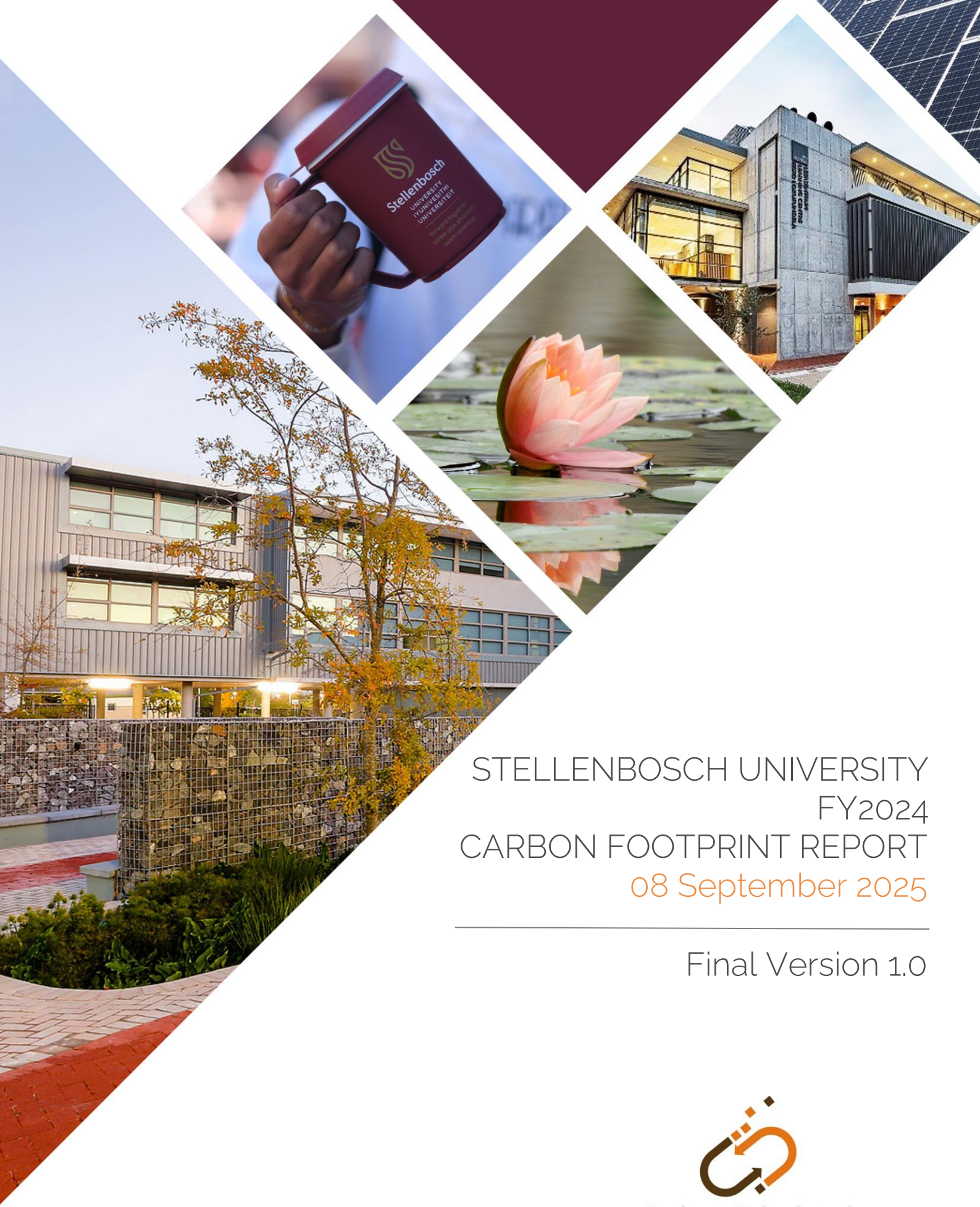

STELLENBOSCH UNIVERSITY
FY2024
CARBON FOOTPRINT REPORT

08 September 2025

Final Version 1.0

Carbon Calculated
MEASURE | ANALYSE | STRATEGISE

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ACKNOWLEDGEMENTS

Carbon Calculated would like to thank John de Wet and Dannica Pedro for fielding all questions and coordinating the Stellenbosch University team in the compilation of this Carbon Footprint Report (hereafter "Report").

REVISION HISTORY

Date	Version	Amendments to previous version	Approved by	Prepared by
11.06.2025	Draft 0.1	First draft – tables only	Not applicable	Kyle Petzer & Jayne Rimell
06.08.2025	Draft 0.2	Second draft: ♦ Complete report with updated data	Not applicable	Kyle Petzer & Jayne Rimell
21.08.2025	Draft 0.3	Revised and updated employee commute figures	Not applicable	Kyle Petzer & Jayne Rimell
08.09.2025	Final 1.0	Finalised report	Not applicable	Kyle Petzer & Jayne Rimell

1. EXECUTIVE SUMMARY

Table 1: Complete Overview of Stellenbosch University's FY2024 (01 January 2024 - 31 December 2024) GHG Emissions

Company metrics		
Full-time employees (FTE)		4 996
Total square metres (m^2)		856 529
Revenue (R'million)		8 772
Scope 1 Direct Emissions		**Metric tonnes of CO_2e**
Stationary fuel		838.31
Fugitive gas		93.52
Mobile fuel		841.33
Medical Gas		14.71
Onsite renewable energy (emissions)		0.00
TOTAL SCOPE 1 EMISSIONS		1 787.87
Scope 2 Indirect Emissions	**Location-based**	**Market-based**
Purchased grid electricity	66 139.70	66 139.70 [1]
Purchased renewable electricity	0.00	0.00
TOTAL SCOPE 2 EMISSIONS		66 139.70
Scope 3 Indirect Emissions		
1. Purchased goods and services		702.09
2. Capital goods		Not evaluated
3. Fuel- and energy-related activities		19 897.50
4. Upstream transportation and distribution		Not evaluated
5. Waste generated in operations		506.99
6. Business travel		6 657.60
7. Employee commuting		6 408.36
8. Upstream leased assets		Not evaluated
9. Downstream transportation and distribution		Not evaluated
10. Processing of sold products		Not applicable
11. Use of sold products		Not applicable
12. End-of-life treatment of sold products		Not applicable
13. Downstream leased assets		Not evaluated
14. Franchises		Not applicable
15. Investments		Not evaluated
TOTAL SCOPE 3 EMISSIONS		34 172.54
Outside of Scopes		0.001

[1] Stellenbosch University's market-based electricity is identical to location-based electricity because no supplier-provided contractual instruments were reported in FY2024.

Figure 1 is a graphical summary of the emissions and company metrics reported by Stellenbosch University in the financial year (FY) 2024.

Figure 1: Summary of Stellenbosch University's FY2024 emissions and company metrics

2. INTRODUCTION

2.1. GREENHOUSE GAS PROTOCOL

This FY2024 Report has been prepared using the Greenhouse Gas Protocol Corporate Accounting and Reporting Standard (GHG Protocol) methodology (see Appendix A for all key terms and abbreviations). Within the GHG Protocol, accounting and reporting are guided by five principles – relevance, completeness, consistency, transparency, and accuracy – to ensure that reported information represents a true and fair account of emissions. These principles underpin all aspects of accounting and reporting according to the GHG Protocol, to which Carbon Calculated subscribes in the delivery of all its reports.

The GHG Protocol
The GHG Protocol is the most widely used standard for mandatory and voluntary corporate GHG reports and is compatible with other international GHG reporting standards such as ISO 14064. It is derived from a multi-stakeholder partnership of businesses, NGOs, and governments, led by the World Resources Institute and the World Business Council for Sustainable Development.

This FY2024 Report should be compared against previous carbon footprint calculations to review changes in annual consumption, boundaries, and areas of improvement.

This Carbon Footprint Report has been prepared by Carbon Calculated exclusively for Stellenbosch University based on information provided and agreed-upon methodologies. All reasonable measures have been taken to ensure the accuracy of the data and findings within the report; however, Carbon Calculated accepts no liability for errors, omissions, or misrepresentations which may result from inaccuracies in the data supplied or from factors beyond our control. The data and results in this report are intended for internal use only for informational purposes. Information may, however, be extracted for reporting purposes, such as for submission into international and national GHG registries and for purposes of sustainability reporting. It may also be presented for third-party verification purposes. The Report should not be relied upon by any parties other than Stellenbosch University, unless express written permission is granted. No responsibility is accepted by Carbon Calculated for reliance on this report by third parties. This report does not constitute legal or financial advice. Any actions taken based on the information set out in this report are undertaken at the recipient's own risk. Carbon Calculated reserves the right to amend the findings should further information become available.

2.2. COMPANY DESCRIPTION

Stellenbosch University is amongst South Africa's leading tertiary institutions based on research output, student pass rates and rated scientists, and is recognised internationally as an academic institution of excellence.

The main campus in the picturesque university town of Stellenbosch in the heart of the Western Cape winelands is quite an attraction for students. Eight faculties are on the main campus, with the Faculty of Medicine and Health Sciences situated on Tygerberg campus, and the Faculty of Military Sciences – the only one of its kind in South Africa and one of only two in Africa – based at the South African Defence Force Military Academy in Saldanha. The University of Stellenbosch Business School (USB) and other postgraduate business and planning programmes of the Faculty of Economic and Management Sciences are located on the Bellville Park campus. The fifth Stellenbosch University campus, in Worcester, was officially opened in 2012 with the launch of the Ukwanda Rural Clinical School of the Faculty of Medicine and Health Sciences. Here, medical and health sciences students have the opportunity to complete their clinical training on a rural platform.

