's existing service performance indicators included in the Annual Reporting
EFTS & FTE (Equivalent full-time students and Full-time employees combined)	In line with University's existing service performance indicators included in the Annual Reporting

2.7. MONITORING AND REPORTING

Overall progress against the Net Zero Carbon progressive pathway and associated emission targets is reported annually by the Environment and Sustainability Office as part of the Sustainable Estate and Operations Implementation Plan. Portfolio managers across Property Services and Finance's Strategic Procurement teams monitor activity of the main sources of emissions monthly. The Environment and Sustainability Office reports carbon and environmental sustainability measures integrated in Waipapa Taumata Rau's Annual reports via the Planning and Information Office and works closely with all areas including Pro VC Māori, Procurement, Campus Life, Finance, Digital Services, International Office, Planning and Information Office, Finance, Property Services on initiatives and plans for other significant sources of emissions.

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 Waipapa Taumata Rau | The University of Auckland.xls).

Table 12. Direct GHG emissions and removals, quantified separately for each applicable gas

Category	CO ₂	CH ₄	N ₂ O	NF ₃	SF ₆	HFC	PFC	Desflurane	Sevoflurane	Isoflurane	Emissions total (tCO ₂ e)
Stationary combustion	4,988.36	11.68	2.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5,002.40
Mobile combustion (incl. company owned or leased vehicles)	214.51	1.37	4.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	220.37
Emissions - Industrial processes	8.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.09
Removals - Industrial processes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Leakage of refrigerants	17.35	0.00	0.00	0.00	0.00	230.38	0.00	0.00	0.00	0.00	247.73
Treatment of waste	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fugitive Emissions	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Treatment of wastewater	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Emissions - Land use, land-use change and forestry	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Removals - Land use, land-use change and forestry	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fertiliser use	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Addition of livestock waste to soils	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Addition of crop residue to soils	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Addition of lime to soils	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Enteric fermentation	0.00	292.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	292.91
Open burning of organic matter	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electricity generated and consumed onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Medical gases	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Exported electricity	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total net emissions	5,228.31	305.96	6.84	0.00	0.00	230.38	0.00	0.00	0.00	0.00	5,771.49

Table 13. Non-biogenic, biogenic anthropogenic and biogenic non-anthropogenic CO₂ emissions and removals by category

Category	Anthropogenic biogenic CO ₂ emissions	Anthropogenic biogenic (CH ₄ and N ₂ O) emissions (tCO ₂ e)	Non-anthropogenic biogenic (tCO ₂ e)
Category 1: Direct emissions	0.00	292.91	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	294.91	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	587.82	0.00

A1.1 REPORTING BOUNDARIES

A1.1.1 Emission source identification method and significance criteria

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

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.

In 2023, sector specific significance criteria has been added and is included in Appendix 2. under Carbon Neutral Government Programme.

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.

No changes to the significance criteria have been made since this inventory was initially developed in the base year.

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 14 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 the 2019 baseline inventory was initiated in 2021 and collated in 2022 following the requirements of ISO14064-1:2018 and in alignment with the technical guidelines of the Carbon Neutral Government Programme and Toitū Carbonreduce Programme. Data for this report were collected in 2023 and collated in 2024.

Table 14. 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	Stationary combustion	Diesel stationary combustion LPG stationary commercial Natural Gas distributed commercial	Assumed all supplier reports are accurate data comes from contractors via Campus Services Manager, Facilities Management using templates provided.	Default unit and emission factor selected to report on these sources	NO
	Mobile combustion (incl. company owned or leased vehicles)	Diesel mobile combustion (fuel cards) Petrol mobile combustion (fuel cards)	Assumed all supplier reports are accurate. Data comes from Procurement Manager, Finance	Default unit and emission factor selected to report on these sources	NO
	Leakage of refrigerants	Dry ice CH ₄ CO ₂ HCFC-22 (R-22, Genetron 22 or Freon 22) R-404A R-410A	UoA prepared a reporting template and requested suppliers to fill it in, following MfE 2022 guidelines for monitoring and reporting of GHG. Purchases/top-ups and leakage assumed as equal during measurement period.	Default unit and emission factor selected to report on these sources	NO
	Emissions - Industrial processes	Acetylene use	Assumed all supplier reports are accurate. Data comes from Procurement Manager, Finance	Default unit and emission factor selected to report on these sources	NO
	Enteric fermentation	Enteric Fermentation Sheep	Data provided by farm manager is assumed to be accurate. Increased level of uncertainty due to no systematic data collection.	Default unit and emission factor selected to report on these sources	NO
Overall assessment of uncertainty for Category 1 emissions and removals			Low		

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 2: Indirect emissions from imported energy	Imported electricity	Electricity Toitū carbonzero certified factor Ecotricity Electricity Toitū carbonzero certified factor Prime Energy Electricity	Assumed all supplier invoices are accurate. Data comes from Energy Manager, Facilities Management	Supplier specific emission factors provided by Toitū have been used for carbonzero certified electricity when using market-based reporting. Otherwise, default unit and grid emission factor selected to report on these sources (location-based)	YES for Toitū carbonzero certified suppliers NO for grid electricity supplier
	Imported energy	Steam generation - Pre-calculated (tCO ₂ e)	Assumed all supplier invoices are accurate. Data comes from Energy Manager, Facilities Management	Default 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 emissions from transportation	Business travel - Accommodation	Accommodation - Australia Accommodation - Austria Accommodation - Belgium Accommodation - Canada Accommodation - Chile Accommodation - China (Hong Kong) Accommodation - Czech Republic Accommodation - Fiji Accommodation - Finland Accommodation - France Accommodation - French Polynesia	Assumed data from supplier is correct and accurate - Accommodation data is based on number of room nights paid for by the University. Data comes from Procurement Manager, Finance. Not all countries have a specified emission factor. As more countries are added assessed, these emissions will have more certainty on accuracy.	Default unit and emission factor selected to report on these sources For countries without a specified emission factor, the New Zealand emission factor has been selected as the default.	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
		Accommodation - Germany Accommodation - Greece Accommodation - India Accommodation - Indonesia Accommodation - Ireland Accommodation - Italy Accommodation - Japan Accommodation - Malaysia Accommodation - Netherlands Accommodation - New Zealand Accommodation - New Zealand Accommodation - Portugal Accommodation - Singapore Accommodation - South Korea Accommodation - Spain Accommodation - Switzerland Accommodation - Taiwan Accommodation - Thailand			



