

North-West University

CARBON FOOTPRINT

Financial Year 2024

June 2025

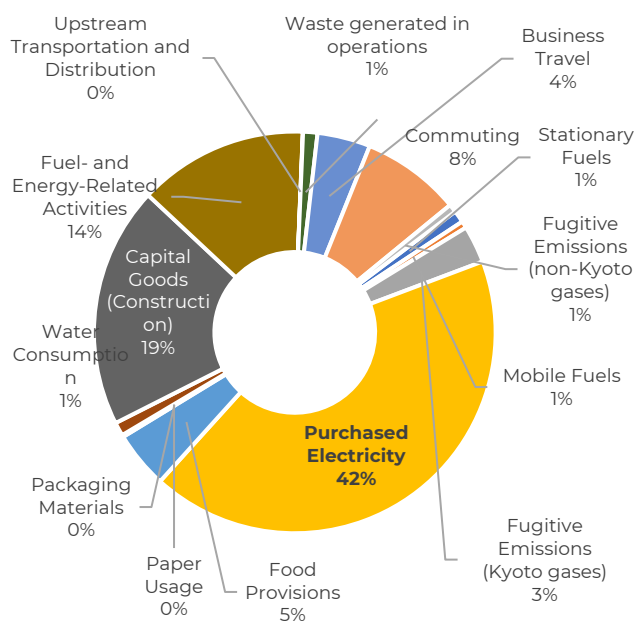
RESULTS SUMMARY

This report presents the findings of North-West University's (NWU) Greenhouse Gas (GHG) emissions inventory for the financial year 1 January – 31 December 2024.

This marks NWU's third carbon footprint assessment. The organisational boundary includes the university's three South African campuses—Potchefstroom, Mahikeng, and Vanderbijlpark—as well as associated off-campus facilities: Nootgedacht, Eco-Rehab, Molewane, and Faranani.

Emissions were calculated in accordance with the GHG Protocol Corporate Standard (WRI & WBCSD, 2004), applying the Operational Control approach. All Scope 1 and Scope 2 emissions were measured, alongside selected Scope 3 categories. Emissions are summarised below per campus.

Potchefstroom Campus, NWU's largest, contributed the most significantly to the university's total carbon footprint. A substantial share of these emissions stemmed from purchased electricity, highlighting an important area for future reduction efforts.

