



ORGANISATION AUDIT REPORT

Toitū carbonreduce and Toitū net carbonzero certification programmes
Verification



Organisation:

Waipapa Taumata Rau | The University of Auckland

Lead Auditor	Neil Gilbert
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Report date	20 September 2022
Report reviewed by	Sonia Groes-Petrie, Toitū Envirocare, 10 October 2022

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	Programme Technical Requirements 3.1, Certification Mark Guide v 3.0, Technical requirements Audit v3.0, ISO 14064-1:2018, ISO 14064-3:2019
Audit date	04, 05 and 08/08/2022
Reporting year	01/01/2020 to 31/12/2020
Base year	01/01/2019 to 31/12/2019
Consolidation methodology	Operational control
Materiality threshold	5%
GHG statement (certification claim)	Toitū carbonreduce organisation certified: Waipapa Taumata Rau 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 Sustainable Estate and Operations Working Group (SEOWG)
Registered office address	22 Princes Street, Auckland, 1010, New Zealand
Locations visited	1. 12 Grafton Road, Auckland Central 2. 3 Grafton Road, Auckland Central
Audit Type	Verification only
Activities undertaken remotely	Verification of some emission sources, planning & reporting

CONCLUSION

The following total emissions have been verified:

Emissions summary by scopes	All verified emissions – Market based	All verified emissions – Location based	Mandatory Programme Boundary	Units
Category 1 total	5,723.70	5,723.70	5,723.70	tCO ₂ e
Category 2 total*	7,314.03	8,052.78	8,052.78	tCO ₂ e
Category 3 mandatory	4,092.22	4,092.22	4,092.22	tCO ₂ e
Category 3 additional	160.28	160.28	0.00	tCO ₂ e
Category 4 mandatory	1,249.15	1,249.15	1,249.15	tCO ₂ e
Category 4 additional	301.43	301.43	0.00	tCO ₂ e
Category 5 mandatory	0.00	0.00	0.00	tCO ₂ e
Category 5 additional	0.00	0.00	0.00	tCO ₂ e
Category 6 mandatory	0.00	0.00	0.00	tCO ₂ e
Category 6 additional	0.00	0.00	0.00	tCO ₂ e
Total inventory:	18,840.81	19,579.56	19,117.85	tCO₂e
Emissions intensity:	0.00	15.87	15.51	tCO ₂ e/\$M ¹

* Location-based and Market-based totals respectively. Includes purchased steam.

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 second year of reporting under the Toitū programmes and the first year under the Toitū carbonreduce programme. An absolute increase in Category 1 and 2 emissions of 903.59 tCO₂e has occurred against base year. A reduction in emissions intensity (for Category 1, 2 and mandatory Category 3 and 4 emissions) of 9.87 tCO₂e/\$M has been achieved based upon a 2-year rolling average, adjusted for inflation.

Following GHG Protocol Guidance, Category 2 electricity emissions results are now shown using both the location-based method and market-based method; this is known as dual reporting. Under the location-based method to calculate Category 2 emissions the grid average emission factor is applied, whereas a verified supplier specific emission factors and a Residual Supply Mix factor are applied for the market-based method, depending on the applicable instruments. This enables organisations who have taken action to manage their Category 2 carbon footprint through the use of contractual instruments to quantify the impact against the rest of the market. Organisations that purchase carbon neutral electricity sourced from a renewable energy generator also have to dual report emissions. It is considered a supplier-specific factor, and any other electricity is calculated using the Residual Supply Mix factor under the market-based method.

Waipapa Taumata Rau | The University of Auckland consumed 65,008,970 kWh of electricity. As Waipapa Taumata Rau | The University of Auckland purchased some of its electricity from a renewable energy provider, it is able to use a specific emissions factor that reflects the electricity generated from this source. Using the market-based method, the electricity emissions equate to 7,062.33 tCO₂e, with the Ecotricity portion equating to 0 tCO₂e. Using the location-based method for all electricity (i.e., the grid average emissions factor) electricity emissions equate to 7,801.08 tCO₂e.

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

SCOPE AND BOUNDARIES

The scope of the emissions inventory includes all activities within the operational boundaries of the University of Auckland, including but not limited to Air travel, accommodation, electricity, natural gas, fuel, rental cars and waste. It is noted that there are a range of activities that have previously been shown to be *de minimis*, or for which no data was available. Therefore these are excluded from the scope of the inventory. These include but are not limited to:

- Student and staff commuting
- Construction and demolition work
- Freight and courier use
- Staff travel that has been reimbursed
- Special category waste

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 primary verification was conducted varied depending on level of controls noted at the emission source level.</p>	Natural Gas, Electricity, Steam, Air travel, Waste landfill, Recycling, Water supply, Wastewater
<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>	Diesel, Accommodation (NZ and overseas), Bus travel, Rental Cars, Refrigerant gases, Enteric fermentation

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	Logo not currently being used
The requirement to maintain a complaints procedure	Meets scheme requirements.
Purchase of renewable energy certificates meets programme criteria for target setting/offsetting	Not assessed.
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 zero non-conformances, three minor non-conformances and zero 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: High

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

ADDITIONAL NOTES

A well-presented inventory with a high standard of supporting data and information.

The client has provided a preliminary management plan and will provide a full management plan including a reduction target in Year 2 in line with the Toitu carbon programme technical requirements (R9.9).

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 and Limited for Air Travel Long Haul data (Category 3 additional). No assurance is given over validation of future GHG estimates or other validation activities.
Qualifications	None.

FINDINGS LOG

Date issued:	09/08/2022
Verifier:	Neil Gilbert
Company issued to:	Waipapa Taumata Rau 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.
mNCR1	Taxi (Regular) To include the data for Corporate Taxis	Closed	mNCR	Optional to update emanage and provide the report to the auditor	20/09/2022	Updated in Emanage
mNCR2	Natural Gas and Natural Gas T&D Loss Nova Energy is the only supplier of Natural Gas around ALL university controlled sites. UoA use ProEnergy to record energy consumption including Natural Gas and Electricity. The natural gas consumption figures entered manually into to the ProEnergy system. All monthly bills from Nova Energy are available for review. Total 268 monthly invoices available, sample checked 36 invoices which belonged to major emission units (covering 71% of the total Natural Gas usage), they are Waiparuru Hall, 85 Park Rd, Bldgs 501,2,3,4,5 and 10 Symonds St ,Ringmain Sectors 100, 200,300,400N and 12 invoices belonging to one construction site. Difference found in March 2020 for 10 Symonds St, reported 293095	Closed	mNCR	Optional to update emanage with supplier figure.	20/09/2022	Updated in Emanage

Ref #	Issue	Status	Type	Comments / Agreed Corrective Actions	Date closed	Evidence sighted to close out the issue where corrective action required.
	<p>kwh and found in invoice 233084 kwh, in May 2020 for Waiparuru Hall, reported 118498 kwh and found in invoice 228567 kwh, in July 2020 for Waiparuru Hall, reported 260000 kwh and found in invoice 324473 kwh, in Nov 2020 for Waiparuru Hall, reported 191665 kwh and found in invoice 127192 kwh.</p> <p>Considering the figures in Epro for Natural Gas are manually added. Auditors require for supplier annual report directly from Nova Energy. Accept the annual report from supplier.</p> <p>mNCR raised for minor variance between Epro extracted summary report with Nova supplier report. Reported figure in Epro 27,384,077 kwh and found consumption in supplier report 27,408,761 kwh.</p>					
mNCR3	<p><u>Electricity T&D Loss</u> Ecotricity do account for the T&D losses when they sell and offset their electricity so the T&D losses associated with this electricity can be captured at zero.</p>	Closed	mNCR	Optional to update Emanage by removing the Ecotricity electricity usage from electricity T&D loss.	20/09/2022	Electricity data updated in Emanage.

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.
9. This report has been prepared solely for the use of the organisation and Toitū Envirocare as part of an application for Toitū carbonreduce 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



Waipapa Taumata Rau | The University of Auckland

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

Dated: 15 September 2022

Verification status: Reasonable and Limited for Air Travel Long Haul data (Category 3 additional)

Measurement period: 01 January 2020 to 31 December 2020

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, Director Property Services

DISCLAIMER

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

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

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

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

AVAILABILITY

This report is available to support the development of the University's Net Zero Carbon Strategy 2022.

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 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.

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

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 2020 to 31 December 2020.³

This report has been produced in conjunction with 2021 Inventory Management report. Both are part of the overall Sustainable Estate and Operations work programme established in 2021. The figures reflect significant reduction in emissions that should be read within the context of the Covid-19 pandemic and the effects it had, and continues to have, in all University's activities. Border closures and Auckland lockdowns have significantly influenced the resulting emissions as work-related air travel and on campus activities were interrupted for extended periods. As the University prepares its Net Zero Carbon Strategy and implementation plans, the reductions observed in 2020 and 2021 provide clear markers that will shape initiatives currently under investigation. A complete set of projects and initiatives are to be published as part of the 2022 Inventory Management Report in 2023, as part of the University's Net Zero Carbon commitments within the Sustainable Estate and Operations Plan.

Table 1: Inventory summary

Category (ISO 14064-1:2018)	Scopes (ISO 14064-1:2006)	2019	2020
Category 1: Direct emissions	Scope 1	5,667.38	5,723.70
Category 2: Indirect emissions from imported energy (location-based method*)	Scope 2	7,205.50	8,052.78
Category 3: Indirect emissions from transportation	Scope 3	65,935.12	4,252.51
Category 4: Indirect emissions from products used by organisation	Scope 3	2,482.05	1,550.58
Category 5: Indirect emissions associated with the use of products from the organisation	Scope 3	0.00	0.00
Category 6: Indirect emissions from other sources	Scope 3	0.00	0.00
Total direct emissions		5,667.38	5,723.70
Total indirect emissions*		75,622.67	13,855.86
Total gross emissions*		81,290.06	19,579.56
Category 1 direct removals		0.00	0.00
Purchased emission reductions		0.00	0.00
Total net emissions		81,290.06	19,579.56

*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".