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
		Accommodation - Turkey Accommodation - United Arab Emirates Accommodation - United Kingdom Accommodation - United States			
	Business travel - Transport (non-company owned vehicles)	Air travel domestic (Aerospatiale ATR 7) Air travel domestic (Airbus 320) Air travel domestic (Cessna Light Aircraft) Air travel domestic (De Havilland Dash) Air travel domestic (Pilatus PC-12) Air travel domestic (Saab 340B) Air travel domestic (average) Air travel long haul (average) Air travel long haul (business) Air travel long haul (econ) Air travel long haul (econ+) Air travel short haul (average) Air travel short haul (econ)	Assumed data from supplier is correct and accurate - Air transport data is based on flights boarded. Rental car data is based on bookings paid for by the University. Data comes from Procurement Manager, Finance.	EF factors specific to aircraft size (domestic), class booked (international) and short/long haul flights (international). When an average EF is selected, this is due to not knowing the type of aircraft or class booked.	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
		Air travel short haul b/f class Accommodation (spend-based) Air passenger transport (spend-based) Petrol (spend-based) Rental Car average (diesel) Rental Car average (hybrid) Rental Car average (petrol) Rental Car EV - average Taxi (regular)			
	Client and visitor transport	Air travel long haul (average) Air travel short haul (average)	High uncertainty. Assumptions: departure airport allocated by student's country of citizenship. It is assumed 80% of international students located in New Zealand took a return to their countries of citizenship within the same year. The remaining 20% are assumed to have taken a one-way flight to New Zealand from their countries of origin.	The average EF was selected due to not knowing the type of aircraft or class booked.	NO
	Upstream freight - Paid by the organisation	Freight Air travel Domestic (average) Freight Air travel long haul (average) Freight Air travel short haul (average) Freight Road all trucks (average) Freight Road van (average)	Medium uncertainty. Assumed supplier reports are accurate, some estimation required. When distance (km) is not included in a report, assumptions are made to estimate the distance. If weight (kg) is not included, assumptions are made to estimate the average package size based on a similar freight report.	The average EF was selected due to not knowing the type of aircraft or vehicle used for transit.	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
	Working from home	Working from home	High uncertainty. Data taken from a staff poll taken from 45 of UoA's senior professional staff leaders (7 September 2022). This data is used, as it is based on estimates of actual employee days.	Default unit and emission factor selected to report on these sources	NO
Overall assessment of uncertainty for Category 3 emissions and removals			Medium to High		
Category 4: Indirect emissions from products used by organisation	Purchased goods and services	Paper use - default Water supply	Assumed supplier reports are accurate	Default unit and emission factor selected to report on these sources	NO
	Disposal of solid waste - Landfilled	Decontamination of medical waste - Autoclaving Incineration of clinical waste Waste landfilled - Hampton Downs Waste landfilled LFGR Mixed waste	Recycling of plastic, aluminium and glass carries higher level of uncertainty. Assumptions based on 2019 baseline waste analysis of 'bottles and cans' materials distribution.	Where landfill location is known, specific emission factor is applied. Default unit and emission factor selected to report on all other sources.	YES for Hampton Downs Landfill NO for remaining emission factors
	Disposal of solid waste - Not landfilled	Waste disposal recycling of Aluminium Waste disposal recycling of Batteries Waste disposal recycling of Glass Waste disposal recycling of Paper Waste disposal recycling of Plastic Waste disposal recycling of Steel cans	Assumed supplier reports are correct	Default 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
	Recycling process	Recycling - Aluminium Recycling Recycling - Batteries (non-automotive) Recycling - Card Recycling - Mixed Glass Recycling - Mixed Plastic Recycling - Mixed Plastics Recycling - Paper Recycling - Steel cans	Assumed supplier reports are correct	Default unit and emission factor selected to report on these sources	NO
	Disposal of solid waste - Not landfilled	Composting	Assumed supplier reports are correct	Default unit and emission factor selected to report on these sources	NO
	Disposal of liquid waste - Wastewater	Wastewater for treatment plants (average)	Assumed supplier reports are correct	Default unit and emission factor selected to report on these sources	NO
	Transmission of energy (T&D losses)	Electricity distributed T&D losses Electricity Toitū carbonzero certified factor Ecotricity (T & D losses) Electricity Toitū carbonzero certified factor Prime Energy (T & D losses) Natural Gas distributed T&D losses	Assumed supplier reports are accurate	Default unit and emission factor selected to report on these sources	NO
Overall assessment of uncertainty for Category 4 emissions and removals			Low		



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
For more detail refer to:					
<ul style="list-style-type: none"> University of Auckland Information Management Procedures for Carbon Audit 					
<ul style="list-style-type: none"> University of Auckland GHG Inventory Definitions & Source Information 					



A1.1.3 Excluded emissions sources and sinks

Emissions sources in Table 15 have been identified and excluded from this inventory.

Table 15. 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)	Data is not systematically collected in a way that enables analysis of this kind. However, we are developing a methodology and expect to include within the next 2 cycles.
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 or lack of significance screening factor in eManage tool.
The University of Auckland	Sinks		Data is not systematically collected in a way that enables analysis of this kind. Developing a methodology is one of the actions in the implementation plan and is expected within the next two reporting cycles.
The University of Auckland	Waste - Printer recycling	Indirect - category 4 - (From products and services used by the organisation)	Excluded due to de minimis
The University of Auckland	Construction and demolition	Indirect - category 4 - (From products and services used by the organisation)	Methodology underway to develop a split baseline and incorporate C&D waste as a separate source. C&D waste will be reported on a project-by-project basis. In 2023 phase 1 of methodology and data collection active. C&D waste data for two key construction projects, B201 and Old Choral Hall, have been collected to guide the development of the methodology.
The University of Auckland	Fertiliser use - Grounds maintenance	Category 1: Direct emissions and removals	Excluded due to de minimis
The University of Auckland	Fertiliser use - Epsom Sports Field	Category 1: Direct emissions and removals	Excluded due to de minimis
The University of Auckland	Fertiliser use - Ngapouri Research Farm	Category 1: Direct emissions and removals	Excluded as it falls outside of the university's operational control
The University of Auckland	Agricultural soils sheep	Category 1: Direct emissions and removals (Addition of livestock waste to soils)	Excluded due to de minimis
The University of Auckland	Manure management sheep	Category 1: Direct emissions and removals (Addition of livestock waste to soils)	Excluded due to de minimis

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 conversion⁵.

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

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

A1.2.2 GHG Storage and liabilities

A1.2.2.1 GHG STOCKS HELD ON SITE

Refrigerants and fuels may be stored on site, but their accidental leakage or release could result in a large increase in emissions for that period. Refrigerants such as HFCs, PFCs and SF₆ are GHGs with high global warming potentials, so material volumes of these or fuel are reported as potential liabilities.

Table 16. Total storage as of year end with potential GHG emissions liabilities.

