THE UNIVERSITY of ADELAIDE

Net Zero Emissions from Directly Controlled Operations Report

Here for good Sustainability Strategy

A net zero world

Target: TNS -1 Net zero emissions from directly controlled operations by 2025

1 July 2024 – 30 June 2025

make history.

Table of Contents

Introduction

The Net Zero Emissions from Directly Controlled Operations Report (the Report) outlines the University of Adelaide's progress toward achieving net zero emissions from directly controlled operations by 2025. It details the measurement of greenhouse gas emissions and the use of offsets associated with this target. The Report provides additional information to uphold the integrity and transparency of our target achievement. For any queries, please contact: sustainability@adelaide.edu.au

As a signatory to the United Nations Sustainable Development Goals since 2016, the University's Here for good Sustainability Strategy (the Strategy) reflects our commitment to meaningful action across research, teaching, and campus operations. The Strategy recognises the interconnectedness and urgency of addressing climate change, ecosystem health, and biodiversity to ensure future prosperity. Its ambitions include embedding sustainability throughout the curriculum, advancing solutions for a low-carbon and nature-positive economy, and strengthening climate adaptation and resilience across our campuses.

One of the Strategy's six goals, Leading Transitions, focuses on accelerating the sustainability and decarbonisation of our campuses while extending our impact beyond them. Under this goal, Target TNS–1 commits the University to achieving net zero emissions from directly controlled operations by 2025. This marks a significant milestone: for the first time, the University will balance its operational greenhouse gas emissions from directly controlled operations by removing an equivalent amount from the atmosphere.

To support this target, the University has developed its own definitions, which are not aligned with existing carbon target certification schemes or frameworks in Australia or internationally. Specifically, the University has included two of the fifteen Scope 3 value chain Categories within its target boundary. These two value chain emission sources (Category 3 - fuel and energy-related activities (not included in scope 1 or scope 2), and Category 5 - waste generated in operations (including wastewater)) represent emission sources that the University can influence on campus through investment in fuel-switching and more efficient equipment and technologies. The University is currently in the process of measuring its full value-chain emissions for future goal setting and reporting, and intends on including more of the other thirteen Scope 3 value chain Categories in future reporting. As the University transitions to the new Adelaide University in 2026, we will undertake a collaborative review of our carbon targets, definitions, measures and broader sustainability ambitions.

Definitions

Net zero operations: The University's Scope 1 and Scope 2 (location-based) and Scope 3 emissions associated with Scope 3 Value Chain,

- Category 3 - fuel and energy-related activities (not included in scope 1 or scope 2), and,
- Category 5 - waste generated in operations (including wastewater),

are balanced via the removal of equal greenhouse gas emissions from the atmosphere through the use of purchased offsets.

Net zero operations = Scope 1 + Scope 2 (location-based) + Scope 3 Category 3 + Scope 3 Category 5 - offsets

Direct control: Sites where the University has operational control, meaning its operating policies and governance frameworks are in place.

Operational emissions: Scope 1, Scope 2 (location-based) and Scope 3 emissions associated with Scope 3 Value Chain Category 3 - fuel and energy-related activities (not included in scope 1 or scope 2), and Category 5 - waste generated in operations (including wastewater).

Directly controlled operations: The accounting boundary the University has developed to include the *operational emissions* at sites where the University has *direct control* (see definitions above).

Scope 1: Direct emissions from University operations, including process, agricultural and fuel-based emission sources.

Scope 2: Indirect emissions associated with purchased electricity from the grid used in our operations. The University uses the location-based method to calculate its Scope 2 emissions.

Scope 3: Value chain emissions are upstream and downstream from our operations, generated by suppliers. The University has excluded thirteen of the fifteen Scope 3 value-chain emission Categories from its net zero operations from directly controlled operations target boundary to focus only on the Greenhouse Gas Protocol's Scope 3 Category 3; fuel and energy-related activities (not included in scope 1 or scope 2) and Category 5; waste generated in operations (including wastewater).