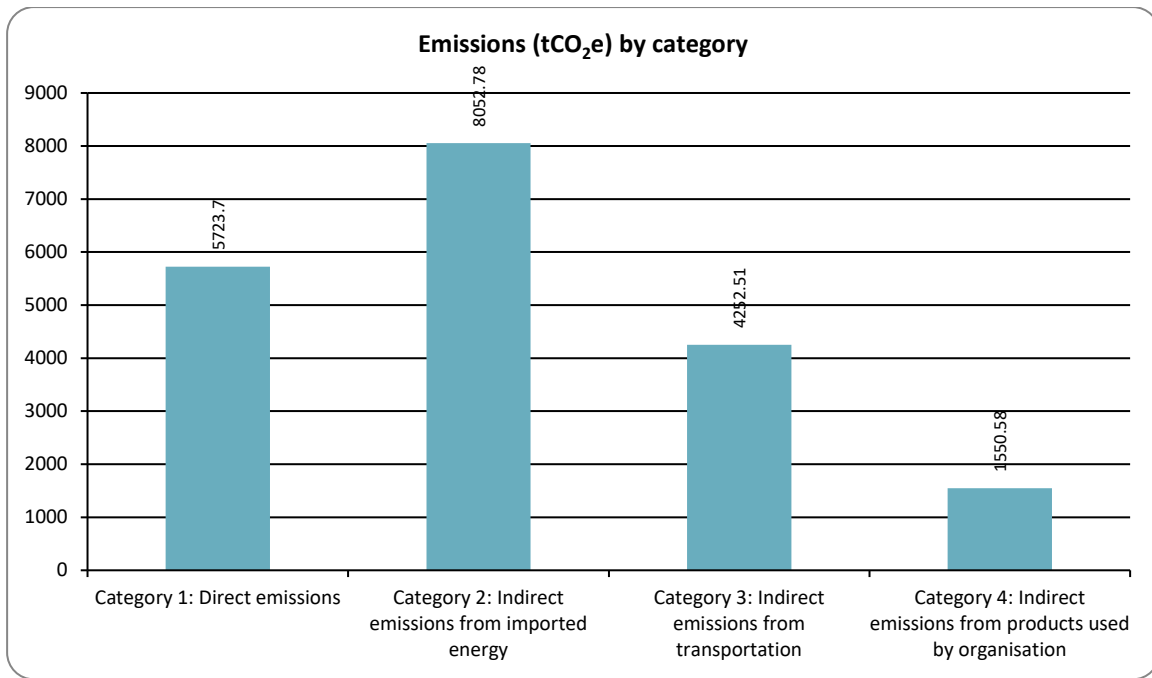


Figure 1: Emissions (tCO₂e) by Category for this measurement period

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 inform the development of the University's Net-Zero Carbon Strategy and associated Sustainable Estate and Operations Plan. The main objective is to identify the Greenhouse Gas emissions profile of the University in a manner that is consistent with best practice and latest international standards.

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

1.2. EMISSIONS INVENTORY RESULTS

Table 2: GHG emissions inventory summary for this measurement period

Measurement period: 01 January 2020 to 31 December 2020.

Category	Toitū carbon mandatory boundary (tCO ₂ e)	Additional emissions (tCO ₂ e)	Total emissions (tCO ₂ e)
Category 1: Direct emissions	5,723.70 CH ₄ , CO ₂ , Diesel stationary combustion, Diesel, Enteric Fermentation Sheep, HFC-134a, LPG stationary commercial, N ₂ O, Natural Gas distributed commercial, Petrol, R-404A, R-407C, R-410A	0.00	5,723.70
Category 2: Indirect emissions from imported energy (location-based method*)	8,052.78	0.00	8,052.78
Category 3: Indirect emissions from transportation	4,092.22 Air travel domestic (average), Air travel long haul (average), Air travel short haul (average), Rental Car average (diesel), Rental Car average (petrol), Rental Car EV - average, Taxi (regular)	160.28 Accommodation - Australia, Accommodation - Austria, Accommodation - Belgium, Accommodation - Brazil, Accommodation - Canada, Accommodation - Chile, Accommodation - China, Accommodation - Czech Republic, Accommodation - France, Accommodation - Germany, Accommodation - India, Accommodation - Indonesia, Accommodation - Italy, Accommodation - Japan, Accommodation - Malaysia, Accommodation - Mexico, Accommodation - Netherlands, Accommodation - New Zealand, Accommodation - Poland,	4,252.51

Category	Toitū carbon mandatory boundary (tCO ₂ e)	Additional emissions (tCO ₂ e)	Total emissions (tCO ₂ e)
		Accommodation - Portugal, Accommodation - Singapore, Accommodation - South Africa, Accommodation - Spain, Accommodation - United Arab Emirates, Accommodation - United Kingdom, Accommodation - United States, Air travel long haul (average)	
Category 4: Indirect emissions from products used by organisation	1,249.15 Decontamination of medical waste - Autoclaving, Electricity (T & D losses) - Pre-calculated (tCO ₂ e), Incineration of clinical waste, Natural Gas distributed T&D losses, Waste landfilled - Hampton Downs, Waste landfilled LFGR Mixed waste	301.43 Composting, Paper use - default, Waste disposal recycling of Aluminium, Waste disposal recycling of Glass, Waste disposal recycling of Paper, Waste disposal recycling of Plastic, Wastewater for treatment plants (average), Water supply	1,550.58
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	5,723.70	0.00	5,723.70
Total indirect emissions*	13,394.15	461.71	13,855.86
Total gross emissions*	19,117.85	461.71	19,579.56
Category 1 direct removals	0.00	0.00	0.00
Purchased emission reductions	0.00	0.00	0.00
Total net emissions	19,117.85	461.71	19,579.56
Emissions intensity		Mandatory emissions	Total emissions
Built environment (gross tCO ₂ e / m ²)		0.028	0.028
Equivalent Full Time Student (gross tCO ₂ e / per FTE per annum)		0.56	0.57
Operating revenue (gross tCO ₂ e / \$Millions)		15.51	15.87