GHG gas stock held	Quantity	Unit	Potential liability (tCO ₂ e)
Acetylene use	142.60	kilograms	0.48
CO ₂	7,647.49	kilograms	7.65
Desflurane	4.59	kilograms	8.22
Diesel stationary combustion	89,602.00	litres	240.95
HCFC-22 (R-22, Genetron 22 or Freon 22)	310.00	kilograms	545.60
HFC-134a	0.00	kilograms	0.00
HFC-32	21.27	kilograms	14.40
Isoflurane	5.37	kilograms	2.64
LPG stationary commercial	282.00	kilograms	0.84
Methane (CH ₄)	49.69	kilograms	1.39
N ₂ O	20.33	kilograms	5.39
Petrol	400.00	litres	0.98
R-290 (Propane)	0.00	kilograms	0.00

⁵ 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.

GHG gas stock held	Quantity	Unit	Potential liability (tCO ₂ e)
R-404A	0.00	kilograms	0.00
R-407A	0.00	kilograms	0.00
R-407C	0.00	kilograms	0.00
R-410A	768.85	kilograms	1,478.88
R-449A	66.00	kilograms	92.14
Sevoflurane	3.44	kilograms	0.74
Sulphur Hexafluoride (SF ₆)	27.90	kilograms	655.65
Total potential liability			3,055.95

A1.2.3 Supplementary results

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

APPENDIX 2: SIGNIFICANCE CRITERIA USED

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

Emission source	Magnitude	Level of influence	Risk or opportunity	Sector specific guidance	Outsourced	Employee engagement	Intended Use and Users	Include in inventory?
Accommodation		•	•	•	•	•	•	YES
Air travel domestic, Short and Long haul (average): Work related (staff and students)	•	•	•	•	•	•	•	YES
Air travel Short and Long haul (average): Category 3 - Emissions from Client and visitor transport (International students)	•	•	•	•	•	•	•	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	ALL Categories 1 and 2 deemed significant in principle	•	•	•				YES
Diesel stationary combustion: City campus generator	ALL Categories 1 and 2 deemed significant in principle	•	•	•				YES

Emission source	Magnitude	Level of influence	Risk or opportunity	Sector specific guidance	Outsourced	Employee engagement	Intended Use and Users	Include in inventory?
Diesel stationary combustion: Fire pumps	ALL Categories 1 and 2 deemed significant in principle	•	•					YES
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
Enteric Fermentation Dairy Cattle	ALL Categories 1 and 2 deemed significant in principle		•					YES
Enteric Fermentation Sheep	ALL Categories 1 and 2 deemed significant in principle		•	•				YES
Freight			•	•	•		•	YES
LPG stationary commercial	ALL Categories 1 and 2 deemed significant in principle		•	•				YES



Emission source	Magnitude	Level of influence	Risk or opportunity	Sector specific guidance	Outsourced	Employee engagement	Intended Use and Users	Include in inventory?
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
Paper use: Category 4 - Emissions from purchased goods		•	•				•	YES
Petrol: Fuel cards	ALL Categories 1 and 2 deemed significant in principle	•	•	•				YES
Rental Car average (All fuel types)	ALL Categories 1 and 2 deemed significant in principle	•	•	•				YES
Steam generation CO ₂ e: Purchased from ADHB	ALL Categories 1 and 2 deemed significant in principle		•	•				YES
Taxi (regular)		•	•	•	•	•	•	YES
Waste recycling transportation & processing		•	•			•	•	YES
Waste landfilled		•	•	•				YES

Emission source	Magnitude	Level of influence	Risk or opportunity	Sector specific guidance	Outsourced	Employee engagement	Intended Use and Users	Include in inventory?
Water supply		•	•	•				YES
Waste water				•		•	•	YES
Working From Home		•	•	•				YES
C&D waste		•	•		•			NO - In progress / will be reported separately from 2024 onwards. Refer to IMR section targets section



APPENDIX 3: CERTIFICATION MARK USE

Waipapa Taumata Rau | The University of Auckland may choose to make use of the Certification Marks for the period 2023 in marketing and communication materials both internally and externally.

APPENDIX 4: REFERENCES

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

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

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

APPENDIX 5: REPORTING INDEX

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

Section of this report	ISO 14064-1:2018 clause	Organisational Technical Requirement rule
Cover page	9.3.1 b, c, r 9.3.2 d,	TR8.2, TR8.3
Availability	9.2 g	
Chapter 1: Emissions Inventory Report		
1.1. Introduction	9.3.2 a	
1.2. Emissions inventory results	9.3.1 f, h, j 9.3.3	TR4.14, TR4.16, TR4.17
1.3. Organisational context	9.3.1 a	
1.3.1. Organisation description	9.3.1 a	
1.3.2. Statement of intent		TR4.2
1.3.3. Person responsible	9.3.1 b	
1.3.4. Reporting period	9.3.1 l	TR5.1, TR5.8
1.3.5. Organisational boundary and consolidation approach	9.3.1.d	TR4.3, TR4.5, TR4.7, TR4.11
1.3.6. Excluded business units		
Chapter 2: Emissions Management and Reduction Report		
2.1. Emissions reduction results	9.3.1 f, h, j, k 9.3.2 j, k	TR4.14, TR6.18
2.2. Significant emissions sources		
2.3. Emissions reduction targets		TR6.1, TR6.2, TR6.4, TR6.6, TR6.8,
2.4. Emissions reduction projects	9.3.2 b	TR6.8, TR6.11, TR6.12, TR6.13, TR6.14, TR6.15
2.5. Staff engagement		TR6.1, TR6.9
2.6. Key performance indicators		TR6.19
2.7. Monitoring and reporting	9.3.2 h	TR6.2
Appendix 1: Detailed greenhouse gas inventory	9.3.1 f, g	TR4.9, TR4.15
A1.1 Reporting boundaries		
A1.1.1 Emission source identification method and significance criteria	9.3.1 e	TR4.12, TR4.13
A1.1.2 Included emissions sources and activity data collection	9.3.1 p, q 9.3.2 i	TR5.4, TR5.6, TR5.17, TR5.18,
A1.1.3 Excluded emissions sources and sinks	9.3.1 i	TR5.21, TR5.22, TR5.23
A1.2 Quantified inventory of emissions and removals		
A1.2.1 Calculation methodology	9.3.1 m, n, o, t	
A1.2.2 Historical recalculations		
A1.2.3 GHG Storage and liabilities		
A1.2.3.1 GHG stocks held on site		TR4.18
A1.2.3.2 Land-use liabilities	9.3.3.	TR4.19

A1.2.4 Supplementary results		
A1.2.4.1 Carbon credits and offsets	9.3.3.3	
A1.2.4.2 Purchased or developed reduction or removal enhancement projects	9.3.2 c	
A1.2.4.3 Double counting and double offsetting		
Appendix 2: Significance criteria used	9.3.1.e	TR4.12
Appendix 3: Certification mark use		TR3.6
Appendix 4: References		
Appendix 5: Reporting index		



INDEPENDENT AUDIT OPINION

Toitū carbonreduce programme certification

TO THE INTENDED USERS

Organisation subject to audit: The University of Auckland

Toitū Carbon Programme: Toitū carbonreduce organisation certification

ISO 14064-1:2018

ISO 14064-3:2019

Audit Criteria: Toitū Programme Technical Requirements 3.1
Audit & Certification Technical requirements 3.0
Certification Mark Guide v 3.0

Responsible Party: The University of Auckland

Intended users: The members of the Sustainable Estate and Operations Working Group and Governance Group, and the wider community of Waipapa Taumata Rau.

