UCT's d-school Afrika building received it's 6-Star Green Star rating in 2022; Photo credit: Paris Brummer and d-school Afrika

Carbon Footprint Assessment Report Executive Summary

Year of assessment: 2022

Report Issued: April 2024 (Rev 0)

PROJECT TEAM

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1. EXECUTIVE SUMMARY

This report provides the 2022 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.

Please refer to the full report for the full details of the assessment, which is available as a separate report online.

1.1. Results

The results of UCT's two previous greenhouse gas assessments showed the clear impact that the Covid-19 pandemic had on campus operations. Overall emissions decreased significantly, especially those associated with travel. As operations at UCT normalised after the lifting of Covid-19 restrictions between 2021 and 2022, so did most of the institution's greenhouse gas emissions. Total emissions increased 31% between 2021 and 2022. Scope 2 and Scope 3 emissions each contributed almost half of UCT's total footprint during 2022, with 3% of emissions arising from Scope 1 sources.

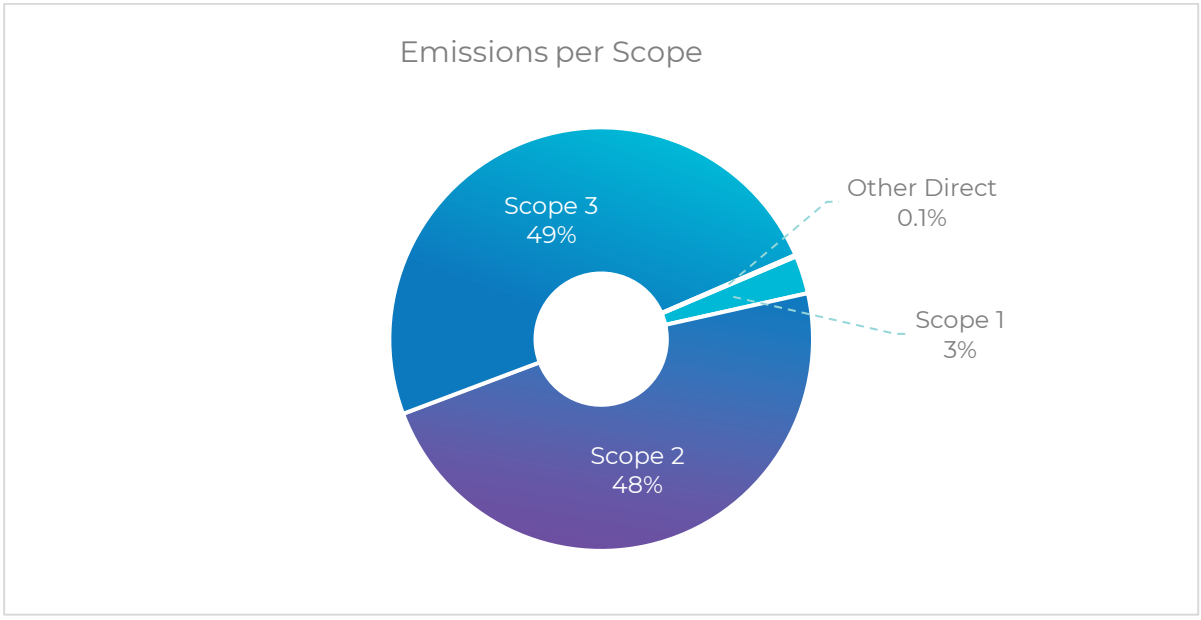

Figure 1.1: UCT 2022 Carbon Footprint Emissions by Scope

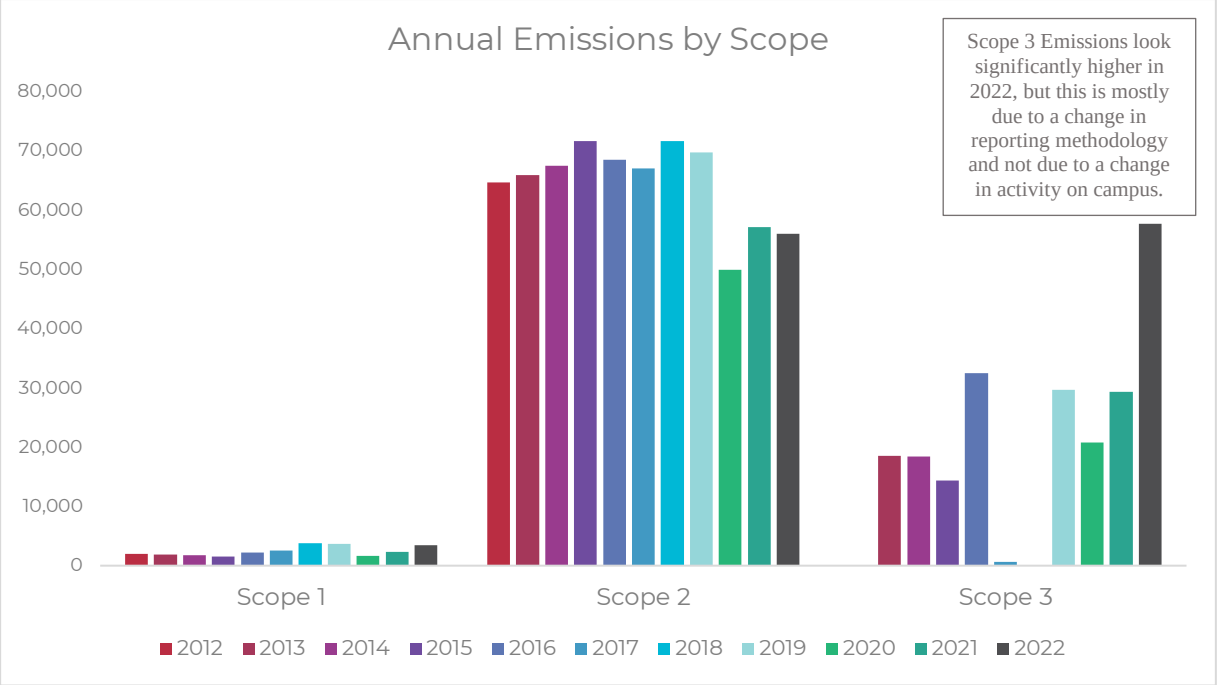

Figure 1.2: Annual Emissions by Scope

Scope 1

Emission results have shifted from representing the impact of Covid-19, to reflecting the state of load shedding in South Africa. Stationary combustion emissions arising from the use of diesel in generators increased 372% between 2021 and 2022, as more back-up power was required and additional equipment was installed on UCT's campuses. Shuttle activity has also increased significantly as on-campus attendance improved into 2022. Refer to the detailed analysis per scope to see these fluctuations in more detail.

Scope 2