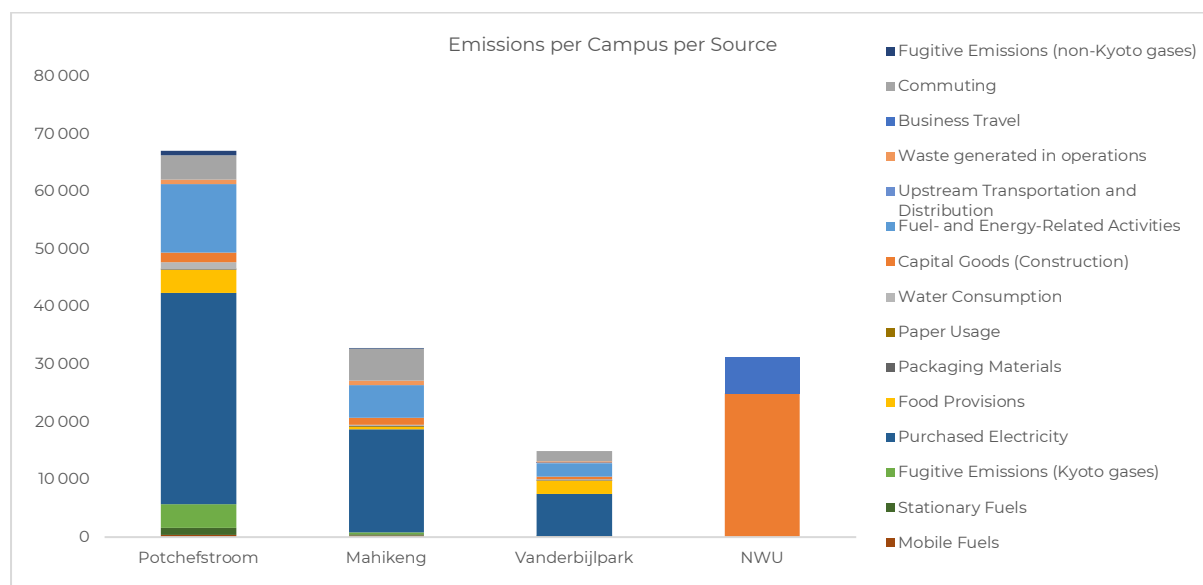


NWU CARBON FOOTPRINT FY24, 146 201 tCO₂e

SCOPE	SOURCE	Potchefstroom	Mahikeng	Vanderbijlpark	NWU	Total tCO ₂ e	% of Total
SCOPE 1	Stationary Fuels	1154	234	40		1428	1%
	Mobile Fuels	417	262	136		814	1%
	Fugitive Emissions (Kyoto gases)	4106	281			4387	3%
SCOPE 2	Purchased Electricity	36759	18005	7287		62052	42%
SUB-TOTAL SCOPE 1 & 2		42436	18782	7463	0	68681	47%
	Food Provisions	3926	433	2358		6717	5%
	Packaging Materials	174	4	4		182	0%
	Paper Usage	40	10	9		59	0%
	Water Consumption	1149	267	176		1591	1%
	Capital Goods (Construction)	1682	1190	531	24996	28399	19%
	Fuel- and Energy-Related Activities	11896	5762	2327		19984	14%
	Upstream Transportation and Distribution			32		32	0%
	Waste generated in operations	735	680	276		1691	1%
	Business Travel				6248	6248	4%
	Commuting	4289	5627	1750		11666	8%
SUB-TOTAL SCOPE 3		23891	13971	7463	31243	76568	52%
OTHER DIRECT	Fugitive Emissions (non-Kyoto gases)	814	138			952	1%
TOTAL EMISSIONS		67140	32891	14926	31243	146201	100%

EMISSIONS PER CAMPUS

Potchefstroom Campus accounted for 46% of NWU's total GHG emissions in FY24. Of particular significance, **electricity consumption at this campus represented 25% of NWU's overall emissions**. This points to a key opportunity for emissions reductions through targeted energy efficiency and behavioural interventions.



EMISSIONS HISTORY

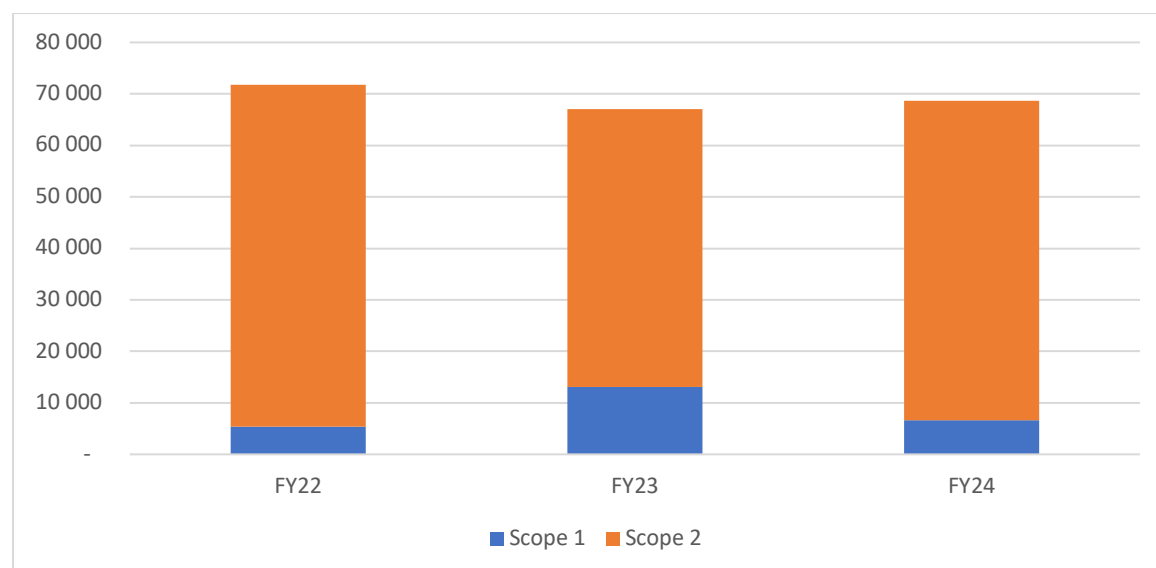
The table below compares the annually reported emissions since FY22.