Registered address: The University of Auckland, Private Bag 92019, Auckland, 1142, New Zealand
22 Princes Street, Auckland, 1010, New Zealand

Inventory period: 01/01/2023 to 31/12/2023

Inventory report: IMR_2023_The University of Auckland_CR_Org.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 and the requirements of the stated Toitū carbon programme. 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

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') and the requirements of the stated Enviro-Mark Solutions Limited (trading as Toitū Envirocare) programme.

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;
- examination of air travel reports;
- sampling of gas records to confirm accuracy of source data into calculations;
- reconciliation of electricity reports.

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:

The opinion is unmodified.

VERIFICATION LEVEL OF ASSURANCE

	tCO ₂ e Location based	tCO ₂ e Market based	Level of Assurance
Category 1	5,771.49	5,771.49	Reasonable
Category 2	5,395.07	27.50	Reasonable
Category 3 (mandatory) business air travel	17,825.17	17,825.17	Reasonable
Category 3 (mandatory) excluding business air travel	364.53	364.53	Limited
Category 3 (additional)	31,167.31	31,167.31	Limited
Category 4 (mandatory)	784.55	561.82	Limited
Category 4 (additional)	621.22	621.22	Limited
Total net emissions	61,929.35	56,339.05	

RESPONSIBLE PARTY'S GREENHOUSE GAS ASSERTION (CERTIFICATION CLAIM)

Toitū carbonreduce organisation certified: The University of Auckland including Auckland Uniservices Limited, all campuses and operational emissions. Toitū carbonreduce certified means measuring emissions to ISO 14064-1:2018 and Toitū requirements; and managing and reducing against Toitū requirements.

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 the requirements of the stated Toitū Envirocare Toitū carbon programme; 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 the requirements of the stated Toitū Envirocare Toitū carbon programme; 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 to meet Programme requirements. The Other Information may include climate related disclosures around Governance, Strategy and Risk management, emissions management, 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 programme 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:	Rhea Selwan	Name:	Billy Ziemann
Position:	Verifier, Toitū Envirocare	Position:	Certifier, Toitū Envirocare
Signature:		Signature:	
Date verification audit:	17 to 18 June 2024	Date:	16 October 2024
Date opinion expressed:	23 July 2024		



STATEMENT OF TOITŪ CARBONREDUCE
CERTIFICATION ⁱ

FOR THE UNIVERSITY OF AUCKLAND



Statement for 01 January 2023 to 31 December 2023

Toitū carbonreduce organisation certified: The University of Auckland including Auckland Uniservices Limited, all campuses and operational emissions

Toitū carbonreduce means committing to ongoing reductions while achieving annual requirements for at least the Toitū mandatory emissions.ⁱⁱ



Measured emissions to ISO 14064-1:2018 and [Toitū requirements](#)



Managing and reducing against [Toitū requirements](#)

This report provides a summary of the annual greenhouse gas (GHG) emissions inventory and management report for Waipapa Taumata Rau | The University of Auckland as part of the annual work to achieve Toitū carbonreduce certification. Additional details of the annual achievements, commitments, and verification are available on request from Waipapa Taumata Rau | The University of Auckland.

Toitū carbonreduce organisation certified: The University of Auckland including Auckland Uniservices Limited, all campuses and operational emissions. Toitū carbonreduce certified means measuring emissions to ISO 14064-1:2018 and Toitū requirements; and managing and reducing against Toitū requirements

The overall purpose of this report is to support the implementation of Te Taumata Tukuwaro-kore | Net Zero Carbon Strategy and associated Sustainable Estate and Operations initiatives and 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.

Achievements

These achievements have been verified in line with ISO 14064-3:2019 and Toitū carbonreduce Programme Technical Requirements for the 01 January 2023 to 31 December 2023 measurement period.

Emissions measurement

Waipapa Taumata Rau | The University of Auckland's greenhouse gas emissions for this year (01 January 2023 to 31 December 2023) were 61,929.35 tCO₂e. Waipapa Taumata Rau | The University of Auckland has measured the emissions resulting from its operational activities, purchased energy, and selected impacts from its value chain activities, including business travel, freight, and waste sent to landfill. The annual inventory is detailed in the following table. Emissions and reductions are reported using a location-based methodology.ⁱⁱⁱ

The data and information supporting the measurement of GHG emissions were historical in nature.

Category (ISO 14064-1:2018)	Scopes (GHG Protocol)	GHG emissions (tCO ₂ e)		
		Base Year 2019	Previous Year 2022	Current Year 2023
Category 1: Direct emissions (tCO ₂ e)	Scope 1	5,667.38	5,485.52	5,771.49
Category 2: Indirect emissions from imported energy (location-based method*) (tCO ₂ e)	Scope 2	8,066.06	5,432.63	5,395.07
Category 3: Indirect emissions from transportation (tCO ₂ e)	Scope 3	65,935.12	35,181.44	49,357.02
Category 4: Indirect emissions from products used by organisation (tCO ₂ e)		2,799.14	1,276.34	1,405.77
Category 5: Indirect emissions associated with the use of products from the organisation (tCO ₂ e)		0.00	0.00	0.00
Category 6: Indirect emissions from other sources (tCO ₂ e)		0.00	0.00	0.00
Total gross emissions* (tCO ₂ e)		82,467.70	47,375.94	61,929.35
Category 1 direct removals (tCO ₂ e)		0.00	0.00	0.00
Total net emissions (tCO ₂ e)		82,467.70	47,375.94	61,929.35

*Gross and net emissions are reported using a location-based methodology. Contact Waipapa Taumata Rau | The University of Auckland for full details.

The operational GHG emission sources included in this inventory are shown in Figure 1 below.