The University owns two experimental farms (Welgevallen and Mariendahl) used mainly for the training of undergraduate students and for research projects of postgraduate students and academic staff of the Faculty of AgriSciences.

3. METHODOLOGY

3.1. EMISSIONS SCOPES

Under the GHG Protocol, carbon emissions are categorised into Scopes: Scope 1, Scope 2, Scope 3 and Outside of Scopes emissions. The Protocol mandates that companies report Scope 1 (direct) and Scope 2 (indirect) emissions as part of their carbon footprint calculations. Scope 3 emissions, which arise from supply chain activities, are reported at the discretion of the reporting company.

Figure 2 below shows the detailed breakdown of Scopes and emission categories.

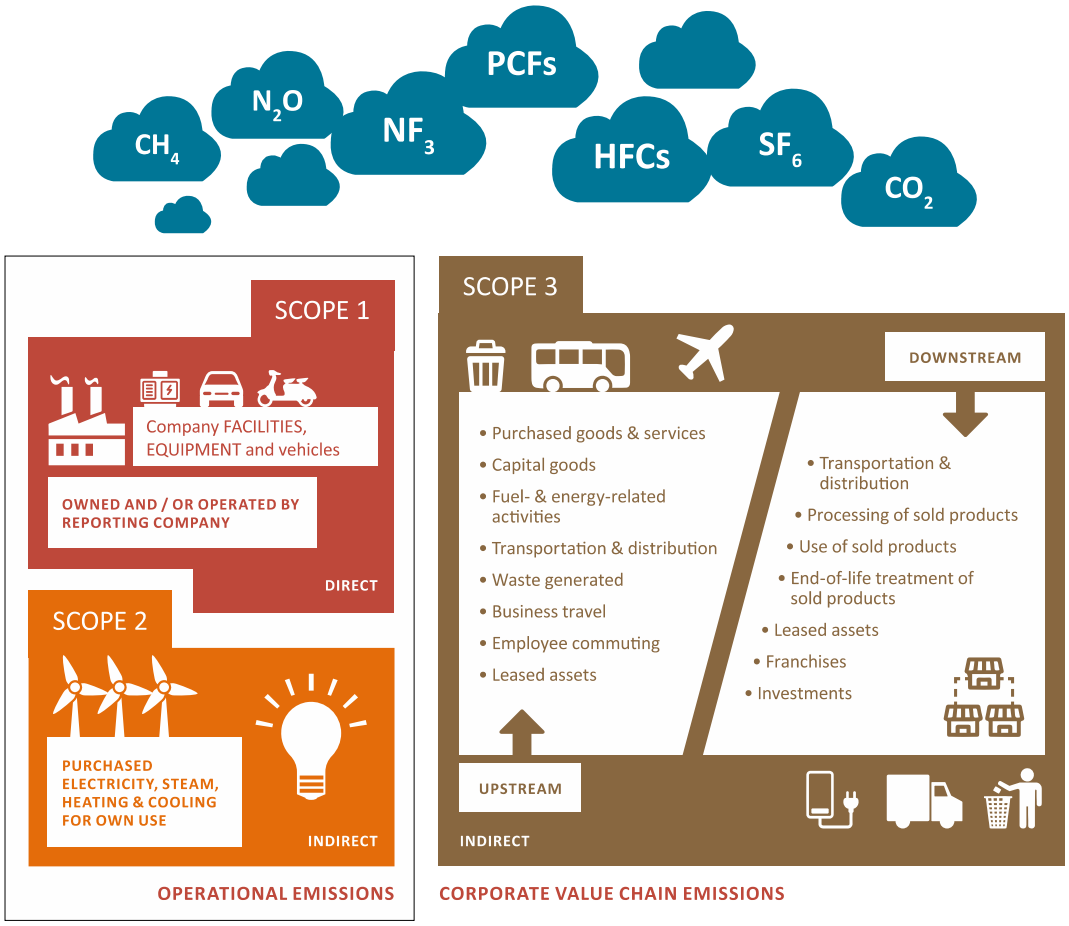


Figure 2: Illustration of Scopes and emission categories

All emissions are calculated using emission factors and reported as metric tonnes of carbon dioxide equivalent (tCO_2e), as required by the GHG Protocol. Unless otherwise stated, emission factors are sourced from the United Kingdom Department for Environment, Food and Rural Affairs (Defra)[2].

Emission Factors
Emission factors convert operational activity data (e.g., kilometres driven; kilowatt hours of purchased electricity) into a value indicating the GHG emissions generated by that activity, which is reported as carbon dioxide equivalent (CO_2e). Emission factor values can be sourced from a variety of different providers.

Carbon Dioxide Equivalent (CO_2e)
A standard unit for measuring emissions from various GHGs based on their global warming potential (GWP) in relation to that of carbon dioxide.

[2] United Kingdom Department for Environment, Food and Rural Affairs (Defra). 2024. *Greenhouse gas reporting: conversion factors 2024.*

The GHGs included in this calculation are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF_6) and nitrogen trifluoride (NF_3). As described above, all these gases are aggregated and reported in terms of their CO_2e.

Scope 1 emissions:

Scope 1 emissions are from sources owned or controlled by the reporting company, e.g., generators, refrigeration, and air-conditioning units. According to the GHG Protocol, Scope 1 emissions are compulsory to report.

Scope 2 emissions:

Scope 2 emissions are associated with the consumption of purchased electricity, heat or steam from a source that is not owned or controlled by the reporting company, e.g., an electricity utility such as Eskom. Like Scope 1 emissions, Scope 2 emissions are compulsory to report and should be disclosed using both the location-based and market-based approach.

Location-based electricity
The location-based method reflects the average emissions intensity of electricity grids on which energy consumption occurs, considering all electricity generation (renewable and non-renewable), thus using the grid average emission factor. An example is the national annual electricity emission factor provided by Eskom to South African electricity consumers.

Market-based electricity
The market-based method reflects the emissions from electricity-generating sources that companies have purposefully chosen, for example, energy from a specific wind farm, which may be different from the electricity that is generated for the local grid. Different electricity suppliers and contracts emit more or less GHGs depending on the energy source or technology, resulting in a supplier-specific emission factor.

Where relevant, this means reporting the specific emissions associated with the procurement of energy from a contracted supplier. Contracts with low-carbon electricity suppliers and renewable energy certificates (RECs) are examples of instruments that provide companies with an opportunity to account for emissions under the market-based approach[3]. Regardless of whether supplier-specific emission factors are employed or not, dual reporting of location and market-based electricity is recommended as best practice.

Scope 3 emissions:

Scope 3 emissions are indirect emissions (excluding purchased electricity, heat, or steam) resulting from activities relevant to the reporting company's operations, such as business travel, and are emitted by sources within its supply chain. Scope 3 emissions are reported at the discretion of the reporting company.

Reporting on a variety of Scope 3 categories (see Appendix B) provides companies with valuable insights to inform their broader business strategy and increasingly plays a crucial role in managing corporate carbon

[3] Refer to Section 9.1 for more detailed information regarding energy instruments and how these may or may not be used to reduce emissions.

emissions. Reporting platforms like CDP and the Science Based Targets initiative (SBTi) are pushing for more detailed visibility into supply chains, making Scope 3 reporting more important.

When reporting Scope 3 emissions, companies first identify relevant categories based on their operations, then select activities based on the availability, reliability, and accuracy of the data within the organisation.

Outside of Scopes emissions:

Outside of Scopes emissions include, among others, GHGs that are not incorporated under the Kyoto Protocol agreement, as they are presumed to have been phased out under the Montreal Protocol. In South Africa, certain GHGs, which are not part of the Kyoto Protocol, such as HCFC22 (R22), and are therefore considered Outside of Scopes, continue to be used as gas refills in air-conditioning and refrigeration equipment.

Additionally, direct CO_2 emissions from biofuels (such as the burning of biomass) are classified as Outside of Scopes, since biofuels, despite being a source of energy, are considered carbon neutral. This is based on the assumption that the CO_2 released during their combustion is reabsorbed by the plants during the growth phase. For this reason, the GHG Protocol excludes CO_2 from direct biofuel emissions within Scope 1, and these are reported under Outside of Scopes.

3.2. BASE YEAR AND EMISSIONS RECALCULATION POLICY

The base year is the historical year selected to track and compare a company's emissions over time, typically the earliest point with reliable data. Stellenbosch University has set FY2019 as its base year, reflecting reliable data and established reporting boundaries. There were no known events that would trigger a recalculation of base year emissions for FY2019.

Base year emissions should be recalculated for consistency if structural changes occur (e.g., mergers, acquisitions), calculation methodologies are updated, or significant errors are discovered. Stellenbosch University is advised to establish a recalculation policy, specifying a "significance threshold" — generally recommended at a cumulative five percent change in base year emissions (in CO_2e tonnes) — which would prompt an emissions inventory update to reflect the company's current structure and emission sources.

3.3. BOUNDARIES AND REQUIRED INFORMATION

Establishing clear reporting boundaries is essential when calculating a carbon footprint. There are two reporting boundaries to consider, operational boundaries and organisational boundaries. These boundaries are explained below, with Table 2 outlining Stellenbosch University's FY2024 required information.