SCOPE	SOURCE	FY22	FY23	FY24
SCOPE 1	Stationary Fuels	2 525	8 104	1 428
	Mobile Fuels	712	1 116	814
	Fugitive Emissions (Kyoto gases)	2 131	3 860	4 387
SCOPE 2	Purchased Electricity	66 404	53 964	62 052
SUB-TOTAL SCOPE 1 & 2		71 772	67 045	68 681
SCOPE 3	01. Purchased Goods and Services	5 007	7 843	8 549
	02. Capital Goods	17 122 *	19 396	28 399
	03. Fuel and energy related activities	21 458	20 015	19 984
	04. Upstream transportation and distribution	82	111	32
	05. Waste generated in operations	3 131	2 124	1 691
	06. Business travel	3 244	5 772	6 248
	07. Employee Commuting	11 033	10 809 **	11 666
SUB-TOTAL SCOPE 3		61 078	66 069	76 568
OTHER DIRECT	Out of Scopes (Refrigerants)	1 901	819	952
		134 751	133 933	146 201

Note: *The FY22 value reported for Capital goods was overestimated and is corrected on our monthly reporting platform.

** the value stated here for employee commute in FY23 was restated in 2024 and is corrected on the monthly reporting platform.

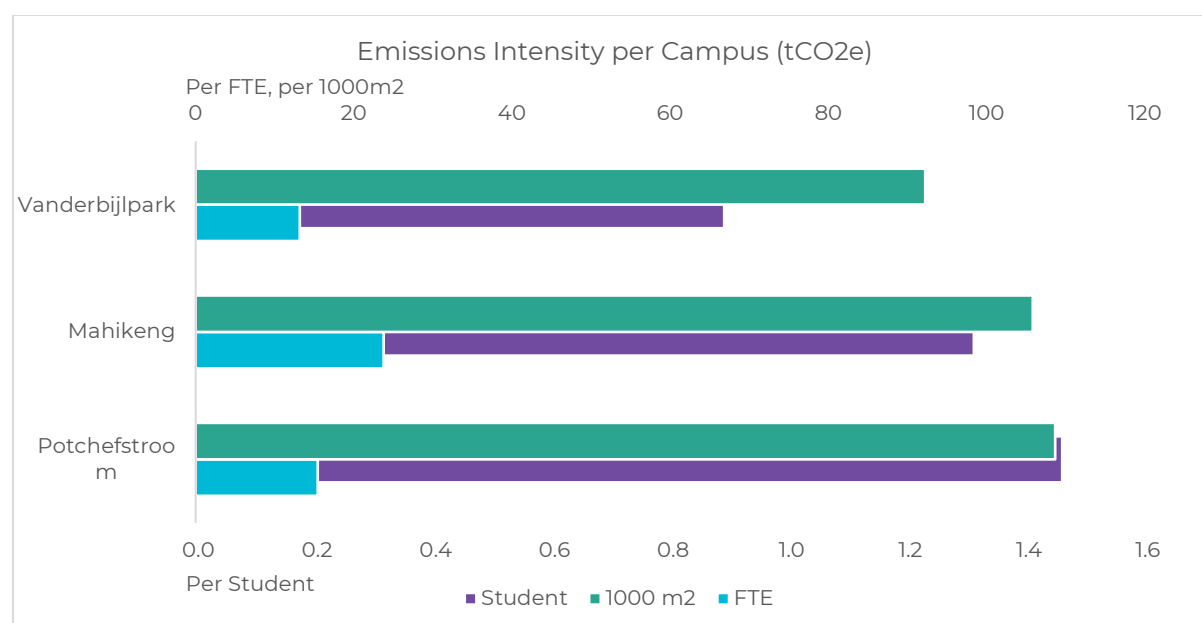
The visual below illustrates NWU's Scope 1 and 2 emissions trend over the past three carbon assessments.



Overall, a notable increase in scope emissions can be observed in FY24, primarily due to improved data availability—particularly in Scope 3, which accounted for 52% of total emissions. Capital goods alone contributed 28,399 tCO₂e, underscoring the impact of infrastructure development. This expanded coverage offers a more comprehensive reflection of the university's operational impact and provides valuable insights to inform targeted mitigation strategies going forward.