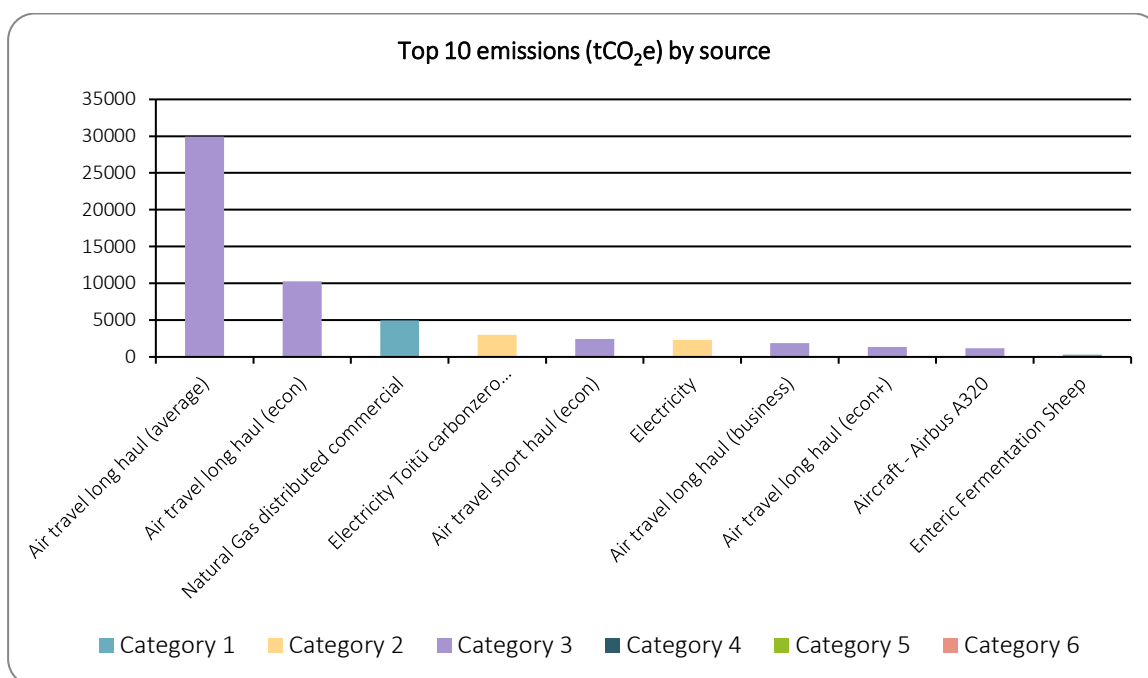


Figure 1: Top 10 GHG emissions (tonnes CO₂e) by source

Scope of Measured inventory

CONSOLIDATION APPROACH

An operational control consolidation approach was used to account for emissions. Organisational boundaries were set with reference to the methodology described in the GHG Protocol and ISO 14064-1:2018 standards.^{iv}

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

BOUNDARIES

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 China and has a branch in the Kingdom of Saudi Arabia although both are currently in the process of liquidation and will be deregistered once all regulatory requirements have been met. 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 health care, 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.

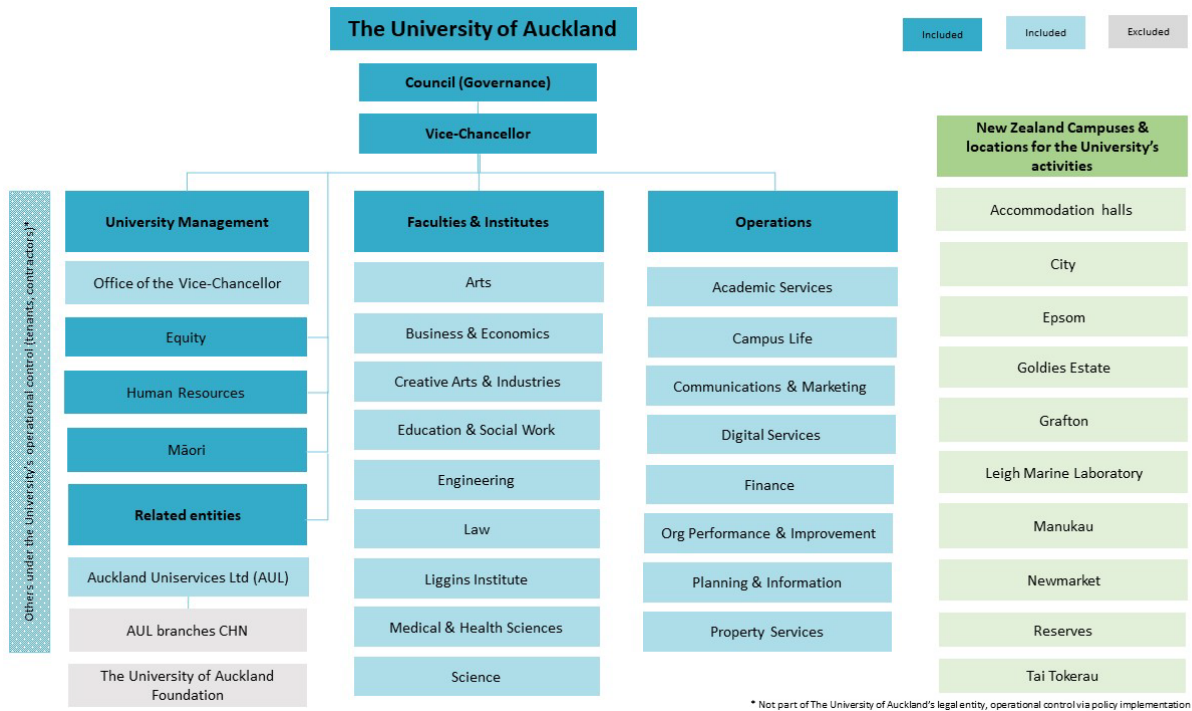


Figure 2: Organisational structure showing business units included and excluded

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. Excluded emissions do not exceed 5% of the total footprint within the organisation boundary stated.

The Auckland UniServices Limited (AUL) operations in China and the Kingdom of Saudi Arabia are also excluded from the GHG emissions boundary as these are not under the University's operational control and are currently in the process of liquidation. Both will be deregistered once all regulatory requirements have been met.

Managing and reducing

This is the fourth year of reporting under the Toitū carbonreduce programme. An absolute reduction in Category 1 and 2 emissions of 2,566.88 tCO₂e has been achieved against base year. A reduction in emissions intensity (for Category 1, 2 and mandatory Category 3 and 4 emissions) of 14.42 tCO₂e/\$M has been achieved based upon a 4-year rolling average, adjusted for inflation.