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

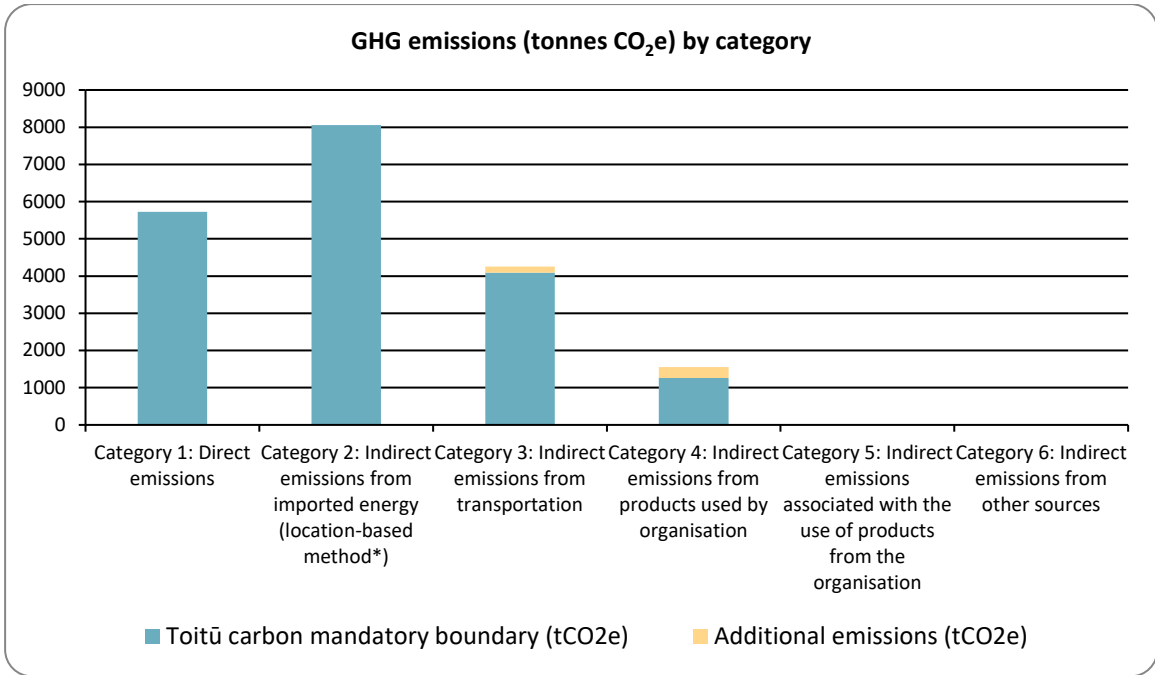


Figure 2: GHG emissions (tonnes CO₂e) by category

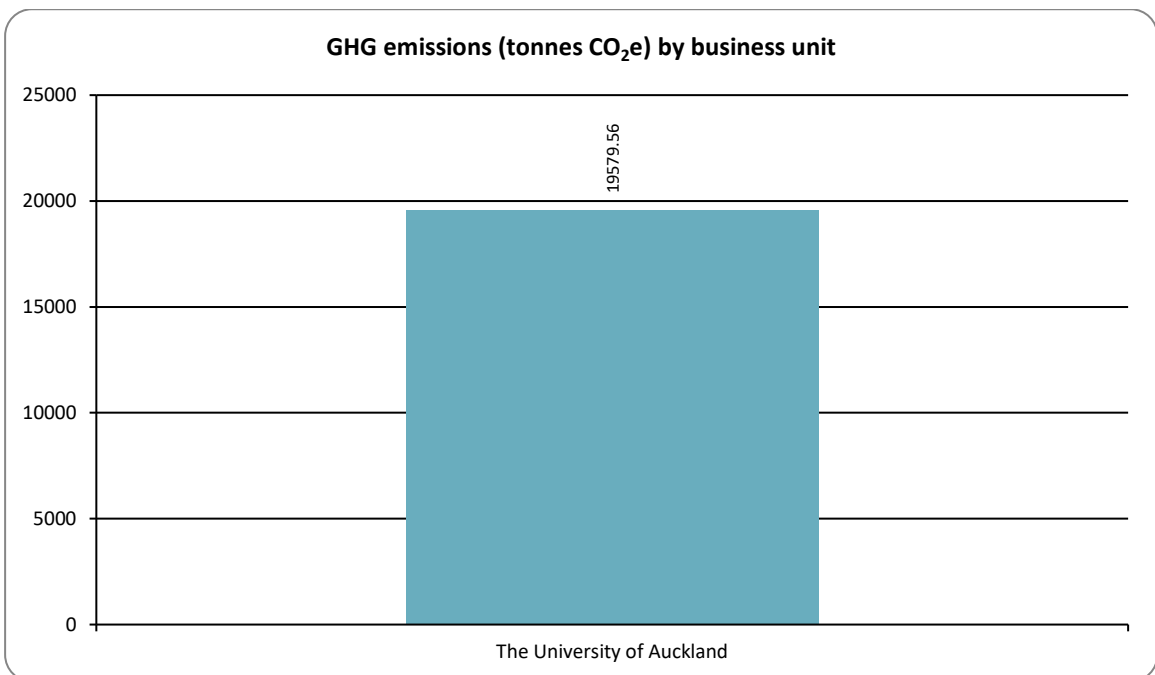


Figure 3: GHG emissions (tonnes CO₂e) by business unit

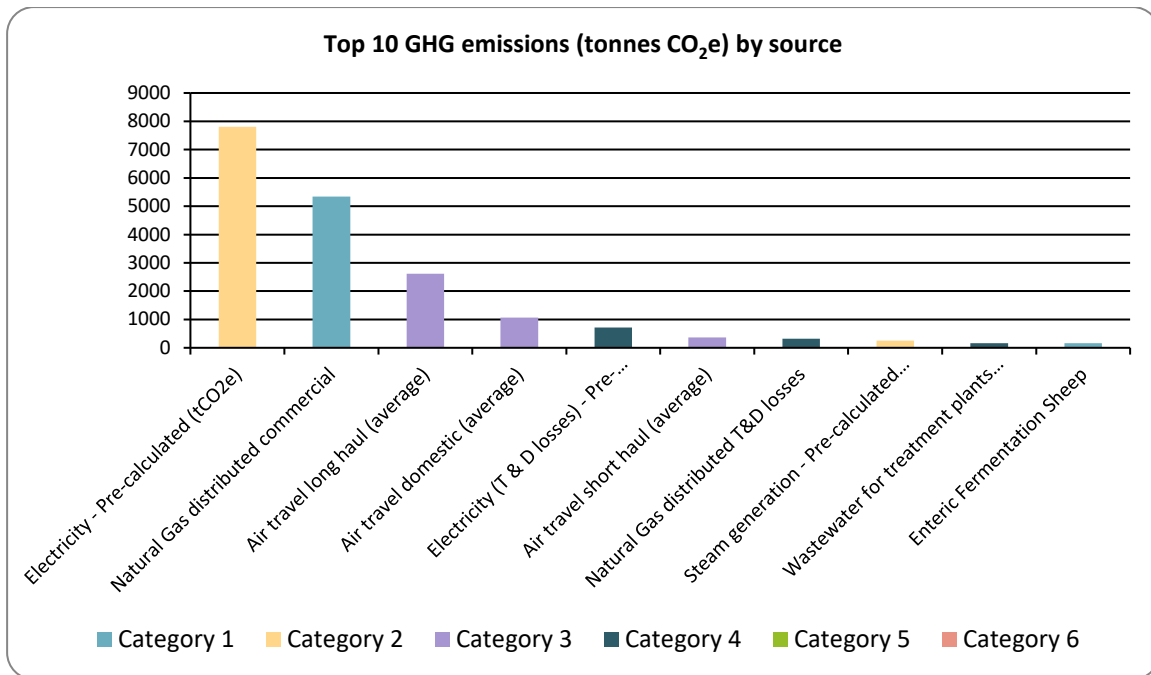


Figure 4: Top 10 GHG emissions (tonnes CO₂e) by source

1.2.1. 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.

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	5,723.70	5,723.70
Category 2: Indirect emissions from imported energy	8,052.78	7,314.03
Category 3: Indirect emissions from transportation	4,252.51	4,252.51
Category 4: Indirect emissions from products used by organisation	1,550.58	1,550.58
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	5,723.70	5,723.70
Total indirect emissions	13,855.86	13,117.12
Total gross emissions	19,579.56	11,622.18
Category 1 direct removals	0.00	0.00
Total net emissions	19,579.56	18,840.81

1.3. ORGANISATIONAL CONTEXT

1.3.1. Organisation description

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

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

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

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

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

In 2020, the University had 34,388 Equivalent Full Time Students (EFTS) and 5,985 Full Time Equivalent Staff (FTE), occupied 119 premises in New Zealand, 84 of which are owned by the University. The principal activities of the University and AUL are the provision of teaching and research services.

Commitment to certification

The University's Vision 2030 is to become internationally recognised for its unique contribution to fair, ethical and sustainable societies. This is expressed in 'Taumata Teitei Vision 2030 and Strategic Plan 2025' developed collectively with input from all sectors of the University in 2020 and published in 2021.

GHG Reporting

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

Climate Change Impacts

1.3.2. Statement of intent

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

Other schemes and requirements

The inventory is expected to align with best practice in GHG measuring and reporting, especially with ISO14064-1:2018. The Sustainable Estates and Operations working group will also assess potential alignment with international and local schemes such as the Science Based Targets Initiative (SBTi) and the New Zealand Carbon Neutral Government Programme (CNGP).

1.3.3. Person responsible

María José Baldoni, Associate Director, Sustainable Estate and Operations is responsible for overall emission inventory measurement and reduction performance, as well as reporting results to top management. María José Baldoni, Associate Director, Sustainable Estate and Operations 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

Marama Nakamura, Projects Administrator, Sustainability and Environment

Russell Baillie, Energy Manager, Facilities Management, Property Services

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

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

Muru Mohan, Asset Manager, Facilities Management, Property Services

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

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

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

Fiona Moffat Procurement Manager, Strategic Procurement

Harry Tetteroo, Procurement Manager, Strategic Procurement

Kerrin Grigg, Compliance Analyst, One Finance

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

Emily Boyd, Chemical Safety Advisor, Health and Safety

Gregg Pardoe, Livestock and Facility Manager, Liggins Institute

Rebecca Walkinton, International Student Support Services Manager, International Office

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

Marama Nakamura, Project Administrator - Data reconciliation and document management

Top management commitment

The University Executive Committee (UEC) endorsed the development of a Sustainability Strategy 2022-2030, and a Sustainability Strategy Programme was established in quarter three, 2021, co-chaired by Dean of Science, PVC Māori and PVC Pacific. The vision of the programme is to develop an ambitious and broad Sustainability Strategy that gives effect to the commitment expressed in Taumata Teitei. The Sustainability Strategy will integrate sustainability into teaching, research, operations, and engagement, and translate the University's vision into action by identifying targets and priority actions.

The programme has established four working groups to work closely with the Sustainability Programme leads and inform the development of the Strategy. One of these working groups is the Sustainable Estate and Operations Working Group, led by Simon Neale, Director of Property Services. Membership includes senior staff representing Pro VC Māori, Campus Life, Finance, Procurement, Digital Services, International Office, Planning and Information Office, Property Services, as well as academic and student representatives. The group is responsible for producing a set of deliverables, including a Net Zero Carbon Strategy, a Sustainable Estate and Operations plan and the Integrated Sustainability Reporting Standard to enable the University's progress towards overall sustainability.

Management involvement

The Associate Director, Sustainable Estate and Operations worked in collaboration with internal senior partners in other divisions to seek data from existing data bases and third-party suppliers, providing guidance, templates and clarifications in those cases in which data had not originally been collected for carbon reporting purposes.

The team then checked completeness, accuracy, and overall integrity of data, recording any limitations and assumptions in the summary data sheet and supporting documents.

1.3.4. Reporting period

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

The year 2019 was selected as a 'typical' and representative year for the University's activities and one for which data was sufficiently available. In addition, the base year 2019 reflects a comprehensive approach to Net Zero Carbon commitments in line with international best practice, including expectations to set baselines no earlier than 2015.

Measurement period of this report: 01 January 2020 to 31 December 2020

Reporting will be done annually

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 the operations of its units and service divisions and has authority to introduce operating policies and corresponding implementation plans.

Organisational structure

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

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

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

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.

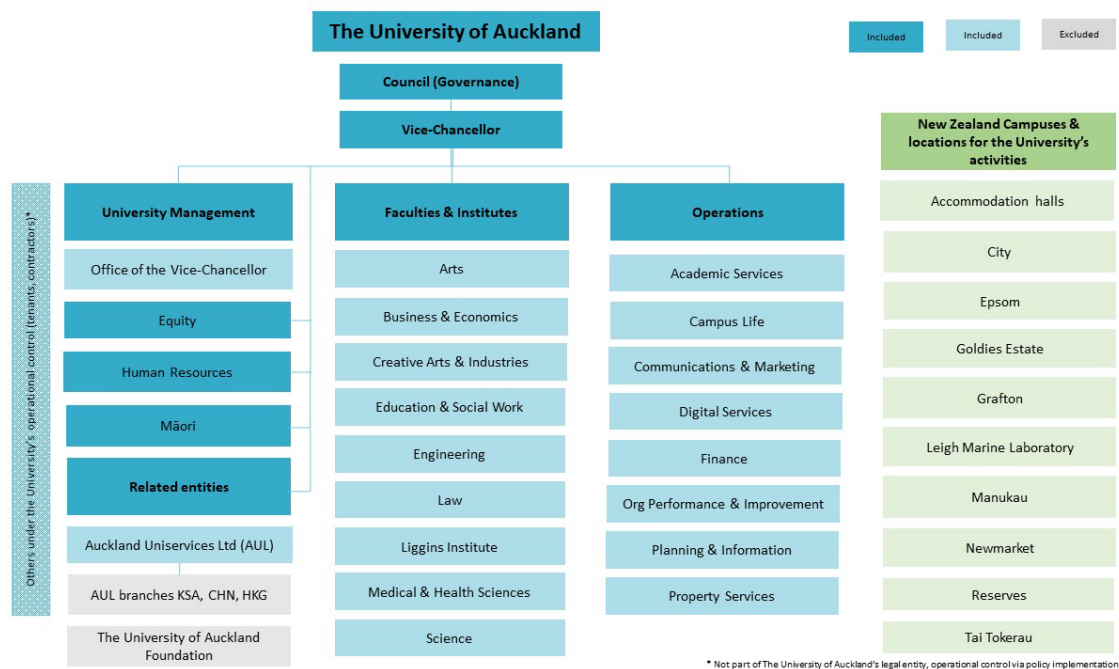


Figure 5: Organisational structure

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

ADDRESS_FULL	FACILITY_PRIMARY_USE	ORGANIZATION_TEXT2	ORGANIZATION_TEXT1
3A SYMONDS ST, AK CNTRL, AUCKLAND, 1010	SPECIAL	COMMUNAL	CENTRAL ADMIN
24 PRINCES ST, AK CNTRL, AUCKLAND, 1010	OFFICE	COMS & MARKETING	CENTRAL ADMIN
7 SYMONDS ST, AK CNTRL, AUCKLAND, 1010	GENERAL	DIGITAL SERVICES	CENTRAL ADMIN
22 PRINCES ST, AK CNTRL, AUCKLAND, 1010	GENERAL	UNIVERSITY MANAG	CENTRAL ADMIN
5 SYMONDS ST, AK CNTRL, AUCKLAND, 1010	LABS	SCIENCE	FACULTY
18 PRINCES ST, AK CNTRL, AUCKLAND, 1010	SPECIAL	CAMPUS LIFE	CENTRAL ADMIN
5 ALFRED ST, AK CNTRL, AUCKLAND, 1010	STUDY	LIBRARIES & LEARNING SERVICES	CENTRAL ADMIN
3 SYMONDS ST, AK CNTRL, AUCKLAND, 1010	LABS	SCIENCE	FACULTY
16 PRINCES ST, AK CNTRL, AUCKLAND, 1010	RESID	CAMPUS LIFE	CENTRAL ADMIN
31 PRINCES ST, AK CNTRL, AUCKLAND, 1010	SPECIAL	STRATEGIC ENGAGEMENT	CENTRAL ADMIN
19A PRINCES ST, AK CNTRL, AUCKLAND, 1010	OFFICE	STRATEGIC ENGAGEMENT	CENTRAL ADMIN
10 SYMONDS ST, AK CNTRL, AUCKLAND, 1010	GENERAL	ARTS	FACULTY
14A SYMONDS ST, AK CNTRL, AUCKLAND, 1010	GENERAL	ARTS	FACULTY