Net zero emissions from directly controlled operations achieved in 2025

The University has calculated its emissions in line with the *Greenhouse Gas (GHG) Protocol Corporate Accounting and Reporting Standard and Supplement Corporate Value Chain (Scope 3) Accounting and Reporting Standard* to measure Scope 1, Scope 2 and Scope 3 emissions associated with waste generated in operations, wastewater and energy and fuel-related transmission and distribution losses. This Protocol is globally recognised for greenhouse gas reporting. The University has adopted the 'operational control' approach from the Standard, allowing for the consistent application of accounting practices to consolidate the inventory.

The University has measured emissions for its campuses and facilities where it has direct control. Direct control applies to sites where the University owns or manages these facilities through the application of our operating policies and frameworks. The University has excluded from the inventory emissions associated with the Minlaton Medical Centre, Unihealth Highbury, State Government Hospitals where some staff and student may work or undertake training placements, sites where the University is a partner or minor co-occupant of teaching, learning or research facilities owned and operated by others, and waste generated in operations (including wastewater) in leased properties where gross lease arrangements are in place. The Unihealth Playford GP Super Clinic has been included in the boundary as the facility supports teaching activity, whereas the Minlaton Medical Centre and Unihealth Highbury operate independently of the University.

The University owns and operates several buildings where space is leased to retailers, industry or research partners or other groups who support the University's activities. Given the typical small physical footprint, it is estimated that these tenants make up a small portion of the University's total consumption. Therefore, the University has taken a conservative approach to include tenant emissions in its own emission inventory. Standardising lease terms and accounting practices for on-site tenancies has been identified as an accounting activity to improve the accuracy of the inventory in future.

Scope 1 reporting

The University's Scope 1 emission sources include natural gas, stationary fuel, transport fuel, fugitive gas, refrigerants, and agricultural emissions (livestock and fertilisers).

The University owns and operates the Roseworthy Farm, 1,600ha around 50kms north of the Adelaide CBD. The Farm is a controlled entity of the University, established to support the research and teaching needs of the Vet and Agricultural programs. The University relies on stock counts from staff at the Vet School and Roseworthy Farm to measure livestock emissions. It is acknowledged that stock counting is subject to uncertainty; however, the numbers provided are well-informed and provided by experienced members of staff. The University has taken a conservative approach to calculating livestock emissions, using the emission factor for 'cattle' for all ruminants on site.

The University has relied on the National Greenhouse Accounts Factors: 2024[i], Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report (AR5)[ii] and HortCarbon Info Calculator[iii] to calculate Scope 1 emissions.

Table 1: Scope 1 Source Information

Scope 1 emission source	Source information
Natural gas Stationary Fuel Transport Fuel Fugitive Gas Refrigerants	National Greenhouse Accounts Factors August 2024
Livestock	2019 Refinements to the IPCC Guidelines Table 10.11 Tier 1 and Teir 1A Enteric Fermentation Emission Factors for Cattle and Buffalo, (non-dairy) cattle IPCC Fifth Assessment Report (AR5) Global Warming Potential
Nitrogen in Fertiliser Nitrogen in Animal Manures Urea Atmospheric Nitrogen Loss Nitrogen (inorganic) Leaching and Runoff Nitrogen (animal manures) Leaching and Runoff	Queensland Government Drought and Climate Adaptation Program, HortCarbon Info Calculator

Scope 2 reporting

Scope 2 emissions related to purchased electricity from the grid used in our operations. The University has calculated its Scope 2 purchased electricity emissions using the location-based method. The South Australian location-based emission factor is significantly lower than the market-based emission factor, owing to the large quantities of renewable energy in the South Australian grid.

The University has not credited the inventory with Large-scale Generation Certificates (LGCs) it has generated through on-site solar PV systems during the reporting period. Electricity produced on campus by over 2MW of installed solar PV, is used directly for campus buildings, reducing reliance on electricity from the grid. The location-based method does not account for market mechanisms such as LGCs. The University may consider using the market-based Scope 2 accounting method in future years as part of the 2026 review of our carbon targets, definitions, and broader sustainability ambitions.