Organisational Boundaries

Organisational boundaries determine which business units (core, subsidiaries, franchises, etc.), facilities, or physical places of operation, owned or controlled by the reporting company, are included in the GHG inventory. The more complex the company structure, the more important the boundaries of an organisation are for the clear definition and scope of the report.

Operational Boundaries
Operational boundaries determine the actual operational activities of the reporting company that generate emissions; which of these activities should be included in the calculation, and how these activities should be classified (i.e., direct or indirect emissions).

Table 2 below incorporates the fundamental information pertaining to Stellenbosch University for this Report.

Table 2: Required Information for GHG Reporting in Stellenbosch University's FY2024 Report

Required Information		Detail
Organisational boundary		Stellenbosch University campuses include Stellenbosch, Bellville, Tygerberg, Worcester, and Mariendahl
Reporting period		Stellenbosch University's 2024 financial year (01 January 2024 – 31 December 2024)
Methodology		GHG Protocol – Corporate Accounting and Reporting Standard
GHG consolidation approach		Operational Control Approach
Base year		FY2019
Base year emissions		♦ Scope 1: 1 981 tCO_2e ♦ Scope 2: 67 931 tCO_2e ♦ Scope 3: 14 432 tCO_2e ♦ Outside of Scopes: 109 tCO_2e
Operational boundary	Scope 1	♦ Stationary fuel: generators; cookers; gas heaters ♦ Mobile fuel: fleet and departmental vehicles ♦ Fugitive gas: air-conditioning gas; refrigerants; fire suppressants; medical gas ♦ Onsite renewable energy: photovoltaic
	Scope 2	♦ Purchased electricity: grid electricity
	Scope 3	♦ Purchased goods & services: water supply; paper ♦ Fuel- & energy-related activities: WtT for Scope 1 fuels, Scope 2 electricity and T&D losses ♦ Waste disposal: landfill; compost; recycling ♦ Business travel (WtW): air travel; accommodation; car hire; travel claims ♦ Employee commuting: private commuting, public transport
	Outside of Scopes	♦ Fugitive gas: non-Kyoto Protocol air-conditioning gas

3.4. EXCLUSIONS AND ASSUMPTIONS

There may be various exclusions and/or assumptions noted in relation to the reporting boundary and the Scope 1, Scope 2 and Scope 3 emissions covered by the Report.

Emissions generated by the following facilities and/or entities are excluded from the reporting boundary:

- The Faculty of Military Sciences, which is based at the South African Defence Force Military Academy in Saldanha, is not under the operational control of Stellenbosch University.
- Muizenberg campus – not under operational control of Stellenbosch University.

Operational exclusions and assumptions are detailed in Table 3 below, where known, along with assumptions and justifications.

Table 3: Exclusions and assumptions across Scopes for Stellenbosch University in FY2024

Category		Evaluation status	Assumptions and exclusions
Scope 1	Stationary fuels	Relevant, reported with no known exclusions	No known assumptions or exclusions
	Mobile fuels	Relevant, reported with no known exclusions	No known assumptions or exclusions
	Fugitive gas (incl. Outside of Scopes)	Relevant, reported with no known exclusions	No known assumptions or exclusions
	Medical gases	Relevant, reported with no known exclusions	F2023 data was used as a proxy due to the lack of good-quality data for FY2024.
	On-site renewable energy	Relevant, reported with no known exclusions	No known assumptions or exclusions
Scope 2	Purchased grid electricity	Relevant, reported with no known exclusions	No known assumptions or exclusions
	Purchased renewable electricity	Not relevant, explanation provided	No renewable electricity was purchased during FY2024.
Scope 3:			
1	Purchased goods & services	Relevant, partially reported: ♦ Paper ♦ Water supply	Information on other goods and services not evaluated
2	Capital goods	Relevant, not reported	Information not evaluated
3	Fuel- & energy-related activities (Not included in Scope 1 or 2)	Relevant, reported: ♦ Electricity T&D losses ♦ WtT emissions	No known assumptions or exclusions
4	Upstream transportation & distribution	Relevant, not reported	Information not evaluated
5	Waste generated in operations	Relevant, reported: ♦ Landfill waste ♦ Recycling ♦ Organic waste	The Mariendahl campus was excluded from waste calculations.
6	Business travel	Relevant, reported: ♦ Car hire ♦ Air travel ♦ Accommodation ♦ Travel claims	♦ International accommodation bed nights were excluded from the analysis. ♦ Where appropriate geographical emission factors were not available for hotel stays, proxies with close geographical alignment were selected for accuracy and completeness
7	Employee commuting	Relevant, reported	♦ Commuting emissions were calculated using the average emissions per employee approach following a commuting survey. ♦ Student commuting emissions reporting is optional and is included separately as Appendix D.
8	Upstream leased assets	Relevance not determined	Information not evaluated
9	Downstream transportation & distribution	Relevance not determined	Information not evaluated
10	Processing of sold products	Not relevant, explanation provided	Stellenbosch University is a service provider and does not sell products
11	Use of sold products	Not relevant, explanation provided	Stellenbosch University is a service provider and does not sell products
12	End-of-life treatment of sold products	Not relevant, explanation provided	Stellenbosch University is a service provider and does not sell products
13	Downstream leased assets	Relevance not determined	Information not evaluated

Category		Evaluation status	Assumptions and exclusions
14	Franchises	Not relevant, explanation provided	Stellenbosch University does not operate any franchises
15	Investments	Relevant, not reported	Information not evaluated

4. RESULTS OF EMISSIONS CALCULATIONS

4.1. SCOPE 1 EMISSIONS

Table 4 provides a breakdown of Stellenbosch University's direct Scope 1 consumption and carbon emissions for FY2024. Please note that throughout the Report, all consumption and emissions in tonnes of CO_2e are rounded to two decimal places[4] and intensity metrics are rounded to three decimal places.

Table 4: Stellenbosch University's direct Scope 1 emissions in FY2024

Category	Units/Type	Total consumption	Metric tonnes of CO_2e[5]
Stationary fuel TtW	Litres – diesel in equipment	289 062.44	769.35
	Tonnes – LPG in equipment	23.46	68.96
	Total		**838.31**
Fugitive gas[6]	Kilograms – R134a	66.80	86.84
	Kilograms – R410a	1.40	2.69
	Kilograms – R507a	1.00	3.99
	Total	69.20	**93.52**
Medical gas[7]	Kg – Acetylene[8]	64.00	0.22
	Kg – CO_2	6 200.09	6.20
	Kg – N_2O	31.30	8.29
	Total	6 295.39	**14.71**
Mobile fuel TtW	Litres – diesel	142 979.54	380.55
	Litres – petrol	195 768.20	460.78
	Total	338 747.74	**841.33**
Renewable energy generated onsite	kWh – solar renewable energy	1 793 597.59	**0.00**
Total Scope 1			**1 787.87**

[4] Should the figures in the breakdown of this Report be summed manually, there may be variances of 0.01 (up or down) from the totals stated herein due to rounding of data to two decimal places.
[5] Unless otherwise stated, all emission factors are provided by: United Kingdom Department for Environment, Food and Rural Affairs (Defra). 2024. *Greenhouse gas reporting: conversion factors 2024*.
[6] The GWP for air-conditioning, fire suppressant and refrigeration gas refills are sourced from: Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. *Fifth Assessment Report of the Intergovernmental Panel on Climate Change*. United Kingdom: Cambridge University Press.
[7] Due to the lack of availability of good, comprehensive medical gas data, 2023 data was used as a proxy for 2024. Additional medical gases used with zero GWP include: 65 574 kg Nitrogen, 98kg Helium, 14 kg Hydrogen, 1 538 kg Oxygen and 1 674 kg Argon.
[8] The emission factor for acetylene was calculated stoichiometrically.

4.2. SCOPE 2 EMISSIONS – MARKET-BASED AND LOCATION-BASED EMISSIONS

Table 5 provides a breakdown of Stellenbosch University's indirect Scope 2 consumption and carbon emissions for FY2024.

Table 5: Stellenbosch University's indirect Scope 2 emissions from purchased electricity in FY2024

Description	Units & location	Total consumption	Metric tonnes of CO_2e	
			Location-based	Market-based
Stellenbosch	kWh – South Africa[9]	52 010 112.00	48 421.41	48 421.41
Bellville	kWh – South Africa	1 241 764.60	1 156.08	1 156.08
Tygerberg	kWh – South Africa	17 071 665.00	15 893.72	15 893.72
Worcester	kWh – South Africa	409 362.00	381.12	381.12
Mariendahl	kWh – South Africa	308 662.40	287.36	287.36
Total purchased electricity		71 041 566.00	**66 139.70**	**66 139.70**

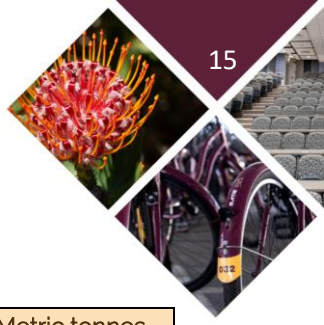
4.3. SCOPE 3 EMISSIONS

Table 6 outlines Scope 3 emissions generated during Stellenbosch University's reporting year from data that was available and deemed accurate. This Table indicates the consumption together with the calculated emissions. Please refer to relevant footnotes for further details.