ADDRESS_FULL	FACILITY_PRIMARY_USE	ORGANIZATION_TEXT2	ORGANIZATION_TEXT1
18 SYMONDS ST, AK CNTRL, AUCKLAND, 1010	GENERAL	ARTS	FACULTY
12 SYMONDS ST, AK CNTRL, AUCKLAND, 1010	GENERAL	ARTS	FACULTY
14 SYMONDS ST, AK CNTRL, AUCKLAND, 1010	GENERAL	ARTS	FACULTY
16 SYMONDS ST, AK CNTRL, AUCKLAND, 1010	GENERAL	ARTS	FACULTY
8 GRAFTON RD, AK CNTRL, AUCKLAND, 1010	GENERAL	DIGITAL SERVICES	CENTRAL ADMIN
10 GRAFTON RD, AK CNTRL, AUCKLAND, 1010	GENERAL	ARTS	FACULTY
18 WYNYARD ST, AK CNTRL, AUCKLAND, 1010	GENERAL	UNIVERSITY MANAG	CENTRAL ADMIN
3 ALTEN RD, AK CNTRL, AUCKLAND, 1010	SPECIAL	CAMPUS LIFE	CENTRAL ADMIN
5-7 WYNYARD ST, AK CNTRL, AUCKLAND, 1010	SPECIAL	CAMPUS LIFE	CENTRAL ADMIN
6 SYMONDS ST, AK CNTRL, AUCKLAND, 1010	SPECIAL	CAI	FACULTY
16 WYNYARD ST, AK CNTRL, AUCKLAND, 1010	SPECIAL	COMMUNAL	CENTRAL ADMIN
23 ALTEN RD, AK CNTRL, AUCKLAND, 1010	SPECIAL	CAMPUS LIFE	CENTRAL ADMIN
12 GRAFTON RD, AK CNTRL, AUCKLAND, 1010	GENERAL	BUSINESS & ECON	FACULTY
20 WYNYARD ST, AK CNTRL, AUCKLAND, 1010	OFFICE	ARTS	FACULTY
23 SYMONDS ST, AK CNTRL, AUCKLAND, 1010	LABS	SCIENCE	FACULTY
38 PRINCES ST, AK CNTRL, AUCKLAND, 1010	GENERAL	SCIENCE	FACULTY
34 PRINCES ST, AK CNTRL, AUCKLAND, 1010	OFFICE	CAMPUS LIFE	CENTRAL ADMIN
9 SYMONDS ST, AK CNTRL, AUCKLAND, 1010	STUDY	LIBRARIES & LEARNING SERVICES	CENTRAL ADMIN
4 ALFRED ST, AK CNTRL, AUCKLAND, 1010	OFFICE	CAMPUS LIFE	CENTRAL ADMIN
20 SYMONDS ST, AK CNTRL, AUCKLAND, 1010	OFFICE	ENGINEERING	FACULTY
7 GRAFTON RD, AK CNTRL, AUCKLAND, 1010	GENERAL	ENGINEERING	FACULTY
9 GRAFTON RD, AK CNTRL, AUCKLAND, 1010	OFFICE	CAMPUS LIFE	CENTRAL ADMIN
24 SYMONDS ST, AK CNTRL, AUCKLAND, 1010	SPECIAL	PROPERTY SERVICES	CENTRAL ADMIN
26 SYMONDS ST, AK CNTRL, AUCKLAND, 1010	SPECIAL	CAMPUS LIFE	CENTRAL ADMIN
22 SYMONDS ST, AK CNTRL, AUCKLAND, 1010	SPECIAL	CAI	FACULTY

ADDRESS_FULL	FACILITY_PRIMARY_USE	ORGANIZATION_TEXT2	ORGANIZATION_TEXT1
20 WHITAKER PL, GRAFTON, AUCKLAND, 1010	LABS	CAI	FACULTY
44 SYMONDS STREET, GRAFTON, AUCKLAND, 1010	RESID	CAMPUS LIFE	CENTRAL ADMIN
58 SYMONDS ST, GRAFTON, AUCKLAND, 1010	PARKING	DIGITAL SERVICES	CENTRAL ADMIN
14 WHITAKER PL, GRAFTON, AUCKLAND, 1010	RESID	CAMPUS LIFE	CENTRAL ADMIN
70 SYMONDS ST, GRAFTON, AUCKLAND, 1010	OFFICE	RESEARCH INST	FACULTY
30 WHITAKER PLACE, GRAFTON, AUCKLAND, 1010	RESID	CAMPUS LIFE	CENTRAL ADMIN
35 WHITAKER PL, GRAFTON, AUCKLAND, 1010	RESID	CAMPUS LIFE	CENTRAL ADMIN
5 WHITAKER PLACE , GRAFTON, AUCKLAND, 1010	RESID	CAMPUS LIFE	CENTRAL ADMIN
85 PARK RD, GRAFTON, AUCKLAND, 1023	GENERAL	MEDICINE	FACULTY
28 PARK AVE, GRAFTON, AUCKLAND, 1023	GENERAL	MEDICINE	FACULTY
11 PARK AVE, GRAFTON, AUCKLAND, 1023	GENERAL	CAMPUS LIFE	CENTRAL ADMIN
70 SEAFIELD VIEW RD, GRAFTON, AUCKLAND, 1023	RESID	CAMPUS LIFE	CENTRAL ADMIN
2-6 PARK AVE, GRAFTON, AUCKLAND, 1023	LABS	ARTS	FACULTY
93 GRAFTON RD, GRAFTON, AUCKLAND, 1010	OFFICE	MEDICINE	FACULTY
89-91 GRAFTON RD, GRAFTON, AUCKLAND, 1010	OFFICE	COMMERCIAL	COMMERCIAL
18 CARRICK PL, MT EDEN, AUCKLAND, 1024	SPECIAL	SCIENCE	FACULTY
16 ST MARTIN'S LN, GRAFTON, AUCKLAND, 1010	RESID	CAMPUS LIFE	CENTRAL ADMIN
27 WHITAKER PL, GRAFTON, AUCKLAND, 1010	RESID	CAMPUS LIFE	CENTRAL ADMIN
160 GOAT ISLAND RD, LEIGH, AUCKLAND, 0985	LABS	SCIENCE	FACULTY
176 KEPA RD, ORAKEI, AUCKLAND, 1071	GENERAL	COMMERCIAL	COMMERCIAL
16 MOUNT ST, AK CNTRL, AUCKLAND, 1010	RESID	CAMPUS LIFE	CENTRAL ADMIN
55 SYMONDS ST, GRAFTON, AUCKLAND, 1010	RESID	CAMPUS LIFE	CENTRAL ADMIN
67 SYMONDS ST, GRAFTON, AUCKLAND, 1010	OFFICE	COMMERCIAL	COMMERCIAL
49-51 SYMONDS ST, GRAFTON, AUCKLAND, 1010	OFFICE	COMMERCIAL	COMMERCIAL
6R CARLTON GORE RD, GRAFTON, AUCKLAND, 1023	RESID	CAMPUS LIFE	CENTRAL ADMIN

ADDRESS_FULL	FACILITY_PRIMARY_USE	ORGANIZATION_TEXT2	ORGANIZATION_TEXT1
MULLINS RD, Ardmore, PAKAPURA, 2582	SPECIAL	ENGINEERING	FACULTY
38 SEAFIELD VIEW RD, GRAFTON, AUCKLAND, 1023	RESID	CAMPUS LIFE	CENTRAL ADMIN
50 SEAFIELD VIEW RD, GRAFTON, AUCKLAND, 1023	RESID	CAMPUS LIFE	CENTRAL ADMIN
62 SEAFIELD VIEW RD, GRAFTON, AUCKLAND, 1023	RESID	CAMPUS LIFE	CENTRAL ADMIN
10 CARLTON GORE RD, GRAFTON, AUCKLAND, 1023	RESID	CAMPUS LIFE	CENTRAL ADMIN
ARMEIN RD, PANMURE, AUCKLAND, 1072	SPECIAL	COMMERCIAL	COMMERCIAL
40 SEAFIELD VIEW RD, GRAFTON, AUCKLAND, 1023	RESID	CAMPUS LIFE	CENTRAL ADMIN
4 NEILPARK DR, ET, AUCKLAND, 2013	SPECIAL	LIBRARIES & LEARNING SERVICES	CENTRAL ADMIN
6 OSTERLEY WAY, MANUKAU, AUCKLAND, 2104	GENERAL	DIGITAL SERVICES	CENTRAL ADMIN
LEVEL 3, SNELGARD BLDG, WAITAKERE HOSPITAL, LINCOLN RD, HENDERSN, AUCKLAND, 0610	GENERAL	MEDICINE	FACULTY
LEVEL 1, KAHUI MANAAKI BLDG, NORTH SHORE HOSPITAL, TAKAPUNA, AUCKLAND, 0620	GENERAL	MEDICINE	FACULTY
18 CAUSEWAY RD, Waiheke , AUCKLAND, 1081	SPECIAL	CAMPUS LIFE	CENTRAL ADMIN
SELWYN ST, HM CTRL, HAMILTON, 3204	HEALTH	MEDICINE	FACULTY
HOSPITAL RD, OTAHUHU, AUCKLAND, 1062	HEALTH	MEDICINE	FACULTY
54 EPSOM AVE, EPSOM, AUCKLAND, 1023	OFFICE	EDUCATION	FACULTY
74 EPSOM AVE, EPSOM, AUCKLAND, 1023	GENERAL	EDUCATION	FACULTY
78 EPSOM AVE, EPSOM, AUCKLAND, 1023	SPECIAL	DIGITAL SERVICES	CENTRAL ADMIN
60 EPSOM AVE, EPSOM, AUCKLAND, 1023	GENERAL	EDUCATION	FACULTY
38-42 WARING TAYLOR ST, WLG CTR, WELLINGTON, 6011	OFFICE	COMMERCIAL	COMMERCIAL
ARAWA STREET, ROTORUA, ROTORUA, 3010	HEALTH	MEDICINE	FACULTY
829 CAMERON ROAD, TRG STH, TAURANGA, 3112	HEALTH	MEDICINE	FACULTY
13 ALEXANDER ST, WRE, WHANGAREI, 0110	GENERAL	EDUCATION	FACULTY
2 HOSPITAL ROAD, HORAHORA, WHANGAREI, 0110	HEALTH	MEDICINE	FACULTY
261 MORRIN RD, ST JOHNS, AUCKLAND, 1072	SPECIAL	DIGITAL SERVICES	CENTRAL ADMIN