Table 2: Scope 2 Source Information

Scope 2 emission source	Source information
Purchased electricity (location-based method)	National Greenhouse Accounts Factors August 2024

Scope 3 reporting

Scope 3 value chain emissions are upstream and downstream from our operations, generated by suppliers. The University's operational emissions focus only on the Greenhouse Gas Protocol's Scope 3 Category 3; fuel and energy-related activities (not included in scope 1 or scope 2) and Category 5; waste generated in operations (including wastewater). The University is currently excluding all thirteen other Scope 3 Categories such as emissions from purchased goods and services, construction and building materials, postage and freight, business travel and flights, commuting to campus, financial investments and working from home. The University is currently working to measure all value chain emissions for future goal setting and reporting.

The University has relied on the National Greenhouse Accounts Factors: 2024, Climate Active carbon inventory tool version 9.2[iv], Australian Life Cycle Assessment (AusLCI) version 1.45[v], and an emission factor from our waste service provider Veolia (related to the alternative fuel waste stream), to calculate its Scope 3 operational emissions.

Wastewater emissions are the most highly estimated emission source in the University's inventory due to long periods between meter readings and invoicing. The University has used daily consumption averages from prior-period sampling for each meter to estimate emissions. The University has not included recycled water consumption (Glenelg to Adelaide Pipeline – GAP water) in its calculations as this water source is used for the sole purpose of irrigating campus gardens and sports grounds, therefore does not enter stormwater systems as wastewater.

Waste emissions associated with the grounds maintenance, and construction and demolition are included in the current inventory under Scope 3 Category 5 as material waste sources.