Table 6: Stellenbosch University's Indirect Scope 3 emissions in FY2024

Category		Units/Type	Total consumption	Metric tonnes of CO_2e
1	Purchased goods & services	Tonnes – paper[10]	88.52	141.29
		Kilolitres – water supply[11]	606 272.67	560.80
		Total		**702.09**
3	Fuel- & energy-related activities	Various – WtT for Scope 1 fuels[12]	627 810.18	396.59
		kWh – WtT for Scope 2 electricity	71 041 566.00	10 926.19
		kWh – T&D lifecycle for purchased electricity[13]	71 041 566.00	8 574.72
		Total		**19 897.50**
5	Waste generated	Tonnes – landfill[14]	342.82	496.05
		Tonnes – recycling	609.38	3.91
		Tonnes – compost	791.51	7.03
		Total	1 743.71	**506.99**
6	Business travel	Km – car hire (WtW)	937 992.00	210.89

[9] South African emission factor for purchased electricity sourced from the Department of Forestry, Fisheries and the Environment. 2024. South Africa's 2022 Grid Emission Factors Report, Government Gazette (No 50071).
[10] The emission factor for Mondi Rotatrim paper: Mondi. Released May 2025. Mondi Office Paper Environmental Parameters – Merebank Mill. (Unpublished). The emission factor for Sappi Typek paper: Sappi. July 2024. Sappi Paper Profile – Stanger Mill. (Unpublished).
[11] The emission factor for carbon from water supply sourced from Friedrich. E. Pillay 2007.
[12] WtT emissions include stationary and mobile fuels (diesel, petrol, LPG) as well as purchased electricity.
[13] The emission factor for T&D lifecycle in South Africa for purchased electricity sourced from the IEA 2024 report for the year 2022. This is accessed through a purchased licence and cannot be disclosed.
[14] SA waste to landfill emission factor is sourced from Friedrich, E., and Trois, C. 2013.



Category		Units/Type	Total consumption	Metric tonnes of CO_2e
		Km – air travel (WtW)	27 831 459.73	6 130.56
		Bed nights – accommodation	3 695.00	184.85
		Km – travel claims (WtW)	622 573.32	131.30
		Total		**6 657.60**
7	Employee commuting[15]	FTE	4 996.00	**6 408.36**
Total Scope 3				**34 172.54**

4.4. OUTSIDE OF SCOPES

The table below indicates the Outside of Scopes emissions for Stellenbosch University during FY2024.

Table 7: Stellenbosch University's direct emissions from Outside of Scope GHGs in FY2024

Description	Units/Type	Total consumption	Metric tonnes of CO_2e
Fugitive gas (non-Kyoto)[16]	Kilograms – R600a	0.30	0.001
	Total	0.30	**0.001**

[15] Details regarding employee commuting patterns are provided in Appendix C, while information on student commuting is presented in Appendix D.
[16] The GWP for air-conditioning, fire suppressant and refrigeration gas refills are sourced from: Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. *Fifth Assessment Report of the Intergovernmental Panel on Climate Change*. United Kingdom: Cambridge University Press.

5. ILLUSTRATIVE SUMMARY

5.1. ILLUSTRATED OVERVIEW OF RESULTS OF EMISSIONS BY SCOPE FOR STELLENBOSCH UNIVERSITY IN FY2024

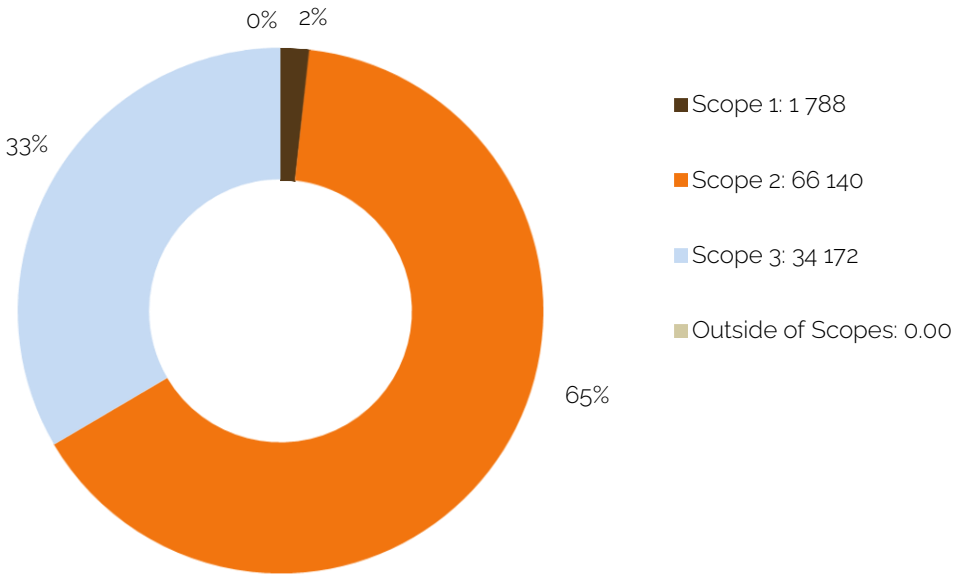


Figure 3: Stellenbosch University's emissions in tonnes of CO_2e by Scope in FY2024

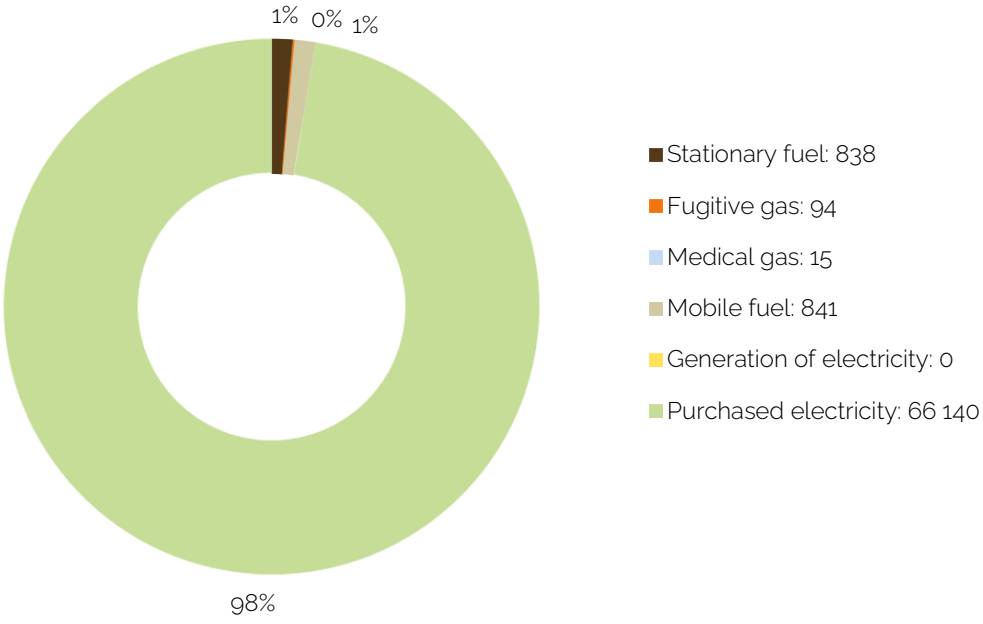


Figure 4: Stellenbosch University's Scope 1 and 2 market-based emissions in tonnes of CO_2e in FY2024

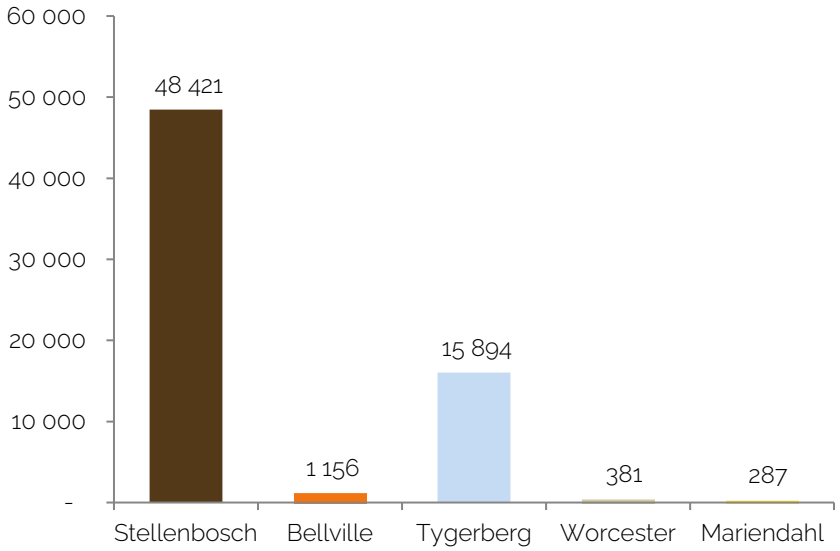


Figure 5: Stellenbosch University's Scope 2 emissions by facility in tonnes of CO_2e in FY2024