ADDRESS_FULL	FACILITY_PRIMARY_USE	ORGANIZATION_TEXT2	ORGANIZATION_TEXT1
32 THOMAS PEACOCK PL, ST JOHNS, AUCKLAND, 1072	UNCLASS	SCIENCE	FACULTY
7 KITSON PLACE, ST JOHNS, AUCKLAND, 1072	SPECIAL	SCIENCE	FACULTY
9 EDEN CRES, AK CNTRL, AUCKLAND, 1010	OFFICE	LAW	FACULTY
15 EDEN CRES, AK CNTRL, AUCKLAND, 1010	STUDY	LIBRARIES & LEARNING SERVICES	CENTRAL ADMIN
17 EDEN CRES, AK CNTRL, AUCKLAND, 1010	OFFICE	LAW	FACULTY
18 WATERLOO QUADRANT, AK CNTRL, AUCKLAND, 1010	OFFICE	CAI	FACULTY
1-11 SHORT ST, AK CNTRL, AUCKLAND, 1010	OFFICE	LAW	FACULTY
138 ANZAC AVE, AK CNTRL, AUCKLAND, 1010	RESID	CAMPUS LIFE	CENTRAL ADMIN
133 BEACH RD, AK CNTRL, AUCKLAND, 1010	RESID	CAMPUS LIFE	CENTRAL ADMIN
128 ANZAC AVE, AK CNTRL, AUCKLAND, 1010	RESID	CAMPUS LIFE	CENTRAL ADMIN
74 SHORTLAND ST, AK CNTRL, AUCKLAND, 1010	SPECIAL	CAI	FACULTY
19-26 NICHOLLS LANE, PARNELL, AUCKLAND, 1010	RESID	CAMPUS LIFE	CENTRAL ADMIN
70 STANLEY ST, AK CNTRL, AUCKLAND, 1010	SPECIAL	CAMPUS LIFE	CENTRAL ADMIN
262 KHYBER PASS, NEWMARKE, AUCKLAND, 1023	SPECIAL	ENGINEERING	FACULTY
368 KHYBER PASS, NEWMARKE, AUCKLAND, 1023	LABS	SCIENCE	FACULTY

1.3.6. Excluded business units

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

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

CHAPTER 2: EMISSIONS MANAGEMENT AND REDUCTION REPORT

2.1. EMISSIONS REDUCTION RESULTS

The majority of the University's emissions identified in the 2019 baseline were from indirect sources, specifically from international air travel. As expected, border closures as a result of the COVID-19 pandemic had a significant effect on the University's overall carbon profile, showing a 76% reduction in emissions. This in turn changed the way other sources of emissions featured in the 2020 inventory. The three key sources of emissions in 2020 were Electricity, Gas and, in third place, Air Travel.

Table 5: Comparison of historical GHG inventories

Category	2019	2020
Category 1: Direct emissions	5,667.38	5,723.70
Category 2: Indirect emissions from imported energy (location-based method*)	7,205.50	8,052.78
Category 3: Indirect emissions from transportation	65,935.12	4,252.51
Category 4: Indirect emissions from products used by organisation	2,482.05	1,550.58
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	5,667.38	5,723.70
Total indirect emissions*	75,622.67	13,855.86
Total gross emissions*	81,290.06	19,579.56
Category 1 direct removals	0.00	0.00
Purchased emission reductions	0.00	0.00
Total net emissions	81,290.06	19,579.56
Emissions intensity		
Built environment (gross tCO ₂ e / m ²)	0.13	0.028
Built environment (gross mandatory tCO ₂ e / m ²)	0.030	0.028
Equivalent Full Time Student (gross tCO ₂ e / per FTE per annum)	2.35	0.57
Equivalent Full Time Student (gross mandatory tCO ₂ e / per FTE per annum)	0.55	0.56
Operating revenue (gross tCO ₂ e / \$Millions)	63.80	15.87
Operating revenue (gross mandatory tCO ₂ e / \$Millions)	34.40	15.51

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

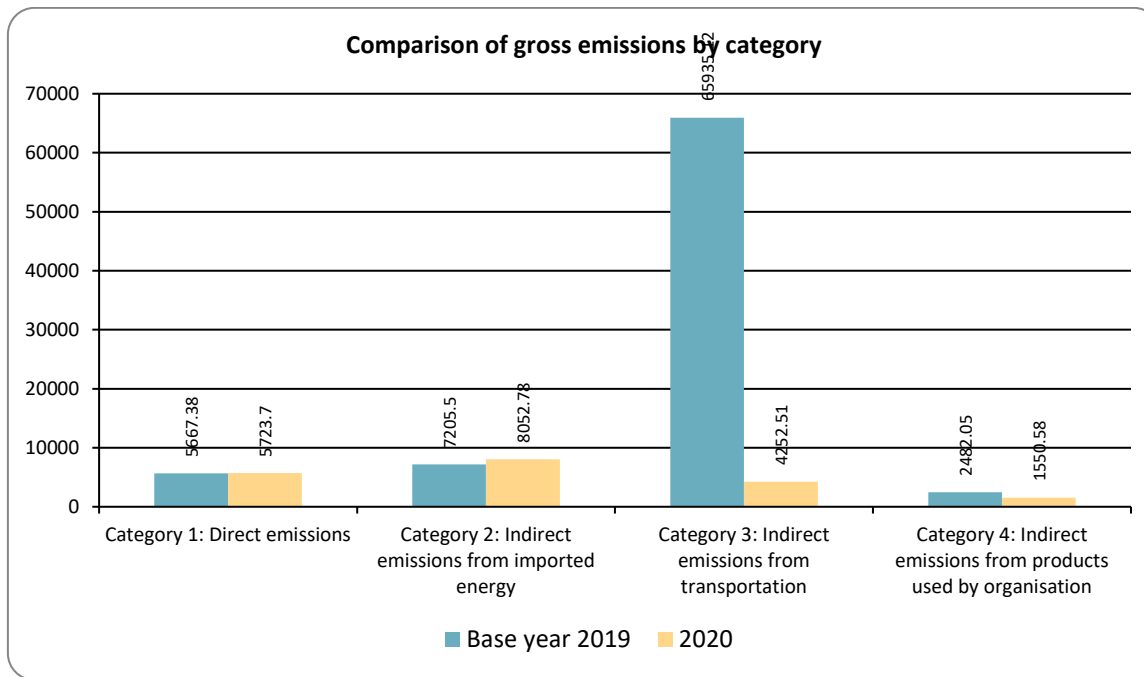


Figure 6: Comparison of gross emissions by category between the reporting periods

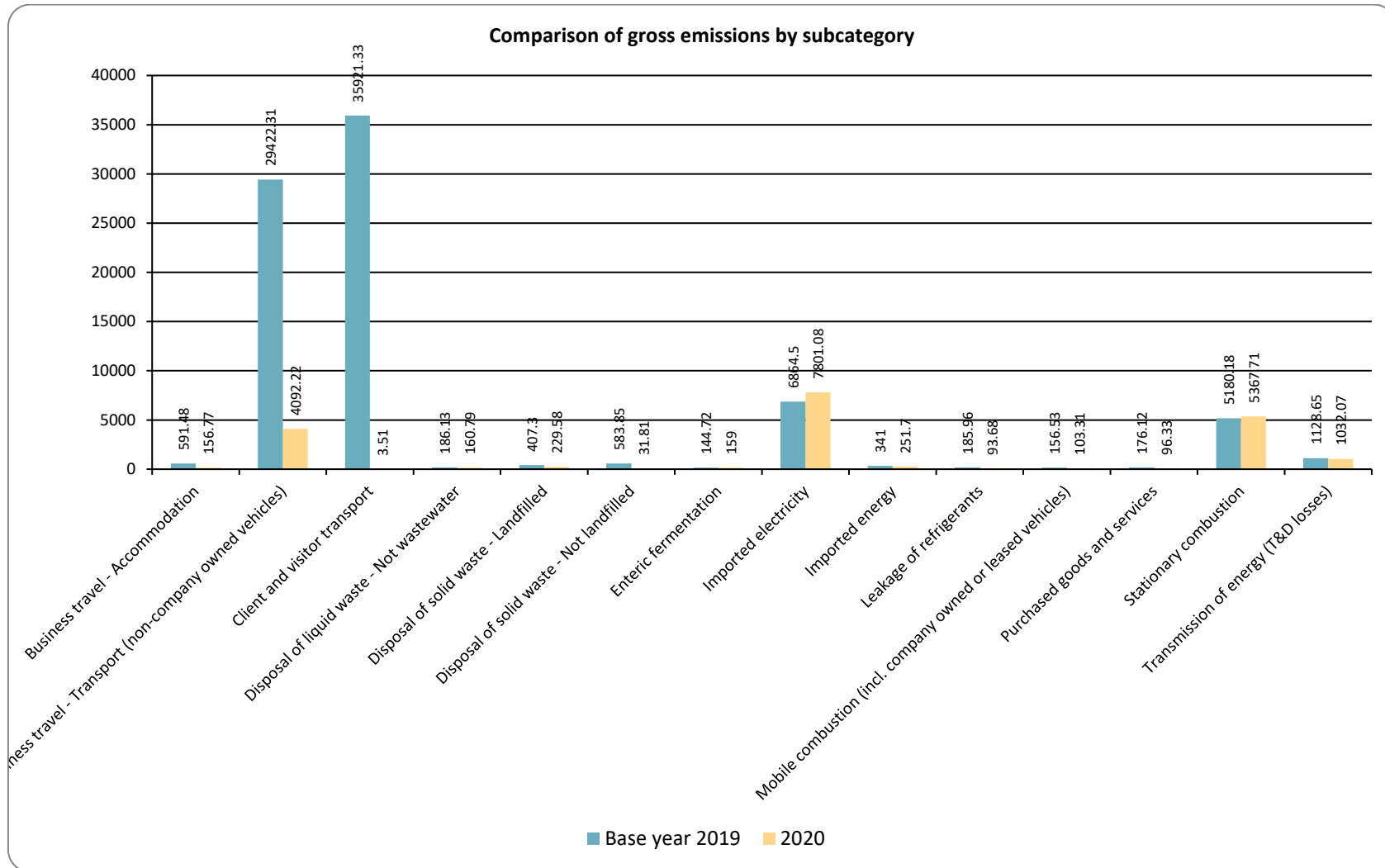


Figure 7: Comparison of gross emissions by subcategory between the reporting periods