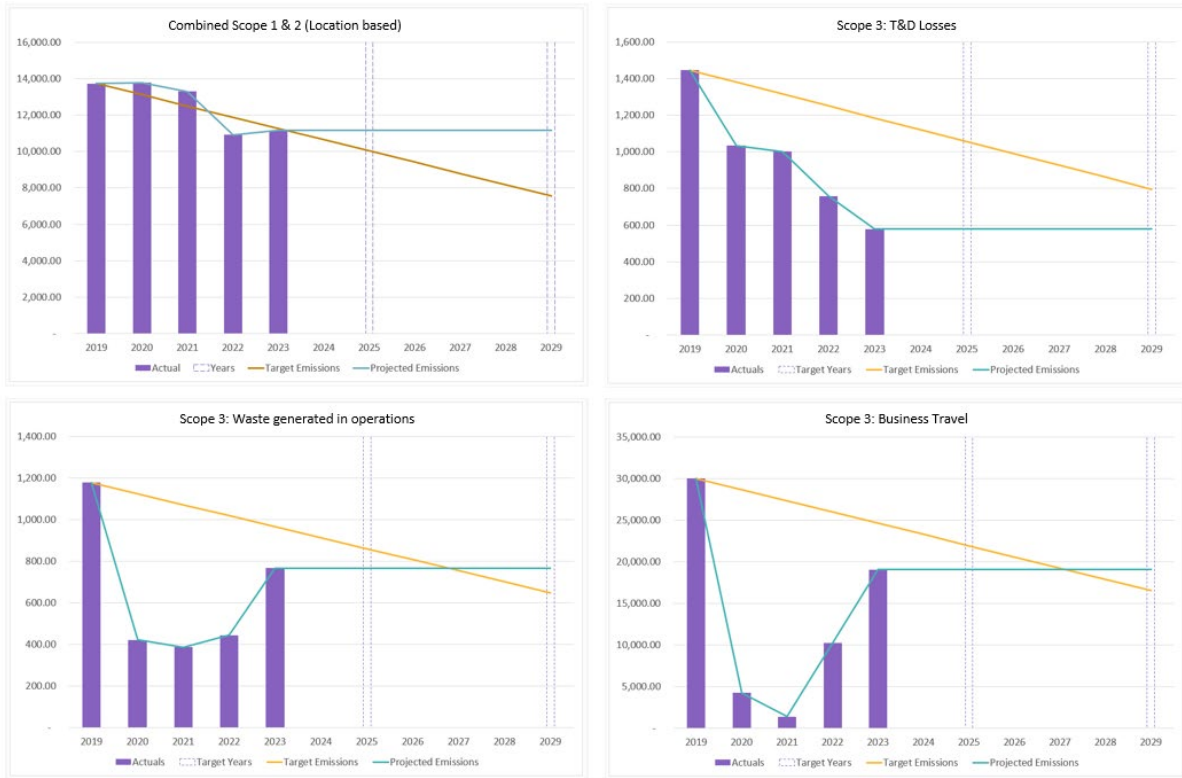


Figure 3: Performance against target since the base year

In 2023, the University’s carbon profile continued to show an overall upward trend compared to the previous year. Total emissions in 2023 were 61,929 tCO₂e, 31% higher than in 2022, indicating there is still a lot of work to do to return to the ambitious path of absolute reduction expressed in the targets. However, this general upward trend has not been strong enough to indicate a return to levels of 2019. Considering that 2023 is the first full year of the University’s activities not being directly influenced by Covid-19, it is encouraging to see that emissions have not ‘fully bounced back’ and that efforts to limit emissions are happening across most key activities.

The three key sources of emissions for this reporting period were once again air travel and associated accommodation, electricity, and gas. Emissions from waste are also included in the target commitments and are closely monitored.

Work related air travel represented 28% of the total gross emissions, 8% more than in 2022. This activity has emissions 80% higher than in 2022. Despite the increase, work-related air travel remains 40% lower than the 2019 baseline.

The indirect emissions from imported energy (location-based method) dropped 1% since 2022 to 5,395 tCO₂e. The slight drop was the result of emission factor changes. The University’s consumption of electricity (kWh) has increased 8% from 2022, and an increase of approximately 3,000,000 kWh against the 2019 baseline. This trend is expected as part of decarbonisation efforts as gas consumption and resulting emissions have both decreased by 3.4 and 3.3 % respectively since 2019. Decarbonisation efforts also include purchasing certified carbon zero electricity and ensuring 100% renewable electricity sourcing via Renewable Energy Certificates for any portion of electricity that is not carbon zero certified.

As anticipated, 2023 activity is showing a more complete picture of performance against targets. This year, the University’s operations are no longer under the level of influence Covid-19 had in prior years.

Although performance trends are no longer showing on track to meet the ambitious targets of the Net Zero progressive pathway, the data shows that efforts to avoid ‘going back to normal’ in relation to the greenhouse gas emissions of Waipapa Taumata Rau’s activities have been successful.

Emissions from Staff and Students Work Related Air Travel were 39% lower than in 2019. Energy and fuel related emissions show a decrease of 15.5%, while emissions from waste are more than 38% below the baseline.

The collective efforts, especially those across divisions with key operational responsibilities are producing visible, tangible results. The next two years will be critical as implementation plans continue to mature and projects and initiatives increase the level of ambition. The emissions recorded in 2024, together with the trends observed today, will guide the review of targets in 2025.

Te Taumata Tukuwaro-kore Net Zero Carbon Progressive Pathway - Target name	Baseline period	Target date	Reduction target	Type of target (intensity or absolute)	Current performance (tCO₂e)	Current performance (%)	Comments	Interim target date	Interim reduction target	Current performance against 2025 interim target
Work related Air travel, staff and students	2019	2030	50%	Absolute	17,825	-39.02	Performance is based on verified 2019 figures	2025	25%	Achieved and surpassed
Energy and fuel	2019	2030	50%	Absolute	10,618	-15.55	Performance is based on verified 2019 figures	2025	25%	Further 9.45% reduction required
Waste	2019	2030	50%	Absolute	610	-38.44	Performance is based on verified 2019 figures	2025	25%	Achieved and surpassed

Commitments

Reduction targets

Waipapa Taumata Rau | The University of Auckland is committed to managing and reducing its emissions. Waipapa Taumata Rau | The University of Auckland’s commitments, including GHG emissions reduction targets and plans, have been reviewed and are in line with Toitū carbonreduce programme requirements.

Targets have been set as part of the commitments of Te Taumata Tukuwaro-kore | Net Zero Carbon Strategy, published in Q4 2022.

Progressive pathway and targets - Te Taumata Tukuwaro-kore -Net Zero Carbon Strategy, November 2022						
Ambition level	Source	2022	2023	2024	2025	2030
Net Zero boundary (GHG baseline 2019)	<ul style="list-style-type: none"> - Travel (work related) - Energy - Waste (landfill and recycling) 	Develop Implementation Plan	Launch implementation plan	Launch implementation plan	25 % Reduction Target	50% Reduction Target
Extended Net Zero boundary (GHG baseline 2019 gaps)	<ul style="list-style-type: none"> - Travel (international students inbound) - Waste: construction and demolition - Working from home - Staff and student commuting - Freight and couriers 	Start/improve data gathering	Establish / Improve baseline	Set Targets		Achieve target set in 2024
Data improvement, monitoring (2025 target review cycle)	<ul style="list-style-type: none"> - Embodied Carbon (from materials) - Information and Communication Technology - Food on campus 	Develop	Start data gathering	Assess significance	Set targets / develop implementation plan	Achieve targets set in 2025
Mitigation programme for residual emissions	- Mitigation boundary	Establish mitigation boundary	Develop a well-informed, evidence-based carbon mitigation programme	Develop a well-informed, evidence-based carbon mitigation programme	Begin mitigation programme	Achieve Net Zero Trajectory Status

Looking ahead, Waipapa Taumata Rau | The University of Auckland is currently focused on the following projects.

