UCT's Hasso Plattner d-school Afrika building received a 6-Star Green Star Design rating in 2023; Photo credit: Paris Brummer.

Carbon Footprint Assessment Report
Executive Summary

Year of assessment: 2023

Report Issued: November 2024

PROJECT TEAM

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1. EXECUTIVE SUMMARY

This report provides the 2023 financial year carbon footprint report of the University of Cape Town (UCT). The scope covers all of the campuses and facilities under UCT's operational control as well as the emission-generating activities of its students and staff. Emissions are reported as Scope 1 (direct emissions), Scope 2 (indirect emissions from purchased electricity) and Scope 3 (other indirect emissions). Emissions are reported in accordance with the Greenhouse Gas Protocol Corporate Accounting and Reporting Standard; the most widely recognised global methodology for greenhouse gas accounting and reporting.

1.1. Results

UCT's 2023 carbon footprint is relatively consistent with results from 2022 with an overall decrease of 7% compared to 2022. In 2020 emissions had dropped significantly due to the impact of the Covid-19 lockdowns and later as restrictions started to lift, emissions began to rise again into 2021 and 2022. Since then, Scope 1 emissions have increased from 3% to 6% of UCT's total carbon footprint, primarily due to increased diesel combustion in generators as the hours of load shedding rose substantially in 2023. Scope 2 emissions associated with electricity use across UCT's campuses remained mostly unchanged, while Scope 3 emissions saw notable changes within two emissions categories: air travel and construction.