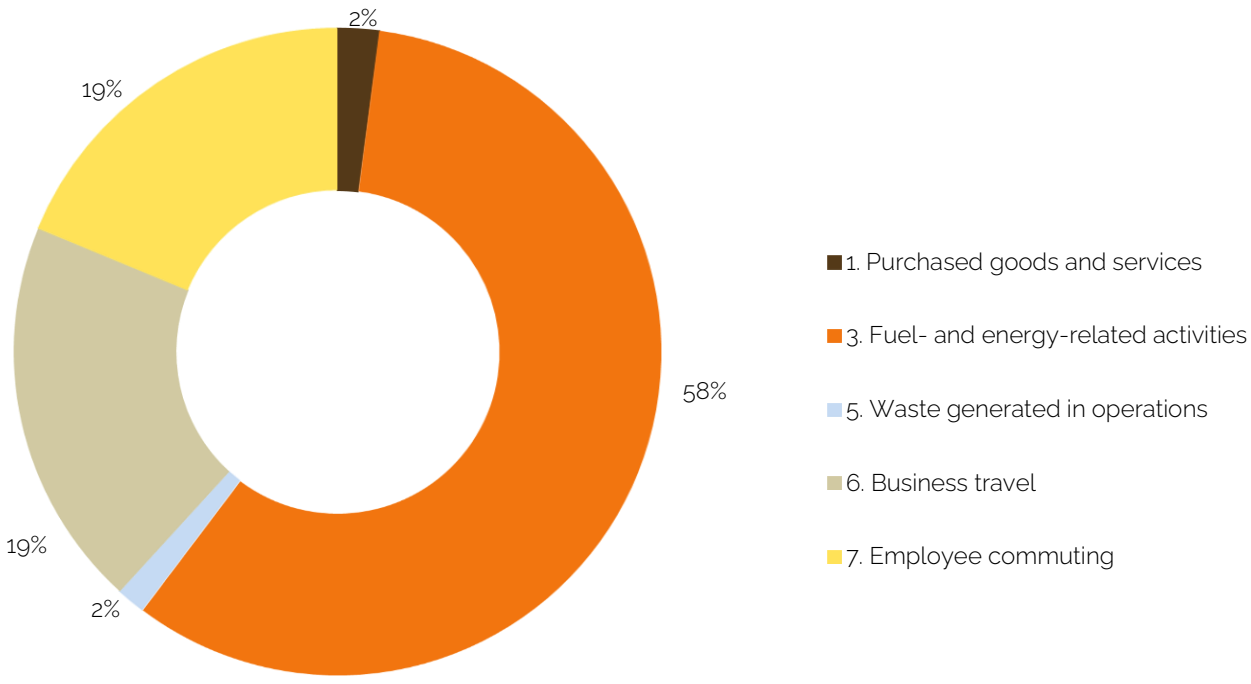


Figure 6: Stellenbosch University's Scope 3 emissions in tonnes of CO_2e in FY2024

6. COMPARISON OF EMISSIONS AND DATA TRENDS

6.1. COMPARISON OF EMISSIONS

The aim of completing a footprint each year is to collect the most detailed and accurate data possible and to further extend the operational and organisational boundaries with the goal of using the results to manage and reduce emissions. Table 9 provides a comparison of Stellenbosch University's carbon footprint as compared to the base year, and Table 10 a comparison of water consumption between years.

Table 8: Comparison of Stellenbosch University's emissions in tonnes of CO_2e between years

Category	FY2019 Baseline year	FY2022	FY2023	FY2024
Stationary fuel	378.24	1 679.18	5 440.09	838.31
Fugitive and medical gas	753.78	942.25	549.69	108.23
Mobile fuel	848.85	874.51	892.47	841.33
On-site renewable energy	0.00	0.00	0.00	0.00
Total Scope 1	1 980.87	3 495.95	6 882.25	1 787.87
Total Scope 2 – purchased electricity	67 931.03	61 491.66	60 964.85	66 139.70
Total Scope 1 & 2	69 911.90	64 987.61	67 847.10	67 927.57
Purchased goods & services	773.98	726.03	602.06	702.09
Fuel & energy activities	6 589.31	7 634.14	20 602.60	19 897.50
Waste generation	828.92	445.30	402.54	506.99
Business travel	6 053.47	8 463.06	13 064.62	6 657.60
Leased assets	186.73	Not evaluated	Not evaluated	Not evaluated
Employee commuting	Not reported	2 736.92	6 261.78	6 408.36
Total Scope 3	14 432.42	20 005.45	40 933.60	34 172.54
Outside of Scopes	108.60	247.97	181.81	0.001

Table 9: Stellenbosch University's water consumption in kilolitres between years

Description	Source	FY2019 Base year	FY2022	FY2023	FY2024	% Change FY2023-FY2024
Municipal water	Stellenbosch	370 557.71	464 125.14	412 514.95	411 731.23	-0.19%
Municipal water	Bellville	14 729.16	11 663.16	9 924.13	4 947.59	-50.15%
Municipal water	Tygerberg	71 893.59	108 473.61	116 279.84	173 328.65	49.06%
Municipal water	Worcester	17 986.17	21 434.00	12 168.92	16 265.20	33.66%
Municipal water	Mariendahl	Not reported	16 824.49	0.00	0.00	0.00%
Total		475 166.63	622 520.40	550 887.85	606 272.67	10.05%

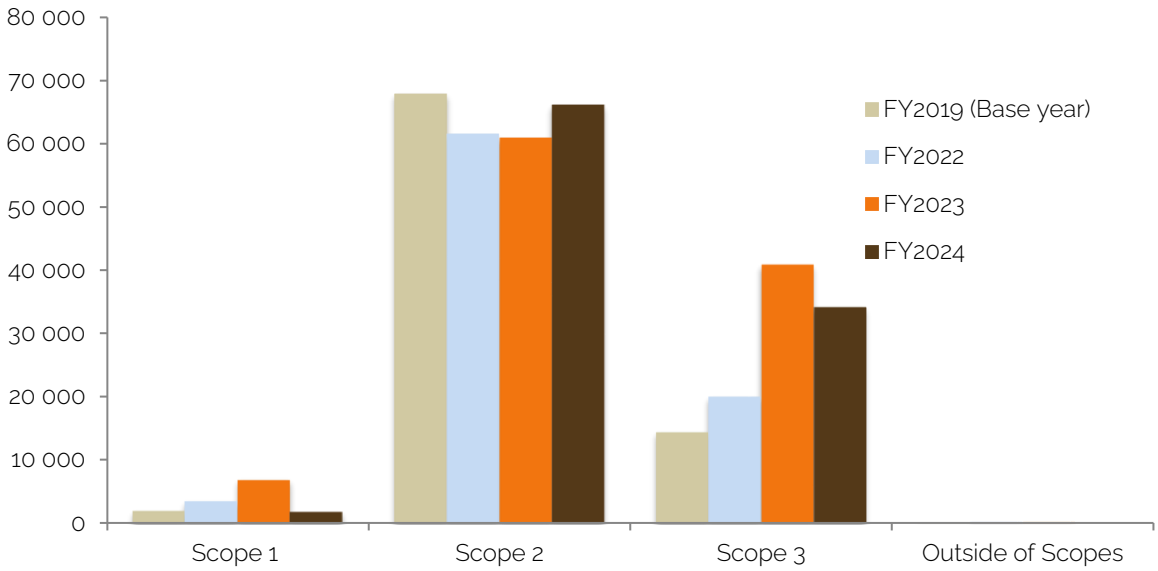


Figure 7. Stellenbosch University's comparative emissions between years (FY2019-FY2024) by Scope

6.2. NOTABLE YEAR-ON-YEAR CHANGES

Stellenbosch University's reporting and consumption have changed notably between years in the following ways:

Boundary or methodology changes:

1. Employee data was provided for the Stellenbosch and Tygerberg campuses only. The Saldanha facility was excluded from this year's data set, and for Bellville and Mariendahl, FY2023 figures were used due to the absence of current-year data. No employee data was available for the Worcester campus, and it was therefore excluded from relevant scope calculations.
2. Where location-specific emission factors were not available for hotel stays, proxy factors from closely aligned geographical regions were applied to ensure data completeness and improve the accuracy of estimates.
3. The accommodation category now includes international bed nights, which were not accounted for in FY2023, leading to a year-on-year increase in emissions from accommodation.
4. A provisional revenue figure was provided by the client and was included as such in the intensity metrics and any revenue-based calculations.

Notable variances shown in the annual emissions comparative in Table 8:

5. Emissions from diesel used in stationary generators decreased from 5 440 tCO_2e in 2023 to 838 tCO_2e in 2024, an 85% reduction. This decline is largely due to a decrease in the frequency and severity of load shedding by Eskom, which reduced the need for diesel generator use across campus. This positive shift lessened direct emissions and reflected greater grid stability during the reporting period.
6. The aforementioned reduction in load shedding also led to an increase in electricity consumption, from 60 361 233 kWh in 2023 to 71 041 566 kWh in 2024, representing an increase of approximately 17.7%. Despite this rise in electricity usage, the associated emissions impact was mitigated by a decrease in the national grid electricity emission factor between 2023 and 2024.
7. Fugitive emissions, mainly from refrigerant leakage, dropped significantly from 535 tCO_2e in 2023 to 94 tCO_2e in 2024. This 83% reduction was the result of enhanced refrigerant management practices, particularly the implementation of refrigerant gas reuse and recycling. These practices reduced the frequency of refills and leakage events, leading to more sustainable HVAC operations and lower Scope 1 emissions.
8. Due to challenges in collecting and collating reliable medical gas consumption data for 2024, data from the 2023 reporting year was used as a proxy. This approach was taken to ensure continuity and completeness in the dataset while efforts to improve data quality are ongoing.
9. Stellenbosch University increased its renewable energy generation from 702 238 kWh in 2023 to 1 793 598 kWh in 2024, representing an increase of over 155%. This growth was primarily driven by the commissioning of a new solar PV facility in November 2024, which added 127 550 kWh of clean electricity.
10. Emissions from purchased goods and services, specifically paper usage, increased from 87 tCO_2e in 2023 to 141 tCO_2e in 2024, a 62% rise. This was due to improved procurement data, with more comprehensive tracking of paper consumption across faculties and departments. The improvement strengthens the accuracy of Scope 3 reporting in the university's carbon footprint.
11. Emissions associated with municipal water consumption increased from 515 tCO_2e in 2023 to 561 tCO_2e in 2024, a 9% increase. The rise is linked to a higher number of students and staff using university facilities, along with the construction and occupation of new buildings, resulting in greater water demand and related Scope 3 emissions.
12. Waste-related emissions increased from 403 tCO_2e in 2023 to 507 tCO_2e in 2024, marking a 26% increase. This is due to improved waste data collection processes and the inclusion of additional facilities in waste reporting. The broader data coverage allowed for more accurate accounting of waste volumes and associated emissions.