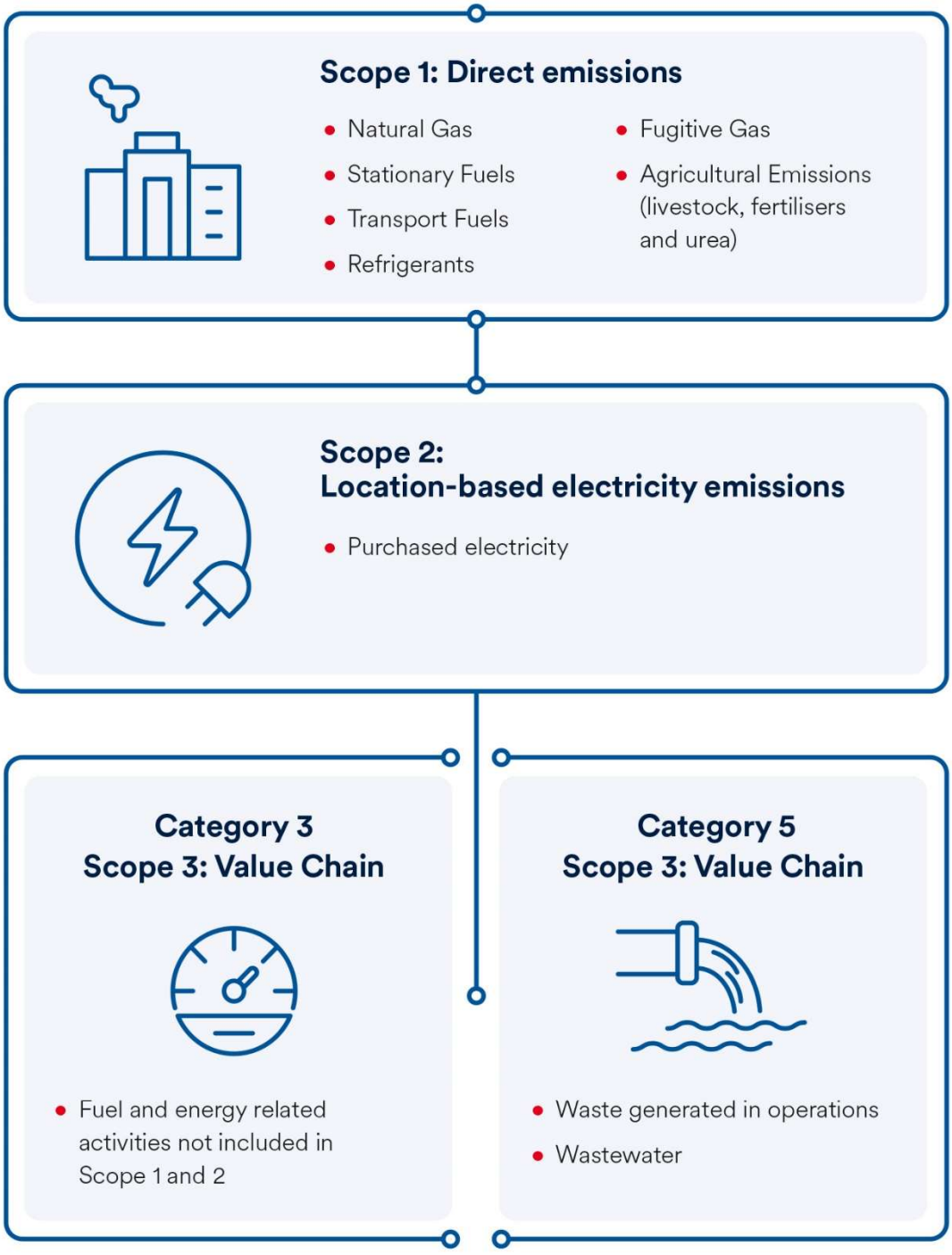
Table 3: Scope 3 Source Information

Scope 3 emission source	Source information
Category 3; fuel and energy-related activities not included in Scope 1 and Scope 2)	National Greenhouse Accounts Factors August 2024
Category 5; waste generated in operations (including wastewater)	Climate Active carbon inventory tool Version 9.2 Veolia Australia and New Zealand Australian Life Cycle Assessment (AusLCI) version 1.45

Assumptions

The University relies on invoices and reports from utility and service providers to calculate emissions. On occasion, these records are delayed or unavailable for the reporting period. In this instance, the University has estimated emissions using previous year information for the same period. When this method is unavailable, the University relies on an average of previous consumption to estimate emissions. There are some instances where emission sources have not been quantified due to unavailable, unreliable or immaterial data. These emission sources include sanitary and nappy waste, chemical waste from laboratories, waste oil, recycled, refurbished or reused furniture, waste and wastewater emissions associated with gross lease sites, including electricity, waste and wastewater emissions at the Freemasons Hall. The GHG Protocol allows for assumptions and estimations in relation to boundaries, methods, activity data, emission factors and other calculation parameters as long as they are documented and disclosed.