Although activity has largely returned to pre-Covid levels, Scope 2 emissions arising from purchased grid electricity in 2022 are slightly lower than they were in 2021. There are three reasons for this: load shedding, a slightly lower emission factor and possibly also data-accuracy for UCT's Graduate School of Business which reported lower than expected consumption for 2022. Although Scope 2 provides UCT with a carbon management challenge, it also provides the greatest opportunity of all emission sources for UCT to implement emission reduction initiatives that can significantly impact the overall carbon footprint.

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 to UCT's emissions in 2022 is the adoption of best practice greenhouse gas accounting in terms of indirect upstream emissions associated with the extraction, processing and transportation of fuels, referred to as Well-to-Tank (WTT) emissions. Although a portion of these emissions were included in past assessments, the boundary has been increased as encouraged by industry best practice. Prior to 2022, Scope 3 Category 3 "Fuel- and Energy-Related Activities" emissions included the WTT emissions associated with activities reported in Scope 1, emissions associated with electricity lost to transmission and distribution through the municipal grid, as well as WTT emissions associated with

fuels used for business travel activities. This 2022 inventory includes the additional sources of WTT emissions arising from electricity generation, WTT emissions arising from electricity lost to transmission and distribution through the municipal grid, as well as WTT emissions associated with fuels used for staff and student commuting. As such, total Scope 3 emissions have increased. They are illustrated later in this report in two ways: as measured, and a like-for-like comparison based on the historic scope.