6.3. COMPANY INTENSITY METRICS

Intensity metrics are indicators that provide a comparison of the amount of CO_2e relevant to an operational indicator. Typically, the indicator is a factor that is comparable across years and sectors. Examples include FTEs, area in square metres (m^2), volumes of production, and/or a monetary factor such as EBITDA, revenue, or turnover.

For the purposes of benchmarking with other companies in the relevant sector, intensity figures are generally based on Scope 1 and Scope 2 emissions only. This is because these scopes are compulsory for reporting, while Scope 3 categories are reported at the discretion of the reporting company. However, it is important to note that emission intensity values are highly sensitive to changes in the intensity indicators over time and may not sufficiently demonstrate emission reduction efforts by Stellenbosch University.

Table 10: Comparison of Stellenbosch University's emissions and intensity between years

Intensity indicators	FY2019 Baseline year	FY2022	FY2023	FY2024
Full-time employees (FTEs)[17]	4 691	4 161	3 726	4 996
Area (m^2)	745 978	790 780	801 195	856 529
Revenue (ZARm)	5 902	6 252	8 579	8 772
Total population (people)	35 585	36 696	37 382	40 373
Electricity consumed (including solar and grid) (kWh)	65 951 593	59 855 324	61 063 472	72 835 164
Scope 1 & 2 emissions	69 911.90	64 987.61	67 847.10	67 927.57
Scope 1&2 (tCO_2e)/FTEs	14.903	15.618	18.209	13.596
Scope 1&2 (tCO_2e)/m^2	0.094	0.082	0.085	0.079
Scope 1&2 (tCO_2e)/ZARm	8.843	10.395	7.909	7.744
Scope 1&2 (tCO_2e)/population	1.965	1.771	1.815	1.682
Total emissions	84 452.92	85 241.03	108 962.51	101 254.01
kWh consumed electricity/people	1 853.35	1 631.11	1 633.50	1 804.05

7. RELEVANT REPORTING INFORMATION

7.1. INFORMATION ON OFFSETS AND RENEWABLE ENERGY

Stellenbosch University has not offset any of its GHG emissions through either the purchasing of renewable energy or any other appropriate offsetting mechanism.

Stellenbosch University has generated 1 793 598 kilowatt hours of onsite renewable energy in owned equipment in South Africa. This equates to an equivalent carbon saving of 1 670 tCO_2e.

[17] Full-time employee data for 2024 was only provided for the Tygerberg and Stellenbosch campuses. As a result, 2023 figures were used as proxies for the Bellville and Mariendahl campuses, while no data were available for the Worcester campus.

Table 11: Comparison of Stellenbosch University's onsite renewable energy generation between years

Category	Units	FY2019 Baseline year	FY2022	FY2023	FY2024
Onsite renewable energy	kWh	34 879.68	728 727.65	702 238.34	1 793 597.59

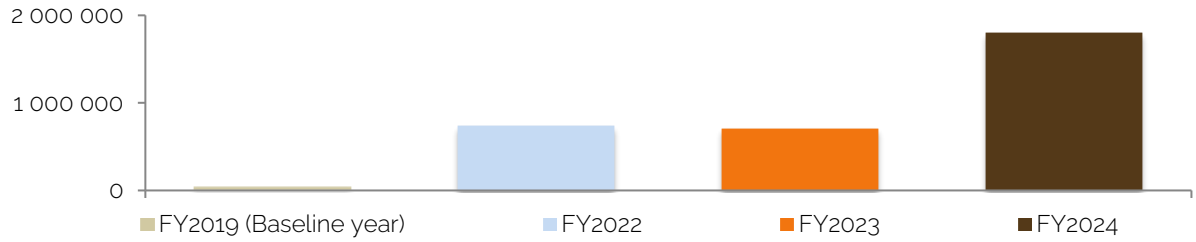


Figure 8: Stellenbosch University's onsite solar generation between years in kilowatt hours.

7.2. VERIFICATION OF GHG INVENTORY

An independent verification party has not verified this report.

8. IMPROVEMENTS AND RECOMMENDATIONS

8.1. REPORTING IMPROVEMENTS

Stellenbosch University has improved its reporting from FY2023 to FY2024 by implementing the following measures:

- By including waste data for the Worcester campus, Stellenbosch University has improved its reporting through enhancing the completeness of campus-level waste tracking.
- The University also improved data quality for refrigerants by specifying which refrigerants are reused or recycled, allowing for more accurate emissions calculations and regulatory compliance.
- Additionally, there is better insight into gaps in solar generation data; for example, the Knowledge Centre solar PV system was switched off during July 2024 while the Mechanical Main PV system was being commissioned, and the Industrial and Sawtooth systems experienced downtime from 27 September to 11 November due to a metering issue that led to underreporting, which has since been resolved.

8.2. REPORTING RECOMMENDATIONS

It is recommended that the following actions be taken to improve the relevance, completeness, consistency, transparency, and accuracy (i.e., the five principles of the GHG Protocol) of Stellenbosch University's emissions:

- Address any inclusions or exclusions in the organisational and operational boundary by clarifying the treatment of campuses like Saldanha and Muizenberg, even if there is no operational control, as these

can still be included under the relevant Scope 3 category.

- Improve data quality by resolving gaps, documenting assumptions and estimations clearly, and ensuring supporting evidence is available for all reported figures.
- Improve the quality and completeness of medical gas data in the future, as it was challenging to determine the specific gas types and quantities used.
- Improve the quality and completeness of paper consumption data, as it was difficult to confirm what type of paper was used, how many reams were purchased, and the total quantity consumed.
- Include additional relevant Scope 3 categories in future reporting, such as emissions from purchased goods and services (procurement-related emissions) and capital goods and leased assets.
- Ensure solar meters are consistently operational and that generation data remains accessible, even during periods of meter failure or system downtime.

8.3. STRATEGIC RECOMMENDATIONS

It is recommended that the following actions be taken to improve the company's emissions profile, emissions reduction strategy and perception around climate change risks and opportunities for future reporting:

- It is recommended that the university commission an independent third-party verification of its carbon footprint assessment. Independent verification enhances the credibility, transparency, and accuracy of reported emissions data. It also ensures alignment with best practices and international standards (e.g., ISO 14064 or GHG Protocol), providing stakeholders, such as funders, regulators, students, and the broader public, with confidence in the integrity of the university's climate disclosures.
- Additional benefits include the identification of data quality issues, benchmarking against peer institutions, and strengthening the university's readiness for future mandatory disclosure or assurance requirements as sustainability reporting evolves.
- Transition to fugitive gases with a lower global warming potential to reduce Scope 1 emissions from refrigerants and other equipment.
- Transition to solar energy and/or the procurement of renewable electricity to reduce reliance on grid-supplied electricity and lower Scope 2 emissions.
- Set climate targets aligned with the Paris Agreement to support global efforts in limiting temperature rise to 1.5˚C.
- Improve energy efficiency across facilities on each campus, as the majority of the university's emissions are electricity-related.
- Implement month-on-month tracking of all key environmental data streams to ensure data quality, detect anomalies early, and address unexpected spikes or gaps.
- Conduct benchmarking across all major facilities and set individual facility-level targets to drive targeted performance improvements.It is recommended that benchmarking be conducted across all major facilities to establish individual, facility-level performance targets aimed at driving targeted improvements in resource efficiency. This includes benchmarking energy consumption in kilowatt-

hours per square meter based on facility type, aligned with SANS 10400 benchmarks. Similarly, water withdrawals should be benchmarked in kiloliters per square meter. To provide additional performance insights and enable comparability, these metrics can also be normalised per full-time employee (FTE), total student population, total site population, or per unit of revenue, where applicable. This approach will support more accurate tracking, highlight performance gaps, and inform data-driven sustainability strategies at the facility level.

- It is further recommended that the university develop and adopt a base year recalculation policy in line with the GHG Protocol Corporate Standard. A base year recalculation policy outlines the circumstances under which historical emissions data should be recalculated, such as structural changes (e.g., acquisition or divestment of facilities), changes in calculation methodologies, or significant improvements in data accuracy. Implementing such a policy ensures consistency and comparability of emission data over time, enhancing the integrity of the university's carbon footprint reporting. It also strengthens the reliability of trend analysis and target tracking, especially in the context of long-term reduction commitments.
- Develop a long-term carbon neutrality or net-zero carbon strategy and roadmap to guide the university's transition to low-carbon operations.