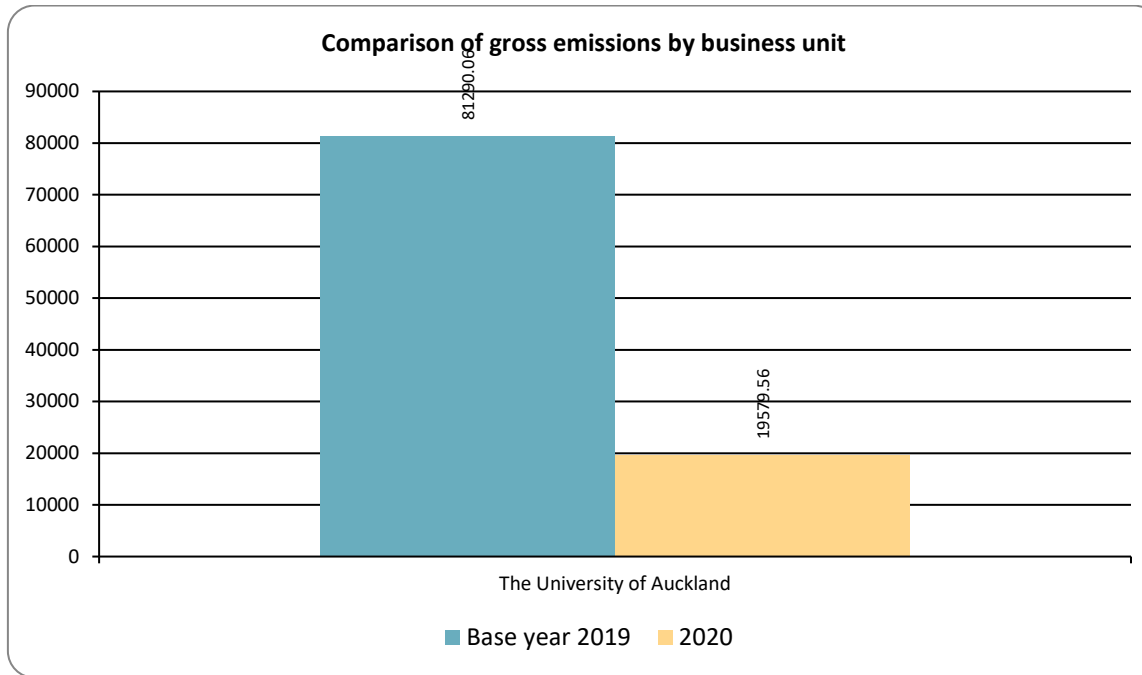


Figure 8: Comparison of gross emissions by business unit between the reporting periods

Performance against target has not been provided

Figure 9: Performance against target since base year

Table 6. Performance against plan

Target name	Baseline period	Target date	Type of target (intensity or absolute)	Current performance (tCO ₂ e)	Current performance (%)	Comments
Work related Air travel, staff and students	2019	2030	Absolute	4,020	-86.25	These reductions need to be considered within the context of Covid-19 pandemic worldwide border closures and lockdowns.
Energy and fuel	2019	2030	Absolute	13,564	-1.00	These figures need to be considered within the context of Covid-19 lockdowns.
Waste	2019	2030	Absolute	277	-72.05	These reductions need to be considered within the context of Covid-19 pandemic lockdowns.

2.2. SIGNIFICANT EMISSIONS SOURCES

Significant sources

Electricity was the largest source of emissions in 2020 and although there was an absolute reduction of electricity consumption of 7.7% against the 2019 baseline, changes in emission factors meant that these reductions were not expressed as a reduction on GHG emissions where a 13% increase is reflected. The permanent closure of Tamaki Campus in 2019 drove the reduction in electricity consumption as the closure involved the move of staff and students to more efficient buildings 507 and 907 in the city campus. Total electricity consumption for 2020 was 65,008,970 kWh.

Important: The latest emission factors for electricity have been applied, shown as pre-calculated in this IMR, as per Ministry for the Environment's Guidance published on 16 August 2022 which apply retrospectively to 2020 and 2021. Benchmarking electricity emissions against other similar organisations is not possible unless those organisations have updated their electricity emission factors accordingly.

<https://environment.govt.nz/assets/publications/Measuring-emissions-guidance-August-2022/Summary-PDF-Measuring-emissions-guidance-August-2022.pdf>

Activities responsible for generating significant emissions

The increase in emissions from natural gas consumption is also interpreted within the context of the Covid-19 pandemic. Occupants and their associated internal heat gains contribute a certain amount to space heating. Therefore, remote modes of teaching and learning and service delivery during the country's lockdowns meant that there were almost no occupants in the buildings. However, it was still necessary to keep those buildings operational for those few essential occupants who were required to be on site. This in turn required more gas to maintain the buildings' internal temperature.

Influences over the activities

As mentioned, border closures had the most impact on what had previously been the single largest source of emissions: air travel. These closures directly impacted on staff and student work related air travel as well as international students air travel, driving an overall decrease in emissions of over 75%.

Significant sources that cannot be influenced

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 will be set as part of the commitments of Te Taumata Tukuwāro-kore | Net Zero Carbon Strategy, currently under consultation and expected to be finalised and published in Q4 2022.

Table 7. Emission reduction targets

Proposed progressive pathway and targets - Under consultation Te Taumata Tukuwaro-kore -Net Zero Carbon Strategy, 18 July-5 August 2022 - Will be included in Sustainable Estate and Operations Plan after consultation, upon strategy launch.						
Ambition level	Source	2022	2023	2024	2025	2030
Net Zero boundary (GHG baseline 2019)	Travel (work related)	Develop	Launch implementation plan			50% Reduction Target
	Energy	Implementation Plan			25 % Reduction Target	
	Waste (landfill and recycling)					
	Travel (international students inbound)		Improve baseline	Set Targets		
Extended Net Zero boundary (GHG baseline 2019 gaps)	Waste – construction and demolition Working from home	Start/improve data gathering		Add to implementation plan		Achieve target set in 2024
	Staff and student commuting					
	Freight and couriers		Establish baseline			
Data improvement, monitoring (2025 target review cycle)	Embodied Carbon (from materials)				Set targets / develop implementation plan	Achieve targets set in 2025
	Information and Communication Technology Food on campus		Start data gathering	Assess significance		
Mitigation programme for residual emissions	Mitigation boundary	Establish	Develop a well-informed, evidence-based carbon mitigation programme		Begin mitigation programme	Achieve Net Zero Trajectory Status
		mitigation boundary				



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

Objective	Project	Responsibility	Completion date	Potential co-benefits	Potential unintended consequences	Actions to minimise unintended consequence
Please refer to IMR 2021 for details. The 2020 and 2021 emissions inventories were developed and audited simultaneously to ensure carbon reporting was fully up to date.						



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
Data quality improvements are covered in the 2021 inventory management report (IMR). Initiatives took place over the 2020 and 2021 period.			

The emissions inventory chapter identified various emissions liabilities (see 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
This section is covered in the 2021 inventory management report (IMR).			

2.5. STAFF ENGAGEMENT

A University wide consultation is being featured in the staff intranet and is publicly available via the University website. A Sustainability Symposium offered staff the opportunity to engage with the Sustainability and Net Zero Carbon Strategy programme leaders and sponsors, and included a poster session of 2019 GHG baseline inventory. Students were invited to participate in an online Q&A session on 25 July 2022. In addition, the Sustainable Estate and Operations Plan is expected to include a strong engagement and building capability component once the level of ambition and targets finalised and the strategies are published.

2.6. KEY PERFORMANCE INDICATORS

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

Table 11. Key Performance Indicators (KPIs).

KPI	Rationale of using the additional KPI
EFTS (Equivalent Full Time Student)	In line with University's existing service performance indicators included in the Annual Reporting.
GFA (Gross Floor Area)	In line with University's existing environmental service performance indicators included in the Annual Reporting.

2.7. MONITORING AND REPORTING

The Sustainability and Environment Team will be responsible for the monitoring and reporting as well as the metrics and other methods identified in the Sustainable Estate and Operations Plan and the Integrated Sustainability Reporting Standards once these are finalised. The team will work closely with internal partners in Pro VC Māori, Procurement, Campus Life, Finance, Digital Services, International Office, Planning and Information Office, Finance, Property Services and other areas within the University's Operations to develop and publish these monitoring plans on an annual basis.

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	5,353.83	11.14	2.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5,367.71
Mobile combustion (incl. company owned or leased vehicles)	100.41	0.58	2.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	103.31
Emissions - Industrial processes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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	32.19	0.00	0.00	0.00	0.00	61.49	0.00	0.00	0.00	0.00	93.68
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
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
Enteric fermentation	0.00	159.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	159.00
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
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
Total net emissions	5,486.43	170.73	5.05	0.00	0.00	61.49	0.00	0.00	0.00	0.00	5,723.70

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	159.00	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	165.04	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	324.04	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.

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 this 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.