Operational Emission Sources

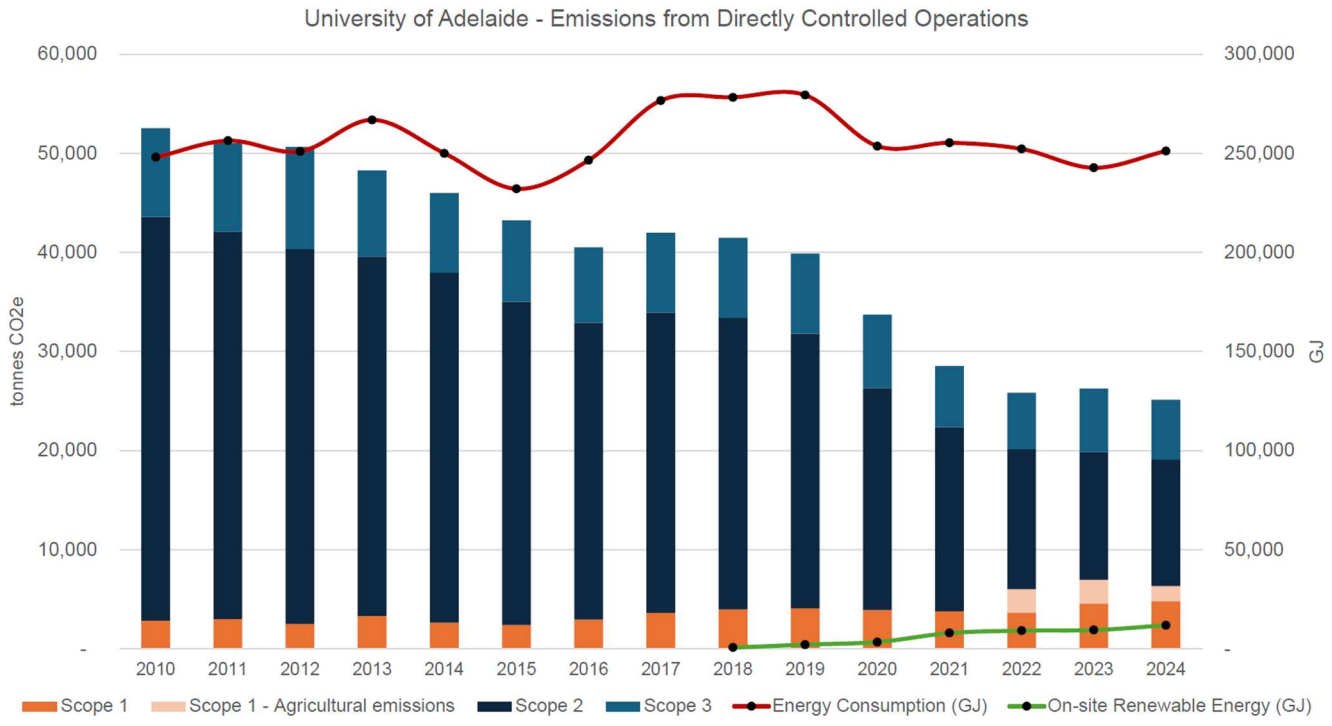


Excluded All other categories of Scope 3 value chain emissions including purchased goods and services, construction and building materials, postage and freight, business travel and flights, commuting to campus, financial investments and working from home. The University is currently working to measure all value chain emissions.

Our emissions over time

The University started accounting for Scope 1 and Scope 2 (location-based) emissions in 2008 to comply with the National Greenhouse and Energy Reporting Act 2007. In 2014, the University began measuring and reporting emissions associated with waste and wastewater. In 2018, the University measured and reported electricity generated by on-site solar PV systems (rooftop and ground-mounted). In 2022, livestock emissions (enteric fermentation from ruminants) from the Vet School and Roseworthy Farm were added to the Scope 1 inventory. Then, in 2024, fertilisers and manures were also added to the Scope 1 inventory to provide a more complete picture of agricultural emissions at Roseworthy.

Since the 2010 calendar year, the University's operational emissions have reduced from 52,532 tCO_2-e to 23,113 tCO_2-e in 2024 calendar year, representing a 52% reduction despite the inclusion of these additional emission sources over time. The University has taken action to reduce emissions through several campus projects listed on the University's Sustainability website and has benefited from South Australia's shift to renewable energy and resulting lower electricity emissions.



NOTE: Scope 1 – Agricultural emissions are included in the inventory from 2022 onwards. In 2024, fertiliser and manure agricultural emission sources used at the Roseworthy Farm were added to the inventory for completeness.

NOTE: Energy Consumption (GJ) includes electricity, stationary fuel and natural gas.

NOTE: The University of Adelaide uses the National Greenhouse Account Factors and Climate Active tools and technical guidance published by the Department of Climate Change, Energy, the Environment and Water. Estimations and averages have been used where actual data is currently unavailable. Data sets may be updated as information is finalised (such as utility invoices) to improve the accuracy of the inventory.