REPORTING METRICS

Intensity metrics, as opposed to absolute emissions, reflect changes in institutional activity that can affect emissions levels. These metrics allow for meaningful year-on-year performance comparisons. Due to the variability of Scope 3 emissions, intensity metrics include only Scope 1 and 2 emissions. A detailed breakdown of emission intensities is available on DASH.



ANNUAL INTENSITY TRENDS

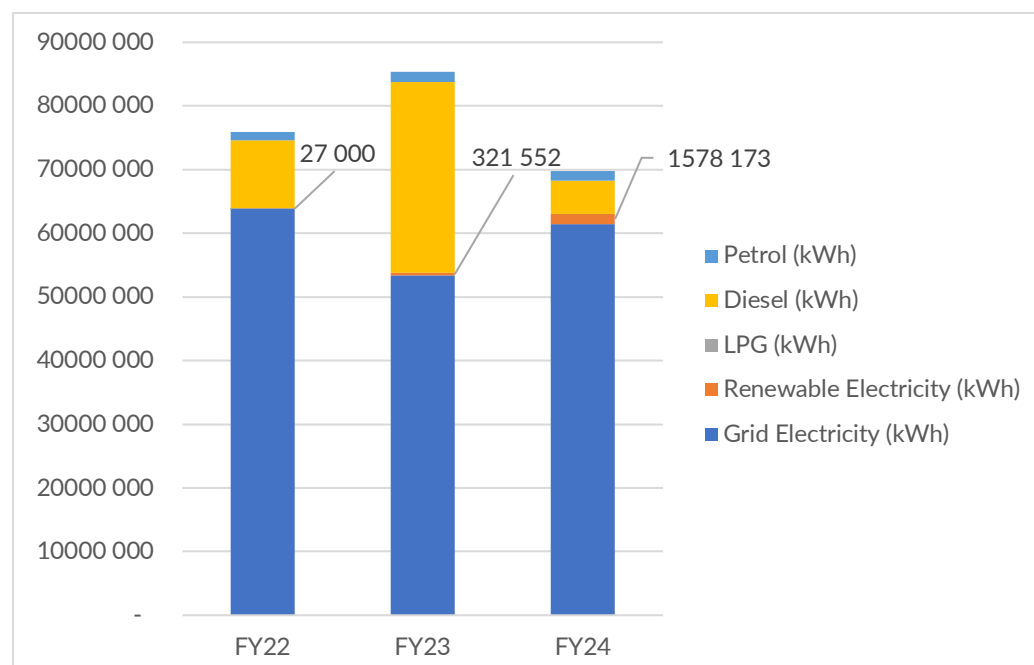
The table below shows the reported intensity metrics and annual performance per metric across all campuses combined. It is good to note a decrease in intensity emissions per student and per GLA over the past three years.

	FY22	FY23	FY24
FTE	7 708	4 882	4 336
Students	54 553	52 202	55 635
GLA	657 798	657 798	657 798
Scope 1 and 2	71 772	67 045	68 681
tCO ₂ e/FTE	9.31	13.73	15.84
tCO ₂ e/Student	1.32	1.28	1.23
tCO ₂ e/GLA	0.11	0.10	0.10

ENERGY CONSUMPTION AND RENEWABLE GROWTH

The below graph shows the annual energy consumption across all energy sources. Given the decrease in load shedding events between 2023 and 2024, diesel-based energy consumption reduced while grid (and renewable) energy consumption increased.

Solar energy generation increased from a total of 0.036%, to 0.38% to 2.26% of total energy consumption between FY22, FY23 and FY24. The total 1,578 MWh of renewable energy generated in FY24 avoided an additional 1,549 tCO₂e of emissions.



Annual energy consumption by energy source, showing renewable energy generation in kWh.

RECOMMENDATIONS



CARBON MANAGEMENT

With 42% of NWU's emissions arising from purchased electricity, there is significant potential for reductions through energy efficiency improvements. Opportunities exist across campuses to reduce consumption in lighting, heating, and cooling through both infrastructure upgrades and behavioural change. NWU could also explore expanding its solar energy capacity to further mitigate Scope 2 emissions.



DATA INTEGRITY

The overall quality of data used in NWU's FY24 carbon footprint was strong, particularly in high-impact areas such as electricity use. Waste data was partially estimated by NWU; however, from October 2024, data accuracy improved with the appointment of a new waste service provider, Eco-Eye.