See Net Zero Carbon Progressive Pathway in: Te Taumata Tukuwaro-kore | Net Zero Carbon Strategy

Measure	Project	Detail	Responsibility	Status/Completion date/BAU	Potential co-benefits	Potential unintended consequences	Actions to minimise unintended consequence
Work related air travel	Include environmental and carbon principles in the University's travel policy.		Strategic Procurement	Completed	Some potential for cost savings although with cost of air travel increases post Covid-19 savings are not expected to be as significant.	Research and teaching connections and collaboration may be debilitated, research may be delayed or disrupted. Also risk of University weakening its global standing due to less physical presence and interaction on international forums.	Consultation and engagement pre and post policy update. https://www.auckland.ac.nz/en/about-us/about-the-university/policy-hub/enabling-environment/finance-capital-risk/travel/travel-policy.html
	Create Air Travel Dossier in the new Enterprise Management System to provide better tools for Managers to assist decision making about air travel.		Strategic Procurement, Planning & Information Office, Sustainability Office	Version 1 published Q4 2023	Improved alignment with the University's data governance strategy.	None anticipated	n/a

Measure	Project	Detail	Responsibility	Status/Completion date/BAU	Potential co-benefits	Potential unintended consequences	Actions to minimise unintended consequence
Energy and Fuel	B201 - Elimination fossil fuel consumption on-site with all electric HVAC, central plant and domestic hot water to be generated through electric reverse cycle air source heat pumps.	The new 201 building does not use any natural gas. All the buildings cooling, heating, and domestic hot water demands are met with heatpumps.	Property Services	completed			
	B201- Low and Zero Global Warming Potential refrigerants in all large chillers and heat pumps	This is expected to reduce emissions associated with refrigerant leakage by over 80%.	Property Services	completed			
	B201- photovoltaic arrays providing 10% of the buildings energy.	Two PV arrays (L10 and L6) generate renewable electricity for the building. In the first three months of monitoring, the PV arrays have generated 38,560 kWh of electricity, making up 10.83% of the building's total electricity usage.	Property Services	Completed			

Measure	Project	Detail	Responsibility	Status/Completion date/BAU	Potential co-benefits	Potential unintended consequences	Actions to minimise unintended consequence
	B201- The building's glazing uses a Low-E double-glazed insulating glass unit with a spectrally selective coating to minimise solar gain whilst providing high levels of daylight. The new glazing provides both a 70% reduction in solar gains over the original glazing and halves the building's annual heating demand.	In the first 3 months, the building has an energy use intensity of 70 kWh per m ² per annum which is more than 50% lower than a standard NZGBC building (150 kWh per m ² per annum).	Property Services	Completed			
	The new building envelope reduces the whole of building energy consumption by over 25% and is targeting an air permeability of 5.0 m ³ /hr/m ² at 50Pa which will make it the first and largest building in New Zealand to be pressure tested for air permeability.		Property Services	Completed			

Measure	Project	Detail	Responsibility	Status/Completion date/BAU	Potential co-benefits	Potential unintended consequences	Actions to minimise unintended consequence
	B250 Removed gas boiler for space heating . Part of Sector 200 - Decarbonisation via East power infrastructure upgrade. Electrification and decarbonisation of the building and the district heating network it supports.	Annual verified energy savings of 254,937 kWh or \$11,409 or 51.96 tCO ₂ -eq	Property Services	Completed			
	Waipapa Marae - Replaced all gas heating and kitchen equipment with electricity.	Monitoring under way to assess energy savings.	Property Services	Completed			
	Waipapa Marae - Replaced all gas heating and kitchen equipment with electricity.			Completed			
	Waipapa Marae Installed efficient underfloor heating and new LED light fittings			Completed			

Measure	Project	Detail	Responsibility	Status/Completion date/BAU	Potential co-benefits	Potential unintended consequences	Actions to minimise unintended consequence
	B260- Audit recommendations implemented including:	The B260 chiller optimisation and upgrade to VSD was completed and implemented—annual savings of 320,866 kWh or \$60,000 were achieved.	Property Services	Completed			
	B260 chiller upgrades. Modification of two of the three main building chillers (not data centre) to be more energy efficient.			Completed			
	B_OCH Old Choral Hall - Changed plans for consented gas and heating systems and replaced with electric reverse cycle heat pumps	Confirmed, project will not have gas as energy source.	Property Services	Construction Underway			
	B620 Carpark Lighting Upgrades	Converting to high efficiency lighting devices	Property Services	Construction Underway			
	B260 Carpark Lighting Upgrade	Converting to high efficiency lighting devices	Property Services	Construction Underway			
	500 Sector Lecture Theatre Lighting Upgrades	Converting to high efficiency lighting devices	Property Services	Completed Jan 2024			

Measure	Project	Detail	Responsibility	Status/Completion date/BAU	Potential co-benefits	Potential unintended consequences	Actions to minimise unintended consequence
	B620 Cycling End of Trip Facilities	Three showers, a drying room, lockers and powerpoints are now available to support cyclists at the end of their commute.	Property Services	Completed	Co-benefits include increased wellness for cyclists, via increased hygiene and security.		
	B614 O'Rorke Dining Heating	Dining and study spaces gas heaters were converted to electrical devices.	Property Services	Completed			
	Review of Fleet (owned and leased) to inform management improvements and next steps		Property Services	Completed			
Waste	B_OCH Old Choral Hall - Construction waste recovery/recycling and diversion from landfill	<p>1 of 2 participating projects for Phase 1 of C&D waste assessment and monitoring.</p> <ul style="list-style-type: none"> • Total Waste Generated: 803 tonnes • Waste Recovery: 490 tonnes (61%) • Waste to Landfill: 313 tonnes (39%) 	Property Services	In progress	This will enable Phase 2 and 3, streamlining of C&D waste monitoring and reduction via contractor engagement.		