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	LPG stationary commercial, Natural Gas distributed commercial, Diesel stationary combustion	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, Diesel, Petrol	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	CH ₄ , CO ₂ , N ₂ O, HFC-134a, R-404A, R-407C, R-410A	UoA prepared a reporting template and requested suppliers to fill it in, following MfE 2022 guidelines for monitoring and reporting of GHG. Top up and leakage assumed as equal during measurement period.	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		0%	Medium		
Category 2: Indirect emissions from imported energy	Imported electricity	Electricity, Electricity Toitū carbonzero certified factor Ecotricity	Assumed data from EnergyPro is accurate	Default unit and emission factor selected to report on these sources	NO
	Imported energy	Steam generation - Pre-calculated (tCO ₂ e)	Assumed data from EnergyPro is accurate	Default unit and emission factor selected to report on these sources	NO
Overall assessment of uncertainty for Category 2 emissions and removals		0%	Very 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 3: Indirect emissions from transportation	Business travel - Transport company (non-owned vehicles)	Accommodation - Australia, Accommodation - Austria, Accommodation - Belgium, Accommodation - Brazil, Accommodation - Canada, Accommodation - Chile, Accommodation - China, Accommodation - Czech Republic, Accommodation - France, Accommodation - Germany, Accommodation - India, Accommodation - Indonesia, Accommodation - Italy, Accommodation - Japan, Accommodation - Malaysia, Accommodation - Mexico, Accommodation - Netherlands, Accommodation - New Zealand, Accommodation - Poland, Accommodation - Portugal, Accommodation - Singapore, Accommodation - South Africa, Accommodation - Spain, Accommodation - United Arab Emirates, Accommodation - United Kingdom, Accommodation - United States, Rental Car average (petrol), Rental Car EV - average, Air travel domestic (average), Air travel long haul (average), Air travel short haul (average), Taxi (regular)	Assumed data from supplier is correct and accurate - Data is based on ticketing data, not actual flights boarded.	Default unit and emission factor selected to report on these sources	NO
	Client and visitor transport	Air travel long haul (average)	Higher uncertainty. Assumptions: departure airport allocated by student's country of citizenship. One way flights assumed.	Default unit and emission factor selected to report on these sources	NO
Overall assessment of uncertainty for Category 3 emissions and removals		0%	Low to medium		
Category 4: Indirect emissions from products used by organisation	Purchased goods and services	Paper use - default	Assumed supplier report accurate	Default unit and emission factor selected to report on these sources	NO
	Disposal of solid waste - Landfilled	Composting, Decontamination of medical waste - Autoclaving, Incineration of clinical waste, Waste disposal recycling of Aluminium, Waste disposal recycling of Glass, Waste disposal recycling of Paper, Waste disposal recycling of Plastic, 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.	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
	Disposal of liquid waste - Not wastewater	Wastewater for treatment plants (average)	Assumed Watercare 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, 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		0%	Low		
For more detail refer to: University of Auckland Information Management Procedures for Carbon Audit July 2022 (Version 1.0)					



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)	No data available for 2020
The University of Auckland	Construction and demolition	Indirect - category 4 - (From products and services used by the organisation)	No data available for 2020 as these data have not been systematically collected directly or via contractors to date. Construction and demolition emission sources are deemed material to the University's given the role buildings and the estate in general play in the provision of educational and research activities.
The University of Auckland	Products and services (≤ \$99,000)	Indirect - category 4 - (From products and services used by the organisation)	Data is not systematically collected in a way that enables analysis of this kind, mostly due to \$ not always suitable unit of collection for applying emission factors or lack of significance screening factor in eManage tool.
The University of Auckland	Sinks		No data available on sinks for 2020 - these data has not been systematically collected to date.
The University of Auckland	Freight and Couriers		Data available for 2020 only in \$spent. Key metric not available. The university has multiple suppliers and data collection to comply with technical guidance not yet developed - Recommendation to improve data collection due to mandatory category - best practice.
The University of Auckland	Staff travel reimbursement of accommodation, travel and fuel - air	Indirect - Category 3 (Emissions from transportation)	Data available for 2020 only in \$spent. Metrics km, litres, pNgts not available. Materiality assessment using \$ resulted in item considered <i>de minimis</i> - Recommendation to adjust data due to mandatory category - best practice
Additional notes on exclusion of source components:			
The University of Auckland	Special wastes	Indirect - Category 4 (Emissions from waste)	Chemical, battery, cytotoxic, fluoro waste excluded due to no emission factor available and no screening tool (combined weight 1,459kg)

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 Liabilities

A1.2.2.1 GHG STOCKS HELD

HFCs⁶, PFCs and SF₆ represent GHGs with high global warming potentials. Their accidental release could result in a large increase in emissions for that year, and therefore the stock holdings are reported under the Programme (Table 16).

Table 16. HFCs, PFCs and SF₆ GHG emissions liabilities

GHG gas stock held	Quantity (kg)	Potential liability (tCO ₂ e)
CH ₄	23.27	0.58
CO ₂	10,795.34	10.80
Desflurane	1.06	5.38
Diesel stationary combustion	67,262.00	182.26
HCFC-22 (R-22, Genetron 22 or Freon 22)	510.00	923.10
HFC-134a	10.50	15.02
HFC-32	8.50	5.74
Isoflurane	1.29	0.66
LPG stationary commercial	330.00	1.00
N ₂ O	71.61	21.34
Petrol	400.00	0.98
R-404A	19.00	74.51
R-407C	22.60	40.09
R-410A	132.80	277.22
R-449A	1.50	2.09
Sevoflurane	3.44	0.45
Sulphur Hexafluoride (SF ₆)	17.22	392.62
Total	79,610.13	1,953.83

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.

⁶ HFC stock liabilities for systems under 3 kg can be excluded.

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.

A1.2.3.1 DOUBLE COUNTING AND DOUBLE OFFSETTING

There are various definitions of double counting or double offsetting. For this report, it refers to:

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

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

Details

(No information supplied)

APPENDIX 2: SIGNIFICANCE CRITERIA USED

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

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

Emission source	Magnitude: Where an indirect source was anticipated or assumed to be quantitatively substantial when compared to international standards requirements	Ability to influence and engage: where the University has a reasonable ability to monitor and reduce emissions and engage staff and students	Main significance criterion: Measuring will inform decision making on Net-Zero Carbon Strategy for the University (intended use and users)	Included in the inventory
Electricity distributed T&D losses : Category 4 - Emissions from purchased fuel and energy related activities	ALL Energy T&D losses deemed significant in principle			YES
Electricity Toitū carbonzero certified factor Ecotricity : Category 2 - Indirect emissions from imported electricity	Not applicable for 2019 - only 2020 onwards due to supplier certification			n/a
Enteric Fermentation Dairy Cattle : Leigh Marine Lab			√	YES
Enteric Fermentation Sheep : Liggins Research Farm Laboratory, Wai-o-tapu.			√	YES
LPG stationary commercial :	ALL Categories 1 and 2 deemed significant in principle		√	YES
Natural Gas distributed commercial :	ALL Categories 1 and 2 deemed significant in principle		√	YES
Natural Gas distributed T&D losses : Category 4 - Emissions from the transmission of energy	ALL Energy T&D losses deemed significant in principle		√	YES
Paper use - default : Category 4 - Emissions from purchased goods		√ (measured and reported since 2011)	√	YES
Petrol : Fuel cards		√	√	YES
Rental Car average (all fuel types) :		√	√	YES
Steam generation CO ₂ e : Purchased from ADHB	ALL Categories 1 and 2 deemed significant in principle			YES
Taxi (regular) :		√	√	YES
Waste disposal recycling of Aluminium : Category 4 - Emissions from the disposal of solid waste : From 'Bottles&Cans' collected for recycling		√	√	YES

Emission source	Magnitude: Where an indirect source was anticipated or assumed to be quantitatively substantial when compared to international standards requirements	Ability to influence and engage: where the University has a reasonable ability to monitor and reduce emissions and engage staff and students	Main significance criterion: Measuring will inform decision making on Net-Zero Carbon Strategy for the University (intended use and users)	Included in the inventory
Waste disposal recycling of Glass : Category 4 - Emissions from the disposal of solid waste : From 'Bottles&Cans' collected for recycling		√	√	YES
Waste disposal recycling of Paper :		√	√	YES
Waste disposal recycling of Plastic : Category 4 - Emissions from the disposal of solid waste : From 'Bottles&Cans' collected for recycling		√	√	YES
Waste landfilled LFGR Mixed waste : Category 4 - Emissions from the disposal of solid waste : 2019 only - 2020 onwards Hampton Downs e factor applies		√	√	YES
Waste landfilled LFGR Mixed waste : Category 4 - Emissions from the disposal of solid waste : Decant/clear-out waste remaining after diversion		√	√	YES
Waste landfilled LFGR Mixed waste : Category 4 - Emissions from the disposal of solid waste : Skip bins from Faculties and Service Divisions		√	√	YES
Water supply :		√	√	YES

APPENDIX 3: CERTIFICATION MARK USE

Waipapa Taumata Rau | The University of Auckland may choose to make use of the Certification Marks for the period 2020 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 Liabilities		
A1.2.3.1 GHG stocks held		TR4.18
A1.2.3.2 Land-use liabilities	9.3.3.	TR4.19

Section of this report	ISO 14064-1:2018 clause	Organisational Technical Requirement rule
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 carbon programme certification

TO THE INTENDED USERS

Organisation subject to audit:	Waipapa Taumata Rau The University of Auckland
Toitū Carbon Programme:	Toitū carbonreduce organisation certification
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
Responsible Party:	Waipapa Taumata Rau The University of Auckland
Intended users:	The Sustainable Estate and Operations Working Group (SEOWG)
Registered address:	22 Princes St, Auckland, 1010, New Zealand
Inventory period:	01/01/2020 to 31/12/2020
Inventory report:	IMR_2020_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. Misstatements are differences or omissions of amounts or disclosures, and can arise from fraud or error. Misstatements are considered material if, individually or in the aggregate, they could reasonably be expected to influence the decisions of readers, taken on the basis of the information we audited.

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

BASIS OF VERIFICATION OPINION

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

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

VERIFICATION

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

The Inventory Report provides information about the greenhouse gas emissions of the organisation for the defined measurement period and is based on historical information. This information is stated in accordance with the requirements of International Standard ISO 14064-1 Greenhouse gases – Part 1: Specification with guidance at the organisation level for quantification and reporting of greenhouse gas emissions and removals ('ISO 14064-1:2018') 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;
- re-perform access controls to onsite records;
- sampling of fuel, air travel and electricity records to confirm accuracy of source data into calculations;
- recalculation of emissions;
- sense checking of accommodation, waste and refrigerant gas data.

The data examined during the verification were historical in nature.

QUALIFICATIONS TO VERIFICATION OPINION

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

None

VERIFICATION LEVEL OF ASSURANCE

	tCO ₂ e	Level of Assurance
Category 1	5,723.70	Reasonable
Category 2	8,052.78	Reasonable
Category 3 (mandatory)	4,092.22	Reasonable
Category 3 (additional)	156.77	Reasonable
Category 3 (additional) (long haul air travel)	3.51	Limited
Category 4 (mandatory)	1,249.15	Reasonable
Category 4 (additional)	301.43	Reasonable
Category 5 (mandatory)	0.00	
Category 5 (additional)	0.00	
Category 6 (mandatory)	0.00	
Category 6 (additional)	0.00	
Total inventory	19,579.56	

RESPONSIBLE PARTY'S GREENHOUSE GAS ASSERTION (CERTIFICATION CLAIM)

Toitū carbonreduce organisation certified: Waipapa Taumata Rau | 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 emissions management and reduction plan and purchase of carbon credits, but does not include the information we verified, and our auditor's opinion thereon.