Current reporting period

The University has sought to comply with the Greenhouse Gas Protocol during the reporting period 1 July 2024 – 30 June 2025 to establish its emissions inventory. The 1 July 2024 – 30 June 2025 period is calculated at a total of 25,009 tCO_2-e. Scope 1, Scope 2 (location-based) and operational Scope 3 emissions. Deloitte were engaged to provide independent limited assurance over the University's directly controlled emissions for the reporting period, Table 4. The full limited assurance report is provided at the end of this document.

Table 4 – Directly Controlled Emissions

Reporting Criteria: GHG Protocol Reporting Period: 1 July 2024 – 30 June 2025	**Scope 1** tCO_2-e	**Scope 2 (location-based)** tCO_2-e	**Scope 3 Category 3** tCO_2-e	**Scope 3 Category 5** tCO_2-e
	7,155	**12,316**	**3,316**	**2,222**

Table 5 – Directly Controlled Emissions Breakdown

	Scope 1 tCO_2-e	**Scope 2 (location-based)** tCO_2-e	**Scope 3 Category 3** tCO_2-e	**Scope 3 Category 5** tCO_2-e
Stationary energy (liquid fuels) – Natural gas	2,453		509	
Stationary energy (liquid fuels) – Diesel	13		3	
Stationary energy (gaseous fuels) – LPG	123		35	
Transport fuels – Diesel	306		75	
Transport fuels – Petrol	66		17	
Refrigerants	1,188			
Fugitive gas	118			
Livestock	2,595			
Nitrogen in fertiliser	115			
Nitrogen in animal manure	63			
Urea	55			
Atmospheric nitrogen loss	17			
Nitrogen (inorganic) leaching and runoff	32			
Nitrogen (animal manures) leaching and runoff	11			
Purchased electricity		12,316	2,677	
Waste				1,436
Wastewater				785

To achieve the net zero emissions from directly controlled operations target, residual emissions in the reporting period have been balanced through the purchase of offsets that relate to nature-based projects in South Australia and Western Australia (Table 6).

Net zero operations = Scope 1 + Scope 2 (location-based) + Scope 3 Category 3 + Scope 3 Category 5 - offsets

The University has partnered with Australian not-for-profit Greening Australia and their for-purpose subsidiary company Canopy to offset operational emissions through the projects listed below (Table 6).

Educators and researchers interested in engaging with these projects are encouraged to contact: sustainability@adelaide.edu.au

Table 6 – Australian Carbon Credit Units (ACCUs)

Project	Location	No. ACCUs retired
Biodiverse Carbon Conservation Morella (ERF101606)	Coorong, South Australia	11,287
Bramfield Carbon Project (ERF179665)	Eyre Peninsula, South Australia	395
Carbon Conscious Carbon Capture Project 2, (EOP100638)	Western Australia	10,000
Biodiverse Carbon Conservation Peniup (EOP101147)	Western Australia	1,257
Western Treefarm Project (Phase 1) (ERF168893)	Western Australia	2,070

Governance

The University's *Here for good* Sustainability Strategy is governed by the Sustainability Steering Committee, chaired by the Chief Operational Officer. Representation on the Committee spans senior leaders involved in research, learning and teaching, external engagement and campus investment and operations. The Committee reports to the Vice-Chancellor's Executive Committee and University Council.

Sustainability Steering Committee Membership (2025)

Chief Operating Officer – Chair

Deputy Vice-Chancellor (Academic)

Deputy Vice-Chancellor (Research)

Deputy Vice-Chancellor (External Engagement)

Deputy Director, Institute of Sustainability, Energy and Resources

Executive Director – Infrastructure

Working towards the UN Sustainable Development Goals

Limited Assurance Report

Deloitte Touche Tohmatsu
ABN 74 490 121 060

Quay Quarter Tower
50 Bridge Street
Sydney NSW 2000

Phone: +61 2 9322 7000
www.deloitte.com.au

Independent Limited Assurance Report to the Council of the University of Adelaide

Conclusion

We have undertaken a limited assurance engagement on the preparation of the University of Adelaide's ("the University") GHG Emission data listed below and disclosed within the University's Sustainability Strategy 2030 (the "Subject Matter Information") in accordance with the Greenhouse Gas Protocol ("GHG Protocol" or "the Criteria") in all material respects, for the period 1 July 2024 to 30 June 2025.