Measure	Project	Detail	Responsibility	Status/Completion date/BAU	Potential co-benefits	Potential unintended consequences	Actions to minimise unintended consequence
	B_201 - Construction waste recovery/recycling and diversion from landfill (this is a GreenStar 6 Desing and Built)	2 of 2 participating projects for Phase 1 of C&D waste assessment and monitoring. <ul style="list-style-type: none"> • Total Waste Generated: 7,124 tonnes • Waste Recovery: 6,432 tonnes (90%) • Waste to Landfill: 706 tonnes (10%) 	Property Services	Completed	This will enable Phase 2 and 3, streamlining of C&D waste monitoring and reduction via contractor engagement.		
	Waipapa Marae - Used equipment re-homed via online auction to avoid waste.		Property Services	Completed			
	UoA wide - Formalised process to prevent furniture from going to landfill. Waste diversion from landfill - Repurpose and rehome furniture and other materials from decants and refurbishments		Property Services	In progress			
	UoAEvents - Pizza guidelines to limit amount of pizza boxes	Pizza guidelines publicly available online.	Campus Life	Completed			

Measure	Project	Detail	Responsibility	Status/Completion date/BAU	Potential co-benefits	Potential unintended consequences	Actions to minimise unintended consequence
Progressive pathway - Net zero extended boundary	Wynyard Street	Sustainable streetscape. Prioritising people and biodiversity over cars and improve the way water flows on the land, much improved accessibility lungs. Increase biodiversity through a range of native plantings and integration of a planted lung which includes a rain garden. Improvement in resilience of the estate infrastructure (underground services routes and storm water drainage future proofed.	Property Services	In progress	improved amenity for staff, students and visitors, improved accessibility, well-being, security and lighting, increased distinctive sense of place and visible presence demonstrating the cultural narrative, improved traffic flow and site safety.		

Measure	Project	Detail	Responsibility	Status/Completion date/BAU	Potential co-benefits	Potential unintended consequences	Actions to minimise unintended consequence
	Newmarket landscape	Original project design (concrete mass and gravel) reviewed and adjusted to significantly reduce impervious surface, enable stormwater treatment and improve biodiversity. Create a nature rich environment including trees planting to provide shade, attract wildlife and increase biodiversity, add covered and uncovered seating, Enabling Stormwater Treatment – raised boardwalk and improved flood resilience. A sustainable solution for a challenging site that tends to create water pools at the low point.	Property Services	In progress	integration of a cultural narrative specific to Newmarket and its place in Aotearoa, Improved site access, Improved Site Safety, Improve circulation and amenities.		

Measure	Project	Detail	Responsibility	Status/Completion date/BAU	Potential co-benefits	Potential unintended consequences	Actions to minimise unintended consequence
	University of Auckland Community Garden	Underway. Feasibility and concept stage	Property Services, Environment and Sustainability sponsored	In progress	Co-benefits may include enhanced wellness, connection to nature and a sense of community for staff and students, increased understanding of biodiversity, urban food production, composting and sustainable living. Potential to utilise garden site in formal teaching, learning, and research in addition to extracurricular contexts.		

Certificate details

CERTIFICATION STATUS:	Toitū carbonreduce certified organisation
CERTIFICATE NUMBER:	2024337J, Year 1 of 3 year certificate period ^v
ISSUED:	16 October 2024
VALID UNTIL:	16 October 2027
MEASUREMENT PERIOD:	01 January 2023 to 31 December 2023
BASE YEAR:	01 January 2019 to 31 December 2019
AUDITED BY:	Toitū Envirocare
ASSURED BY:	Toitū Envirocare
CERTIFIED BY:	Toitū Envirocare
LEVEL OF ASSURANCE:	Reasonable categories 1 & 2 and category 3 air travel emissions from staff and students. Limited for remaining categories

ⁱ ©Enviro-Mark Solutions Limited 2020.

Disclaimer: This Certification Summary Statement is a summary of the information (validated and verified for relevant components of the certification) considered for certification and the certification decision. It should not be taken to represent the full submission for certification. Whilst every effort has been made to ensure that the information in this Statement is accurate and complete, Enviro-Mark Solutions Limited (trading as Toitū Envirocare) does not, to the maximum extent permitted by law, give any warranty or guarantee relating to the accuracy or reliability of the information.

Enviro-Mark Solutions Limited (trading as Toitū Envirocare) head office located at Level 11, 11 Britomart Place, Auckland 1010, New Zealand is a third-party validation / verification body.

ⁱⁱ The mandatory sources that must be included in any Toitū carbon programme inventory include:

- All direct emissions from the activities of the organisation, or the part of the organisation being certified. Direct emissions come from assets owned or controlled by the organisation, such as emissions from fleet vehicles, boilers, generators and HVAC systems.
- All emissions from imported energy (electricity, heat and steam)
- Emissions from business travel and freight paid for by the organisation
- Emissions associated with waste disposed of by the organisation, as well as the transmission and distribution of electricity, and natural gas

ⁱⁱⁱ All purchased and generated energy emissions are dual reported using both the location-based method and market-based method in the certified Inventory Report and appendices. This summary document presents the information using the location-based method. Note that reductions and any required compensation are assessed using that method. Dual reporting illustrates the role of supplier choice, onsite renewable energy generation and contractual instruments in managing indirect emissions from energy alongside any ongoing energy efficiency and reduction efforts. This dual reporting aligns with ISO 14064-1:2018 and the GHG Protocol. Please contact this organisation for the dual reporting details applicable to this inventory.

^{iv} Control: 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.

^v In year 1 (recertification year) of the certificate validity period, this certification summary statement also serves as the verification/validation statement required by paragraph 9.7 of ISO 17029:2019. In year 2 or 3 (surveillance year) this certification summary statement serves only as a summary of the results of the verification/validation of the GHG Statement.



Toitū carbonreduce organisation certified: The University of Auckland including Auckland Uniservices Limited, all campuses and operational emissions



Measured emissions to **ISO 14064-1:2018** and **Toitū requirements**

A C H I E V E M E N T C L A I M S

Measure period: 1/1/2023 to 31/12/2023

Toitū boundary, category 1: 5,771.49 tCO₂e
Toitū boundary, category 2: 5,395.07 tCO₂e
Toitū boundary, category 3-6: 18,974.26 tCO₂e
Toitū boundary, total: 30,140.81 tCO₂e

Additional emissions, category 3-6: 31,788.54 tCO₂e

All measured emissions: 61,929.35 tCO₂e



Committed to managing and reducing against **Toitū requirements**

C O M M I T M E N T C L A I M S

Toitū boundary cat 1 and 2: - 2,566.88 tCO₂e against base year

Toitū boundary, total: - 14.42 tCO₂e/\$M based on a 4 year rolling average

Reduce absolute total energy and fuel emissions by 25% by the year 2025, relative to base year.

Reduce absolute total work related travel emissions by 50% by the year 2030, relative to base year.

Date issued: 16 October 2024 | Valid until: 16 October 2027 | Certificate Number: 2024337J | Certification Status: Certified Organisation

Company Address: 16 Princes Street, Auckland CBD, Auckland, 1010, New Zealand | Level of Assurance: Reasonable categories 1 & 2 and category 3 air travel emissions from staff and students. Limited for remaining categories.

Audited by: Toitū Envirocare | Assured by: Toitū Envirocare | Certified by: Toitū Envirocare

This is a summary of the annual work to achieve Toitū carbonreduce certification. Additional details of this carbon inventory and associated verification, reductions and offsets are available on request from the certified Organisation.