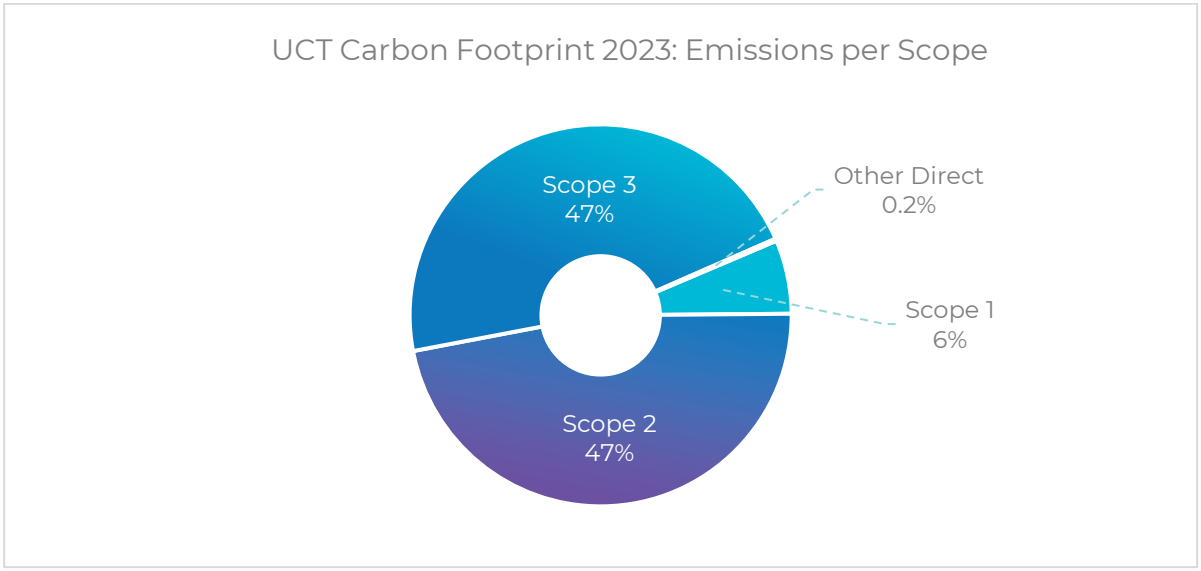

Figure 1.1: UCT 2023 Carbon Footprint Emissions by Scope

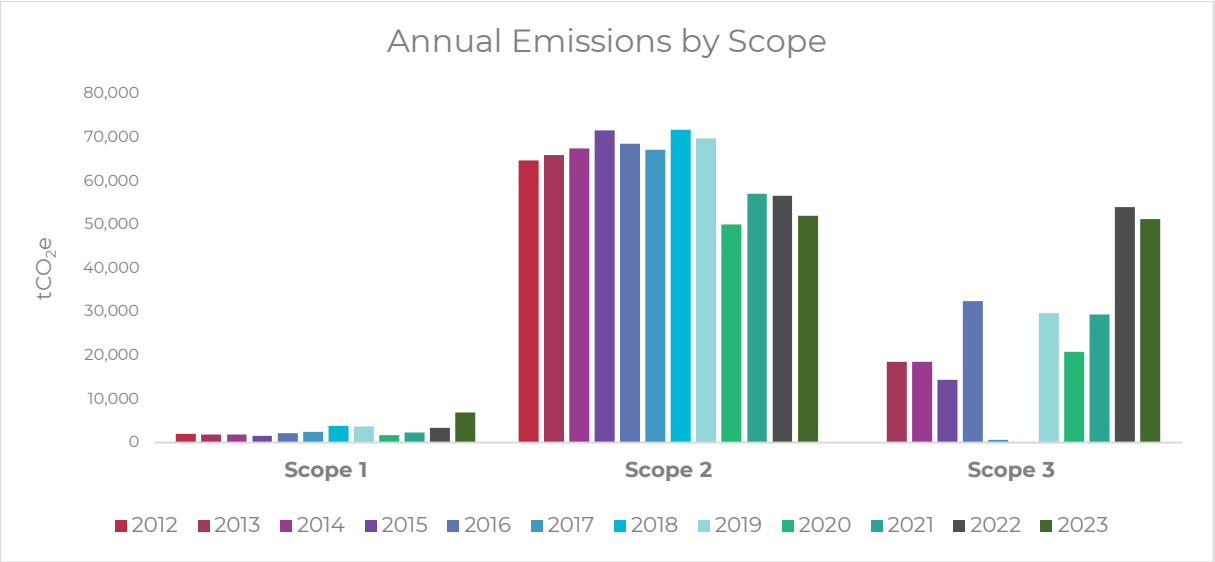

Figure 1.2: UCT Annual Emissions by Scope

Scope 1

Scope 1 emissions have doubled since UCT's previous financial year, primarily due to an increase in generator diesel use from 395,000 litres in 2022 to 1,3 million litres in 2023, resulting in a 252% increase in stationary diesel combustion emissions. A trend seen across most organisations in the country is a transfer of emissions from Scope 2 to Scope 1, as increased load shedding lowers the use of grid electricity and raises the demand for back-up generator power. Refer to the detailed analysis per scope to see these fluctuations with respect to UCT's carbon footprint.

Scope 2

As expected, with increased hours of load shedding in 2023, electricity consumption has decreased resulting in an 8% reduction in emissions in Scope 2. Total megawatt hours across the institution have decreased from 56,048 MWh in 2022 to 55,405 MWh in 2023. However, part of this decrease in the calculated emissions is attributed to the application of a slightly lower emission factor of 0.985 $kgCO_2e$ per kWh for 2023 activity, while the emission factor applied to 2022 activity was 1.01 $kgCO_2e$ per kWh.

Scope 3

Indirect emissions are reported in Scope 3 and are divided into 15 categories. UCT now reports 6 of the categories, based on relevance and access to data. Within the category "Purchased Goods and Services", UCT reports three sub-categories: Water Consumption, Paper Purchased and Food Provisions.

The most significant change in UCT's Scope 3 emission results in 2023 is the reduction of embedded emissions within materials and services used for construction, which decreased 61% year-on-year. A notable increase is seen in emissions associated with air travel, which are 36% higher than they were in 2022. Increased air travel emissions may be partly related to an improved emissions estimation methodology applied for this assessment. In the figure below, this increase is visible in the larger light-blue segment labelled "business travel" which also includes emissions associated with car hire, staff-reimbursed travel and travel allowances.