The Subject Matter Information subject to our engagement includes:

Type of GHG emissions	Unit of Measurement	Metric Assured	Pages in the 2030 Sustainability Strategy
Scope 1 emissions	t. CO2-e	7,155	10
Scope 2 emissions [location-based]	t. CO2-e	12,316	10
Category 3 of Scope 3 emissions	t. CO2-e	3,316	10
Category 5 of Scope 3 emissions	t. CO2-e	2,222	10

Based on the procedures performed and the evidence obtained, nothing has come to our attention that causes us to believe that the University's Subject Matter Information is not prepared, in all material respects, in accordance with the Criteria for the period 1 July 2024 to 30 June 2025.

Basis for Conclusion

We conducted our limited assurance engagement in accordance with Standard on Assurance Engagements ASAE 3000 *Assurance Engagements Other than Audits or Reviews of Historical Financial Information* ("ASAE 3000") issued by the Auditing and Assurance Standards Board.

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

Our Independence and Quality Management

We have complied with the independence and relevant ethical requirements which are founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behaviour, including those contained in APES 110 *Code of Ethics for Professional Accountants (including Independence Standards)*.

Our firm applies Australian Auditing Standard ASQM 1 *Quality Management for Firms that Perform Audits or Reviews of Financial Reports and Other Financial Information, or Other Assurance or Related Services Engagements*, which requires the firm to design, implement and operate a system of quality management including policies or procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

Deloitte.

Responsibilities of the Council of the University

The Council of the University are responsible:

- for ensuring that the Subject Matter Information is prepared in accordance with the Criteria;
- for confirming the measurement or evaluation of the underlying subject matter against the applicable criteria, including that all relevant matters are reflected in the Subject Matter Information;
- for designing, establishing and maintaining an effective system of internal control over its operations and financial reporting, including, without limitation, systems designed to assure achievement of its control objectives and its compliance with applicable laws and regulations; and
- for the electronic presentation of the Subject Matter Information and our limited assurance report on their website.

Responsibilities of the Assurance Practitioner

Our responsibility is to express a limited assurance conclusion on the preparation of the University's Subject Matter Information, in all material respects, in accordance with the Criteria for the period 1 July 2024 to 30 June 2025, based on the procedures we have performed and evidence we have obtained. ASAE 3000 requires that we plan and perform our procedures to obtain limited assurance about whether anything has come to our attention that causes us to believe that the University's Subject Matter Information has not been prepared, in all material respects, in accordance with the Criteria for the period 1 July 2024 to 30 June 2025.

A limited assurance engagement on the University's Subject Matter Information involves identifying areas where a material misstatement of the Subject Matter Information is likely to arise, performing procedures to address the areas identified, and considering the process used to prepare the Subject Matter Information. A limited assurance engagement is substantially less in scope than for a reasonable assurance engagement in relation to both the risk assessment procedures, including an understanding of internal control, and the procedures performed in response to the assessed risks.

The procedures performed in a limited assurance engagement vary in nature and timing from, and are less in extent than, for a reasonable assurance engagement. Consequently, the level of assurance obtained in a limited assurance engagement is substantially lower than the assurance that would have been obtained had a reasonable assurance engagement been performed. Accordingly, we do not express a reasonable assurance opinion on whether the Subject Matter Information has been prepared, in all material respects, in accordance with the Criteria.