Our opinion on the information we verified does not cover the Other Information and we do not express any form of audit opinion or assurance conclusion thereon. Our responsibility is to read and review the Other Information and consider it in terms of the 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:	Neil Gilbert	Name:	Sonia Groes-Petrie
Position:	Verifier, Constantia Consulting Limited	Position:	Certifier, Toitū Envirocare
Signature:		Signature:	
Date verification audit:	04, 05 and 08 August 2022	Date:	10 October 2022
Date opinion expressed:	20 September 2022		



SUMMARY OF TOITŪ CARBONREDUCE
CERTIFICATION¹
FOR WAIPAPA TAUMATA RAU |
THE UNIVERSITY OF AUCKLAND



Summary for 01 January 2020 to 31 December 2020

TOITŪ CARBONREDUCE ORGANISATION CERTIFIED: WAIPAPA TAUMATA RAU | THE UNIVERSITY OF AUCKLAND INCLUDING AUCKLAND UNISERVICES LIMITED, ALL CAMPUSES AND OPERATIONAL EMISSIONS

Toitū carbonreduce means committing to ongoing reductions while achieving annual measurement 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.

The overall purpose of this report is to inform the development of the University's Net-Zero Carbon Strategy and associated Sustainable Estate and Operations Plan. 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 2020 to 31 December 2020 measurement period.

EMISSIONS MEASUREMENT

Waipapa Taumata Rau | The University of Auckland's greenhouse gas emissions for this year (01 January 2020 to 31 December 2020) were 19,579.56 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

Category (ISO 14064-1:2018)	Scopes (GHG Protocol)	GHG emissions (tCO ₂ e)	
		Base Year 2019	Current Year 2020
Category 1: Direct emissions	Scope 1	5,667.38	5,723.70
Category 2: Indirect emissions from imported energy (location-based method*)	Scope 2	7,205.50	8,052.78
Category 3: Indirect emissions from transportation	Scope 3	65,935.12	4,252.51
Category 4: Indirect emissions from products used by organisation	Scope 3	2,482.05	1,550.58
Category 5: Indirect emissions associated with the use of products from the organisation	Scope 3	0.00	0.00
Category 6: Indirect emissions from other sources	Scope 3	0.00	0.00
Total gross emissions*		81,290.06	19,579.56
Category 1 direct removals		0.00	0.00
Total net emissions		81,290.06	19,579.56

*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.

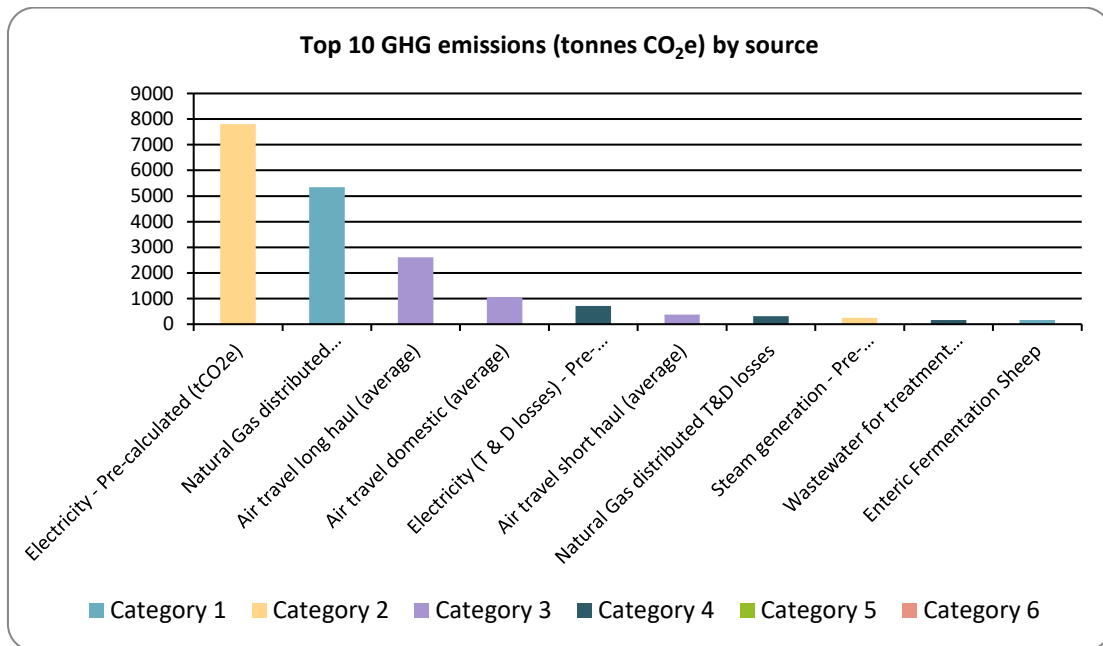


Figure 1: Top 10 GHG emissions (tonnes CO₂e) by source

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 the operations of its units and service divisions 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 Hong Kong and China and has a branch in the Kingdom of Saudi Arabia. The principal activities of the University and AUL are the provision of teaching and research services. The principal activities of the Foundation are raising and stewardship of funds for charitable purposes and advancement of education and healthcare, assistance of students to pursue courses of study at the University of Auckland, and the general advancement of the University.

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

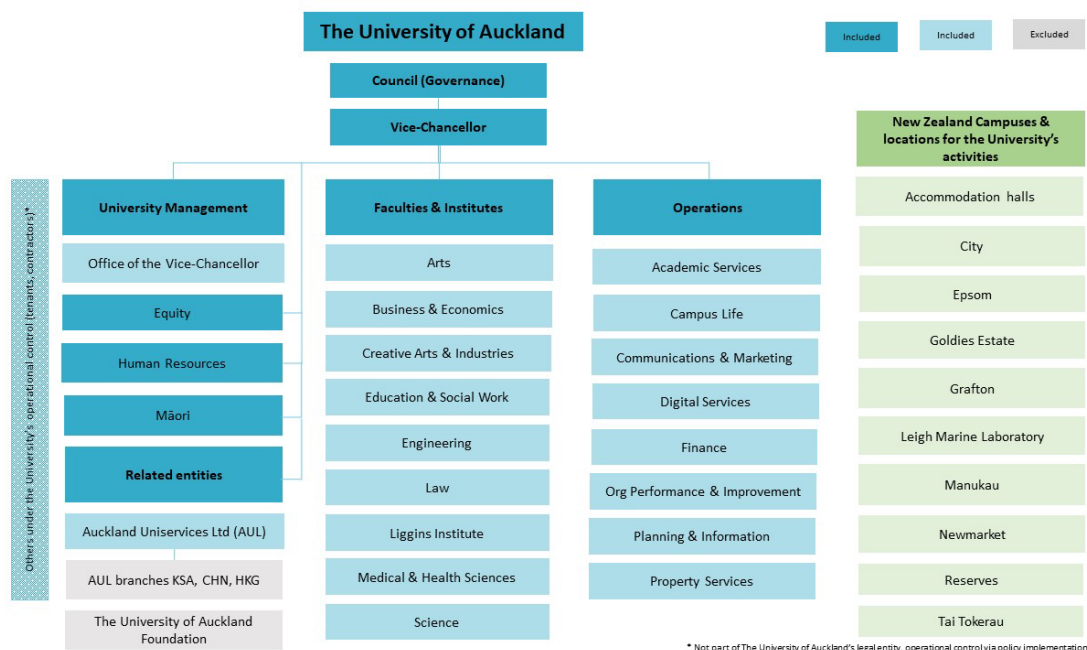


Figure 2: Organisational structure showing business units included and excluded

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.

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

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

MANAGING AND REDUCING

This is the second year of reporting under the Toitū programmes and the first year reporting under the Toitū carbonreduce programme. An absolute increase in Category 1 and 2 emissions of 903.59 tCO₂e has occurred against base year. A reduction in emissions intensity (for Category 1, 2 and mandatory Category 3 and 4 emissions) of 9.87 tCO₂e/\$M has been achieved based upon a 2-year rolling average.

The majority of the University's emissions identified in the 2019 baseline were from indirect sources, specifically from international air travel. As expected, border closures as a result of the COVID-19 pandemic had a significant effect on the University's overall carbon profile, showing a 76% reduction in emissions. This in turn changed the way other sources of emissions featured in the 2020 inventory. The three key sources of emissions in 2020 were Electricity, Gas and, in third place, Air Travel.

Target name	Baseline period	Target date	Type of target (intensity or absolute)	Current performance (tCO ₂ e)	Current performance (%)	Comments
Work related Air travel, staff and students	2019	2030	Absolute	4,020	-86.25	These reductions need to be considered within the context of Covid-19 pandemic worldwide border closures and lockdowns.
Energy and fuel	2019	2030	Absolute	13,564	-1.00	These figures need to be considered within the context of Covid-19 lockdowns.
Waste	2019	2030	Absolute	277	-72.05	These reductions need to be considered within the context of Covid-19 pandemic lockdowns.

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 will be set as part of the commitments of Te Taumata Tukuwaro-kore | Net Zero Carbon Strategy, currently under consultation and expected to be finalised and published in Q4 2022.

CERTIFICATE DETAILS

Certification status:	Toitū carbonreduce certified organisation
Certificate number:	2022275J, Year 1 of 3 year certificate period
Valid until:	10 October 2025
Measurement period:	01 January 2020 to 31 December 2020
Base year:	01 January 2019 to 31 December 2019
Audited by:	Toitū Envirocare
Level of assurance:	Reasonable and Limited for Air Travel Long Haul data (Category 3 additional)
Data Quality Score:	High

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.

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.



Toitū carbonreduce organisation certified:
Waipapa Taumata Rau | 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: 01/01/2020 to 31/12/2020

Toitū boundary, category 1: 5,723.70 tCO₂e
Toitū boundary (location based method), category 2: 8,052.78 tCO₂e
Toitū boundary (location based method), category 3-6: 5,341.38 tCO₂e
Toitū boundary (location based method), total: 19,117.85 tCO₂e

Additional emissions, category 3-6: 461.71 tCO₂e

All measured emissions (location based method): 19,579.56 tCO₂e



Managing and reducing against
Toitū requirements

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

Toitū boundary cat 1 and 2: + 903.59 tCO₂e against base year
Toitū boundary, total: - 9.87 tCO₂e/\$M based on a 2 year rolling average

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

Commit to reduce total category 1 and 2 emissions in compliance with Toitū requirements.

Commit to establish reduction targets, pathways and plans.

Date issued: 10 October 2022 | Valid until: 10 October 2025 | Certificate Number: 2022275J | Certification Status: Certified organisation
Company Address: 22 Princes Street, Auckland, 1010, New Zealand | Level of Assurance: Reasonable and Limited for Air Travel Long Haul data (Category 3 additional)

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.