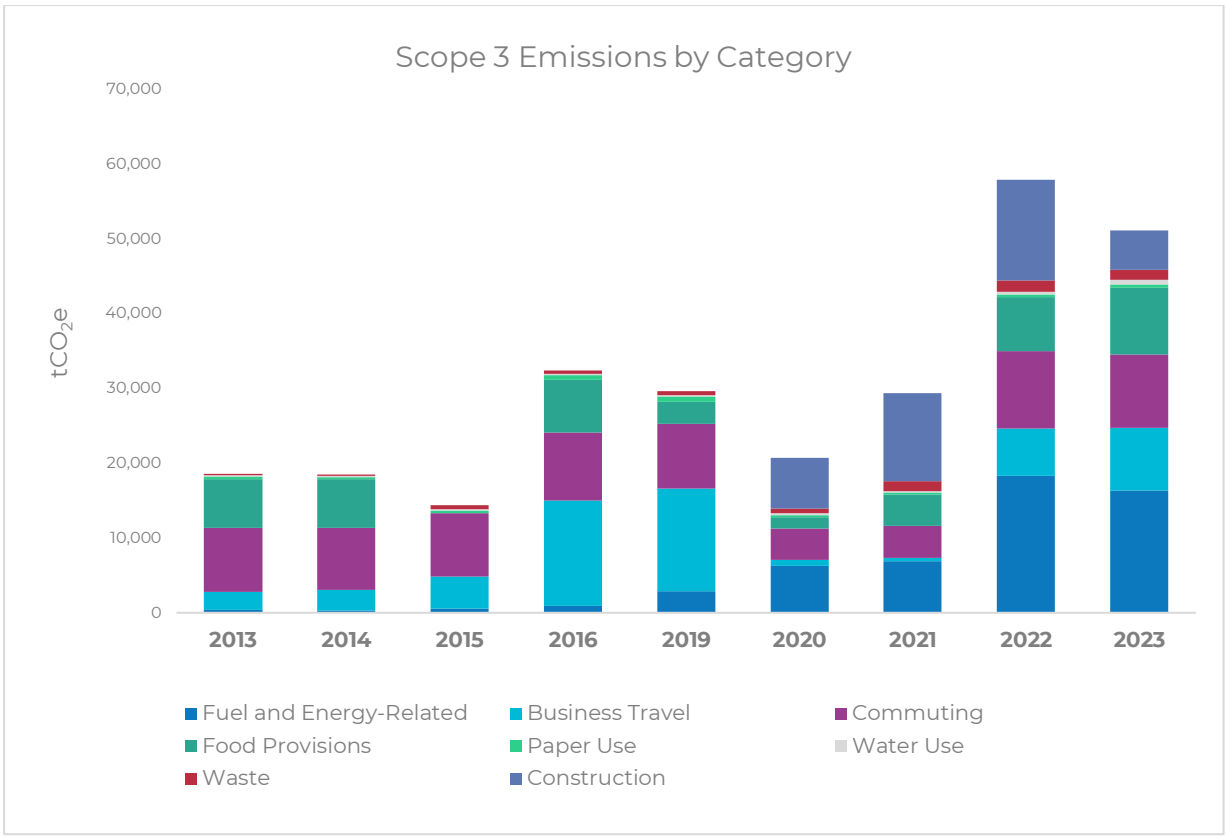

Figure 1.3: Annual Scope 3 Emissions per Financial Year, by emissions category.
Note: Scope 3 emissions were not reported in 2012 or 2018, while minimal sources were reported in 2017.

1.2. Targets

UCT has set the following target:

Net Zero emissions by 2050 (Scope 1 and 2)

- This requires a 2 – 5% reduction in emissions per annum from 2020 onwards.
- The baseline year from which these reductions must be shown has been changed to 2019, because 2020 was a year of COVID lockdowns with very little activity on campus
- So far UCT shows a total reduction of 20% since 2019, with an average 5% decrease per annum

Due to the impact of Covid-19 lockdowns which caused decreased activity throughout UCT, the 2020 emissions were unusually low and did not reflect the "normal" operating conditions of the institution. As expected, activity began to rise the following year and consequently these emissions increased by 16% in 2021, with most activity returning to pre-lockdown levels in 2022. It is therefore more appropriate to use 2019 as the baseline from which reductions are being measured off. One can thus see an overall 20% reduction of UCT's Scope 1, 2 and Other Direct emissions between 2019 and 2023, averaging 5% per annum.