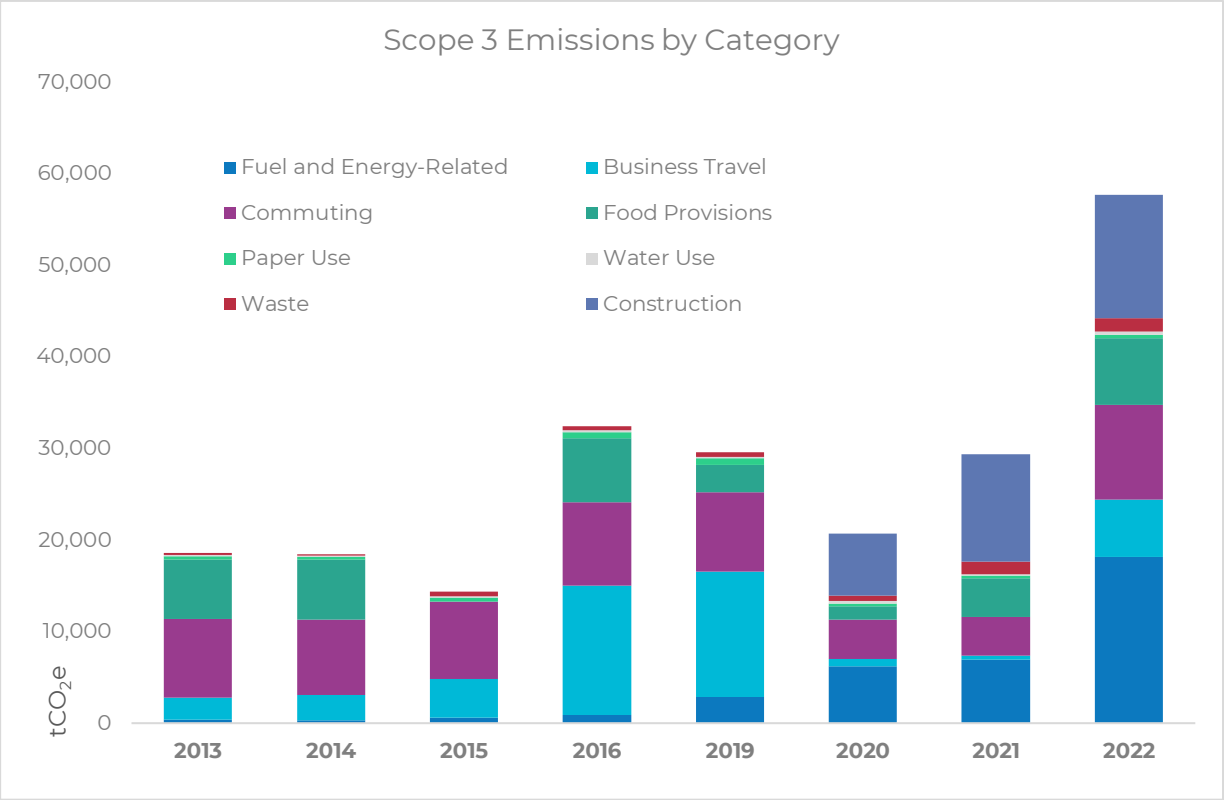

Figure 1.3: Annual Scope 3 Emissions per Financial Year, by emissions category.
Note: Scope 3 emissions were not reported in 2012 or 2018, while minimal sources were reported in 2017.

1.2. Targets

UCT has set the following target: to be a Net Zero emissions campus by 2050 (Scope 1 and 2), which requires roughly a 2 – 5% reduction in emissions per annum from 2020. So far UCT averages a 7.5% increase in emissions per year since 2020 as discussed below, but this must be viewed in the context of the post covid restrictions and return to campus. The longer term perspective since 2012 should also be understood, where these 2022 emissions are 11% lower than these emissions from 2012 (Table 1.2).