Our procedures included:

- Making enquiries, primarily of persons responsible for the preparation of the Subject Matter Information;
- Assessing the appropriateness of the University's operational boundary determination and reporting structure, including consideration of project activities and presence of contractors at each facility, and the associated operational control determinations;
- Applying analytical and other review procedures including assessing relationships between energy and emissions data and other financial and non-financial data;
- Analysing and inspecting on a sample basis, the key systems, processes and procedures and controls relating to the collation, validation, presentation and approval process of the information included in the Subject Matter Information; and
- Reviewing the Subject Matter Information in the University's Sustainability Strategy 2030 to ensure that the Subject Matter Information disclosed within the University's Sustainability Strategy 2030 is consistent with the supporting evidence inspected during the course of the engagement.

Other information

The Council of the University are responsible for the other information. The other information comprises the disclosures within the University's Sustainability Strategy 2030, but does not include the Subject Matter Information and our assurance report thereon. Our limited assurance conclusion does not cover the other information and we do not express any form of assurance conclusion thereon.

In connection with our assurance engagement on the Subject Matter Information, our responsibility is to read the other information identified above and, in doing so, consider whether the other information is materially inconsistent with the Subject Matter Information or our knowledge obtained in the assurance engagement, or otherwise appears to be materially misstated. If, based on the work we have performed, we conclude there is a material misstatement of this other information, we are required to report that fact. We have nothing to report in this regard.

Deloitte.

Inherent Limitations

Because of the inherent limitations of an assurance engagement, together with the inherent limitations of any system of internal control there is an unavoidable risk that fraud, error, non-compliance with laws and regulations or misstatements in the Subject Matter Information may occur and not be detected.

Emissions quantification is subject to inherent uncertainty because incomplete scientific knowledge has been used to determine emissions factors and the values needed to combine emissions due to different gases. We specifically note that the University has used estimates or extrapolated underlying information to calculate certain amounts included within the Scope 3 greenhouse gas information.

Additionally, non-financial data may be subject to more inherent limitations than financial data, given both its nature and the methods used for determining, calculating and sampling or estimating such data.

Restricted Use

This report has been prepared for use by the Council of the University for the purpose to assist the Council of the University in their reporting of the aforementioned Subject Matter Information within the University's Sustainability Strategy 2030. We disclaim any assumption of responsibility for any reliance on this report to any person other than the Council of the University or for any purpose other than that for which it was prepared.

Matters relating to electronic presentation of information

It is our understanding that the University may publish a copy of our report on their website. We do not accept responsibility for the electronic presentation of our report on the University website. The security and controls over information on the website is not evaluated or addressed by the independent assurance practitioner. The examination of the controls over the electronic presentation of this report on the University website is beyond the scope of this engagement.

DELOITTE TOUCHE TOHMATSU

Annalisa Amiradakis
Partner
Chartered Accountants

Sydney, 25 September 2025

[i] Australian Government, Department of Climate Change, Energy, the Environment and Water, National Greenhouse Accounts Factors: 2024, updated 17 June 2025. Accessed: https://www.dcceew.gov.au/climate-change/publications/national-greenhouse-accounts-factors-2024

[ii] Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report (AR5) 2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories. Volume 4: Agriculture, Forestry and Other Land Use. Table 10.11 Tier 1 and Tier 1A Enteric Fermentation Emission Factors for Cattle and Buffalo.

[iii] Queensland Government Drought and Climate Adaptation Program, HortCarbon Info calculator, updated 23 February 2025 with August 2024 emission factors. Accessed: http://grf-smartfarm.daf.qld.gov.au:3838/apps/hortcarboninfo/

[iv] Australian Government, Climate Active carbon inventory version 9.2, Department of Climate Change, Energy, the Environment and Water, updated 10 December 2024. Accessed: https://www.climateactive.org.au/be-climate-active/tools-and-resources/technical-guidance-manual

[v] The Australian Life Cycle Inventory Database Initiative, AusLCI emission factors version 1.45, updated June 2025. Accessed: https://www.auslci.com.au/index.php/EmissionFactors