Emissions	tCO_2e		% Change
	2019	2023	2019 vs 2023
Scope 1, 2 and Other Direct	73 417	59 034	-20%

Table 1.1: % Change in Scope 1, 2 and Other Direct Emissions since 2020

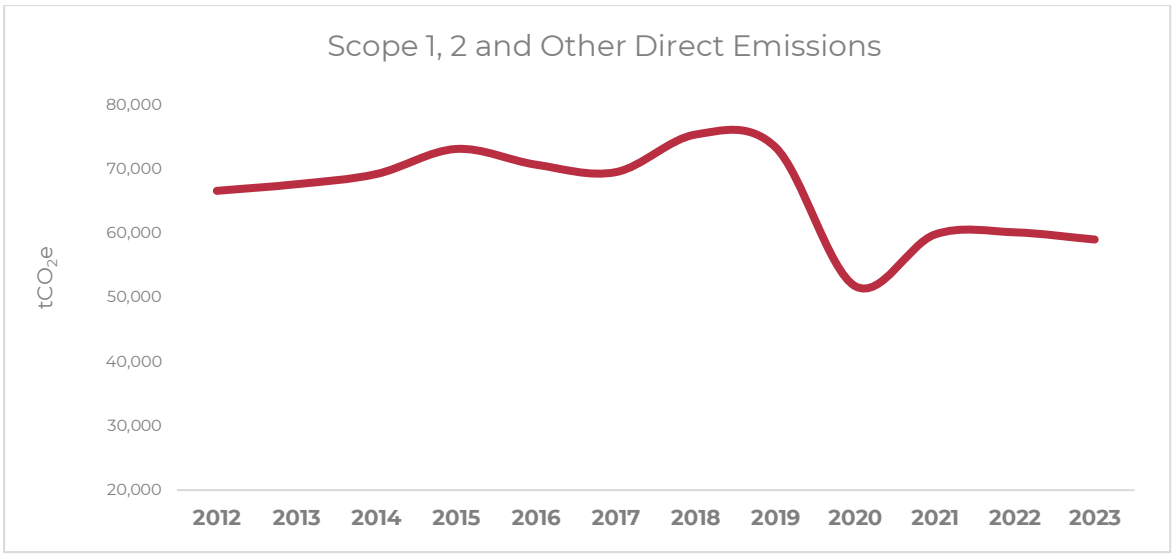

Figure 1.4: Annual Fluctuations in Scope 1, 2 and Other Direct Emissions

Due to regular annual reporting of emissions since 2012, UCT is also able to track progress since that initial baseline assessment year. The following table indicates the current reduction of 11% in Scope 1, 2 and Other Direct emissions since 2012:

Emissions	tCO_2e		% Change
	2012	2023	2012 vs 2023
Scope 1, 2 and Other Direct	66 622	59 034	-11%

Table 1.2: Reduction in Scope 1, 2 and Other Direct Emissions since 2012

1.3. Recommendations

GCX has made various recommendations regarding carbon management and data management, which are detailed in the section "Recommendations" toward the end of this report, summarised as follows:

Data Management
There are still good opportunities for UCT to improve data quality and, therefore, the accuracy of emission results. Scope 2 data accuracy has improved into 2023 due to updated information from the GSB. Scope 3 data related to air travel has improved significantly as it now includes flight routes and classes, rather than expenditure. UCT has also begun the process of measuring the institution's carbon footprint earlier in the year to allow additional time for data collection and screening, which facilitates improved data accuracy and completeness.

Carbon Management
Carbon management strategies should focus on the greatest source of emissions over which UCT has operational control, which is currently the electricity consumption at Main Campus. Solar panels are installed at three locations across UCT's campuses which have already reduced emissions by 143 tCO_2e in 2022 and 2023 combined. Further rollout of solar PV is underway with a total of 500kWp being installed in 2024 across 4 buildings on various campuses. Further soalr PV will also be installed at the Faculty of Health Sciences Campus in 2025. This will have an increasing positive impact on emissions over time. Additional recommendations regarding data and carbon management are discussed in Section 5.
No data is available related to home working and this is noted as an exclusion.