Due to the impact of Covid-19 which caused decreased activity throughout UCT, the 2020 emissions were relatively low. As expected, activity began to normalise the following year and consequently these emissions increased by 16% in 2021. With most activity returning to pre-Covid levels, UCT saw a 1% decrease in emissions between 2021 and 2022. This leaves UCT at an overall 15% increase in Scope 1 and 2 emissions since 2020, averaging a 7.5% increase in emissions per year since 2020.

Scope 1, 2 and Other Direct Emissions (tCO_2e)				
2020	**2021**	**% Change 2020 vs 2021**	**2022**	**% Change 2021 vs 2022**
51 767	59 832	**+16%**	59 506	**-1%**

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

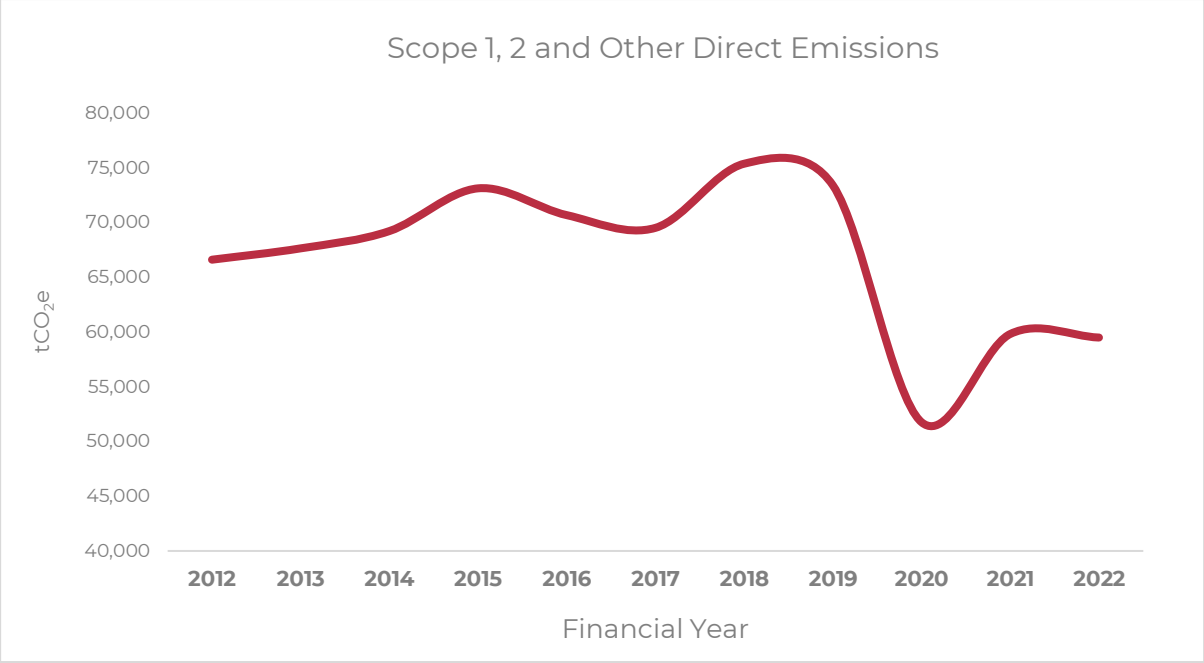

Figure 1.4: Annual Fluctuations in Scope 1, 2 and Other Direct Emissions

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	2022	2012 vs 2022
Scope 1, 2 and Other Direct	66 622	59 506	-11%

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

1.3. Recommendations

There are various recommendations regarding carbon management and data management, which are detailed in the section "Recommendations" toward the end of this report. However, these will typically require additional capacity/resources to address.

Data Management
There are still good opportunities for UCT to improve data quality and, therefore, the accuracy of emission results. Scope 1 data quality has improved relative to 2021. Scope 2 data completeness can be improved through clear allocation of electricity use per erf under UCT's operational control. Scope 3 data pertaining to air travel and car hire can be improved by logging flight routes, and vehicle types and distances travelled respectively, rather than travel expenditure.

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 51 tCO_2e in 2022. Further rollout of solar PV will have an increasing positive impact on emissions over time. Additional recommendations regarding data and carbon management are discussed in Section 5.