9. ADDITIONAL INFORMATION

9.1. PURCHASING ZERO-EMISSIONS ELECTRICITY

Companies are setting climate targets aligned to a 1.5 degree world, and are actively looking at ways to reduce their greenhouse gas emissions. As many companies' largest emitting activities are those that consume electricity, it is logical that this is often one of the first areas to consider. Following an energy efficiency audit, companies look at ways of procuring alternative energy sources with lower, or ideally zero carbon emissions. This will reduce the Scope 2 emissions, which are emissions from purchased electricity, heat and steam.

The GHG Protocol's Scope 2 quality criteria provide guidelines for organisations to account for and report emissions from purchased electricity, heat, steam, and cooling. These emissions are categorised under Scope 2 and can be reported using two methods: the location-based method (reflecting the average emissions intensity of the local grid) and the market-based method (reflecting emissions based on contractual agreements and specific energy sources).

The quality criteria ensure accurate, consistent, and credible market-based reporting. Key components include:

- Contractual instruments: Organisations must use reliable and legitimate instruments (e.g., Renewable Energy Certificates or Guarantees of Origin) to claim specific emissions factors associated with the unit of electricity produced (kilowatt hours).

- **Exclusive claims**: Only one entity can claim the environmental attributes of purchased electricity to prevent double-counting. Once redeemed, the instrument must be retired or cancelled.
- **Matching energy use**: The energy attributed to instruments must match the volume of electricity consumed, within the same reporting year (as close as possible to the period of consumption) and be from the same location or geography within which the energy was consumed.
- **Emission factor hierarchy**: Direct supplier-specific emission factors should be prioritised over grid-average emission factors where data is available. Residual mix emission factors should be used for market-based emissions if available.
- **Transparency**: Reports should include detailed disclosures on the source, type, and location of energy purchases and the method used to calculate emissions. Certification should be included within reporting.

By adhering to these criteria, organisations ensure their Scope 2 emissions reporting is robust, verifiable, enabling comparability and supporting sustainability goals.

There are several approaches to purchasing electricity with zero associated carbon emissions, including Power Purchase Agreements (PPAs), wheeling, and Renewable Energy Certificates (RECs).

1. Power Purchase Agreement (PPA)

A long-term contract between a buyer—typically a business or utility—and a third-party provider for electricity generated from a renewable energy source. A common example is rooftop solar installations, where a third-party provider owns, installs, and maintains the solar panels on the buyer's premises. Under the terms of the PPA, the electricity generated is supplied directly to the buyer.

To ensure that the solar electricity that is purchased has zero carbon emissions associated with it, the PPA must specify that the electricity purchased is "bundled". This means that the electricity (measured in kilowatt-hours) is sold together with its associated environmental attributes, being the environmental benefits that come with producing clean energy, such as reduced greenhouse gas emissions and other pollutants. By purchasing bundled solar power, the buyer directly supports renewable energy production and can claim the associated environmental benefits. Both the location-based and market-based emissions are zero if this is a direct line purchase of onsite solar electricity[18].

In contrast, in an "unbundled" arrangement, the electricity is sold separately from the environmental attributes. The buyer purchases the solar energy but does not receive the associated environmental benefits. These environmental attributes can then be sold separately to another party, such as a company seeking to achieve sustainability targets. While the buyer still consumes renewable electricity, they cannot claim the zero-emission benefits because the environmental attributes have been transferred elsewhere. The market-based emissions would be as if they had purchased electricity off

[18] See section 3.1 for an explanation on location-based and market-based electricity.

the grid or according to the residual emission factor (the grid emission factor, less the renewable energy that has already been purchased), where this is available.

2. Wheeling

This approach to purchasing zero-emission electricity involves electricity being generated off-site and fed into the grid. The environmental attributes can be sold directly to the buyer, whereby the kilowatt hours are balanced by the grid electricity service provider and the renewable energy provider to ensure that the electricity sold matches the renewable energy generated.

3. Renewable Energy Certificates (RECs)

Certificates that indicate the environmental attributes of renewable energy can be purchased from an official registry. These certificates have differing names such as RECs, Guarantee of Origin (GOs), Energy Attribute Certificates (EACs), etc. Each certificate is assigned a unique number and retired or cancelled once purchased to prevent double-counting.

PPAs, wheeling and RECs all provide credible ways to access zero-emission electricity. By using these options, organisations can align their energy consumption with sustainability goals, reduce their carbon footprint, and demonstrate their commitment to combating climate change. Currently, these methods are still allowable under the GHG Protocol, but the likelihood remains that the guidance may change in the near future to disallow the use of these instruments for reducing Scope 2 emissions. For this reason, as well as for best practice, it is strongly recommended that energy efficiency measures, along with reduced reliance on fossil-fuel energy (i.e. investing in renewable energy), are prioritised ahead of purchasing certificates or unbundled environmental attributes.

9.2. WELL-TO-WHEEL

Well-to-wheel (WtW) emissions include all emissions related to the production, processing, distribution, and use of fuels and electricity. In the case of diesel, emissions are produced during extraction from the earth, refining, distribution to the fuel stations, and combustion in equipment and vehicles. The first half of the process is defined as Well-to-Tank (WtT), and the final stage of use (combustion) is known as Tank-to-Wheel (TtW). Should the vehicle or equipment fall under the operational control of the reporting company, the TtW combustion would be captured as Scope 1 (compulsory reporting), and the WtT emissions should be reported as Scope 3 under Category 3, Fuel-and Energy-related Activities (optional reporting).

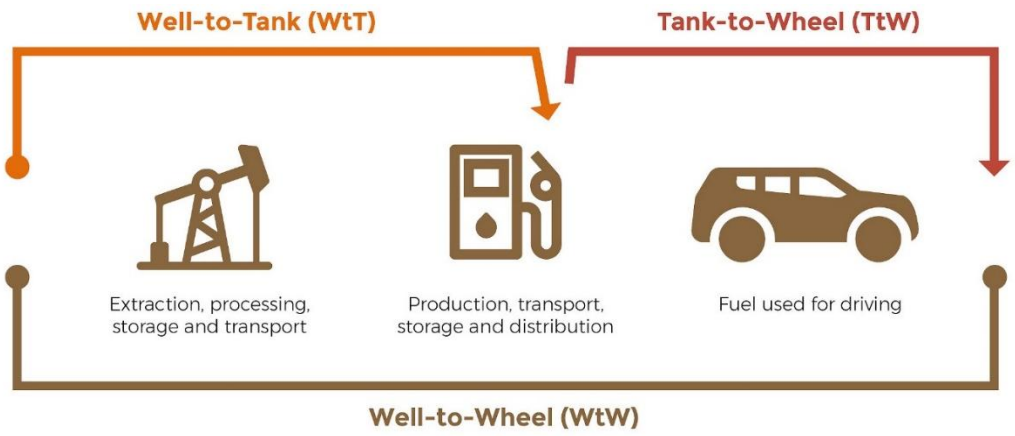


Figure 9: Well-to-Wheel emissions

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APPENDIX A: KEY TERMS AND ABBREVIATIONS

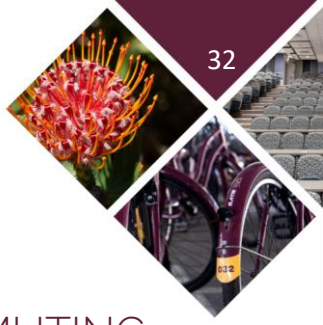
Base year	A past year used as a baseline to compare year-on-year emissions
CDP	A non-profit organisation that supports companies and cities in the disclosure of their environmental impact to the international investor community (see www.cdp.net)
CO_2 / CO_2e	Carbon dioxide / Carbon dioxide equivalent – conversion of all greenhouse gases to reflect their global warming potential relative to CO_2
Decarbonisation	The process by which CO_2 emissions are reduced or eliminated. Under the Net-Zero Standard, most companies are required to reduce emissions by at least 90% to reach net-zero
Defra	United Kingdom Department for Environment, Food and Rural Affairs
Direct emissions	Greenhouse gas emissions from facilities/sources – e.g., generators, fugitive emissions, vehicle fleets, etc. – owned or controlled by a reporting company
Downstream emissions	Greenhouse gas emissions related to manufactured and/or sold goods and services, e.g., end-of-life treatment of sold products, transportation, and distribution of sold products and franchises
Emission factors	Specific value used to convert activity data into greenhouse gas emission values, presented in specific units, e.g., $kgCO_2e$/km travelled
FTE	Full-time employee/equivalent
Fugitive emissions	Emissions from gases or vapours from pressurised equipment due to leaks and other unintended or irregular releases of gases e.g., air-conditioning gas leaks, refrigeration and fire-suppressant gas refills, or methane emissions from coal mining
FY	Financial year
GHG	Greenhouse gas – a gas that contributes to the greenhouse effect by absorbing infrared radiation. Carbon dioxide and chlorofluorocarbons are examples of greenhouse gases
GHG Protocol	Greenhouse Gas Protocol – International methodology used to calculate the carbon footprint of an organisation, developed by the World Business Council for Sustainable Development (WBCSD) and the World Resources Institute (WRI)
GWP	Global Warming Potential – an indication of the global warming effect of a greenhouse gas in comparison to the same weight of CO_2
Indirect emissions	GHG emissions from facilities/sources that are not owned or controlled by the reporting company, but for which the activities of the reporting company are responsible, e.g., purchasing of electricity, business travel, etc.
Intensity	A metric to compare CO_2e emissions, expressed in terms of another metric of activity, e.g., CO_2e per FTE, area, income, or tonnes of product
IPCC	Intergovernmental Panel on Climate Change – the United Nations body for assessing the science related to climate change.
Kyoto Protocol	An international agreement linked to the United Nations Framework Convention on Climate Change, which commits its Parties by setting internationally binding emission reduction targets. The Protocol was adopted in Kyoto, Japan, in December 1997 and entered into force in February 2005
Market-based electricity	The emissions from electricity-generating sources that companies have purposefully chosen – for example, energy from a specific wind farm – which may be different from the electricity that is generated for the local grid, thus using a supplier-specific emission factor
Outside of Scopes	Emissions accounted for by the direct CO_2 impact of burning biomass and biofuels where the Scope 1 impact of these fuels has been determined to be a net zero. This also includes non-Kyoto Protocol fugitive emissions outside of the GHG Protocol such as R22 Freon air-conditioning gas refills.
RECs	Renewable energy certificates – a tradable asset that represents the environmental attributes of renewable electricity

Science Based Target initiative (SBTi)	A partnership between CDP, United Nations Global Compact (UNGC), World Resources Institute (WRI) and World Wildlife Fund (WWF). The initiative enables leading companies to set targets that will hold global warming below 1.5°C or well below the 2°C threshold – as directed by science and promoted through the Paris Agreement
Scope 1 emissions	Emissions resulting from equipment owned or controlled by a reporting company (direct emissions)
Scope 2 emissions	Emissions resulting from consumption of electricity, steam or heat purchased by a reporting company (indirect emissions)
Scope 3 emissions	Emissions resulting from indirect activities, excluding Scope 2, of a reporting company, e.g., commuting travel, business travel, paper consumption (indirect emissions)
tCO_2e	Tonnes of Carbon Dioxide equivalent -– conversion of all greenhouse gases to reflect their global warming potential relative to CO_2 in metric tonnes
Transmission and Distribution (T&D) Losses	The energy losses that occur in the transfer of electricity from the power plant to the end user. Reporting the T&D emissions associated with purchased power helps represent the full impact of an organisation's activities and operations and is regarded as best practice. This does not apply for renewable energy generated onsite
Tank-to-wheel (TtW) emissions	Direct use emissions from fuel combustion in vehicles, generally reported as mobile fuel emissions.
Upstream emissions	Indirect GHG emissions that occur in the development of a material/product, up to the point of sale by the producer, sometimes referred to as cradle-to-gate emissions, e.g., manufacture and delivery of goods or raw materials, business travel, employee commuting and waste generated in operations
Verification/Assurance	The act of reviewing, inspecting, or testing by an independent third-party, to establish and document that a product, service, or system meets regulatory or technical standards
Well-to-Tank (WtT) emissions	Upstream third-party emissions related to the production and distribution of fuel for stationary and mobile equipment and for electricity generation. Generally reported under Scope 3, category 3.
Well-to-Wheel (WtW) emissions	The combination of TtW and WtT emissions.
Wheeling	The delivery of energy from a generator to an end-user located in another area through the use of existing distribution or transmission networks. This energy is then balanced so that the energy generated matches the end-user consumption within the time-of-use period, thus wheeling is more of a financial transaction between IPP and end-user.

APPENDIX B: GHG PROTOCOL'S SCOPE 3 CATEGORIES

Table 12: Emissions-generating activities of the Scope 3 categories

Category	Scope 3 category	Description
1	Purchased goods and services	Emissions from the production of goods (consumables) and services, purchased or acquired by the reporting company.
2	Capital goods	Emissions from the production of capital goods (assets) purchased or acquired by the reporting company.
3	Fuel- and energy-related activities	Emissions from the indirect consumption of fuels and energy not already accounted for in Scope 1 or Scope 2, specifically fuel or energy consumed by third parties because of the operations of the reporting company. Examples include emissions released during the transmission and distribution of electricity from utility to consumer.
4	Upstream transportation and distribution	Emissions from the transportation and distribution of products or services commissioned and paid for by the reporting company in vehicles not owned or controlled by the reporting company. This includes logistics, courier services and shipping.
5	Waste generated in operations	Emissions from the disposal and treatment by a third party of waste generated by the reporting company's operations and employees.
6	Business travel	Emissions from the transportation of employees for business-related activities in vehicles or aircraft not owned or operated by the reporting company. Also included is travel accommodation incurred during employee travel.
7	Employee commuting	Emissions from the commuting between residence and place of work by employees for business-related activities in vehicles not owned or operated by the reporting company.
8	Upstream leased assets	Emissions from the operation of assets leased by the reporting company and not accounted for in Scope 1 and Scope 2. This category is applicable only to companies that operate leased assets.
9	Downstream transportation and distribution	Emissions from the transportation and distribution of products or services sold by the reporting company but where the transportation is commissioned and paid for by the end-user and operated in vehicles not owned or controlled by the reporting company. This includes logistics, retail deliveries and courier services.
10	Processing of sold products	Emissions from the processing of products sold by the reporting company but used in the manufacture of downstream products, pertaining to the Scope 1 and Scope 2 emissions of downstream companies (e.g., manufacturers).
11	Use of sold products	Emissions from the end-use of goods and services sold by the reporting company, pertaining to fuels, feedstocks and products that directly consume energy (fuels or electricity) during use and for the expected lifetime.
12	End-of-life treatment of sold products	Emissions from the end-of-life waste disposal and treatment of products sold by the reporting company.
13	Downstream leased assets	Emissions from the operation of assets owned by the reporting company and leased to other entities, not included in Scope 1 and Scope 2.
14	Franchises	Emissions from the operations of franchises not accounted for in Scope 1 and Scope 2 of the reporting company. This category is only applicable to franchisors accounting for the Scope 1 and Scope 2 emissions of franchisees.
15	Investments	Emissions from the operation of investments (including equity, debt investments and project finance) not accounted for in Scope 1 or Scope 2. This category is applicable to investors (i.e., investing for profit) and companies that provide financial services.



APPENDIX C: DETAILED RESULTS OF EMPLOYEE COMMUTING SURVEY

The commuting survey was sent to all Stellenbosch University employees. The total number of respondents to the questionnaire was 181, of which 7 surveys were not used. The total surveys used was 174, equating to 3.5% of Stellenbosch University's 4 996 full-time, office-based employees. Fourteen public holidays were used in the calculation for the FY2024 reporting year.

Table 13: Stellenbosch University's employee commuting survey results for FY2024

Description	Engine size/Variable	Total consumption (km)	Metric tonnes of CO_2e
Private vehicles[19]	Less than 1.4 l petrol	349 035.54	53.29
	1.4–2.0 l petrol	511 914.51	89.67
	Greater than 2 l petrol	71 478.30	20.13
	Less than 1.7 l diesel	70 457.70	11.88
	1.7–2.0 l diesel	66 758.20	11.48
	Greater than 2 l diesel	67 738.60	19.14
	Average hybrid	53 656.00	8.54
	Average plug-in hybrid	9 944.00	1.22
	Motorbike	13 166.00	2.20
Other transport modes	Private taxi[20]	3 375.00	0.71
	Taxi	91 628.00	2.69
	Bus	13 786.00	2.23
	Walking/cycling	5 493.40	0.00
Total			223.19
Total surveys used			174.00
Average carbon per survey			1.28
Total full-time employees			4 996
Estimated total carbon for employee commuting for Stellenbosch University			6 408.36

[19] Emissions calculations may vary for private vehicles as some employees shared lifts, therefore the emissions were attributed to each passenger within the vehicle.
[20] For transport by Uber an 'average car unknown fuel' emission factor was used, and it was assumed the employee was the only person being transported.

APPENDIX D: DETAILED RESULTS OF STUDENT COMMUTING SURVEY

The commuting survey was sent to all Stellenbosch University students. The total surveys used was 149, equating to 0.42% of Stellenbosch University's 35 370 students.

Table 14: Stellenbosch University's student commuting survey results for FY2024

Description	Engine size/Variable	Total consumption (km)	Metric tonnes of CO_2e
Private vehicles[21]	Less than 1.4 l petrol	29 556.00	4.75
	1.4–2.0 l petrol	39 848.69	7.76
	1.7–2.0 l diesel	2 011.60	0.16
	Average hybrid	10 098.00	1.61
	Average unknown fuel	440.00	0.09
Other transport modes	Uber Average (if not known)[22]	56 345.70	11.88
	Mini bus taxi	16 097.35	0.47
	Bus	2 595.00	0.42
	Walking/cycling	25 587.99	0.00
Total			100.63
Total surveys used			149.00
Average carbon per survey			0.68
Total students			35 370
Estimated total carbon for students commuting for Stellenbosch University			23 886.85

[21] Emissions calculations may vary for private vehicles as some students shared lifts, Therefore the emissions were attributed to each passenger within the vehicle.
[22] For transport by Uber an 'average car unknown fuel' emission factor was used, and it was assumed the student was the only person being transported.