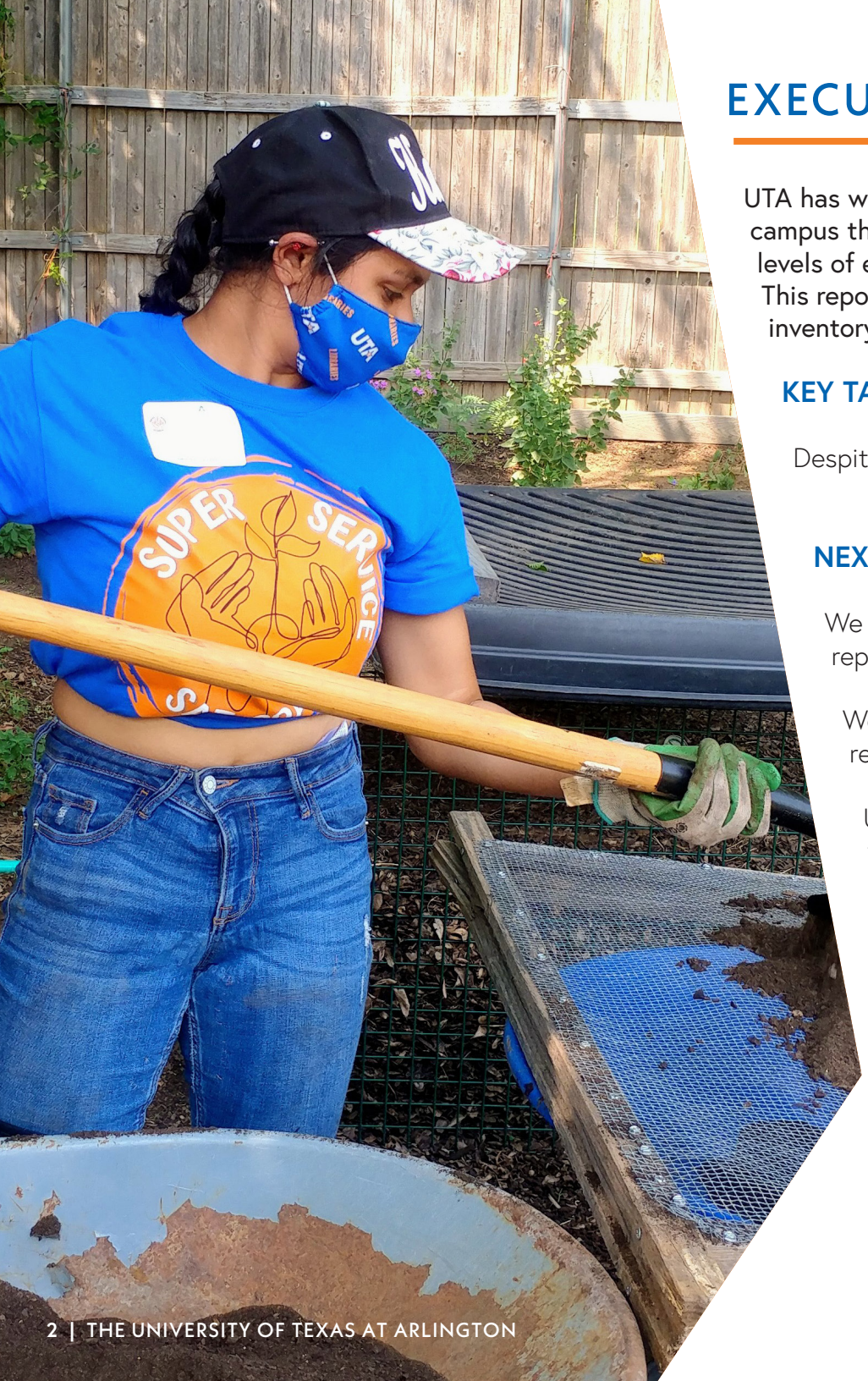
FY 2023 GREENHOUSE GAS EMISSIONS REPORT

UTA Office of Sustainability



EXECUTIVE SUMMARY

UTA has worked hard to implement various sustainability measures across campus this year. Even though the UTA community has once again hit record levels of enrollment, our emissions have stayed on a downward trend. This report shows the results of UTA's 2023 greenhouse gas emissions inventory, how this year compared to previous years and our next steps.

KEY TAKEAWAY

Despite growth, our overall emissions since fiscal year 2018 have decreased.

NEXT STEPS

We will start tracking Scope 3 emissions and include them in the FY2024 report.

We will improve our data tracking methods by more carefully measuring regrigerant emissions and by investigating emissions sources.

UTA will launch its first Climate Action Plan in January and will set goals for greenhouse gas emission reductions.

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LAND ACKNOWLEDGEMENT

University of Texas at Arlington respectfully acknowledges the Wichita and Affiliated Tribes upon whose historical homelands this University is located. Their ancestors resided here for generations before being forcibly displaced by U.S. settlers and soldiers in the mid-1800s. We recognize the historical presence of the Caddo Nation and other Tribal Nations in the region; the ongoing presence and achievements of many people who moved to the area due to the Indian Relocation program of the 1950s and 1960s; and the vital presence and accomplishments of our Native students, faculty, and staff.

INTRODUCTION

Climate change has emerged as one of the most urgent challenges of the twenty-first century. With extreme weather events, rising ocean levels, drought, flooding, disease, poor air quality, diminished natural habitats, and adverse effects on human physical and mental health, the impacts of climate change are impossible to ignore.

The driving force behind climate change is the immense quantity of greenhouse gasses emitted by burning fossil fuels, creating methane gas through landfills, and releasing other chemicals into the atmosphere via anthropogenic activities. These gasses trap heat from the sun in the earth's system, warming our world at an unprecedented pace. As we work to combat the irreversible change we've caused and to reduce further damage to the climate system, institutions of higher education have emerged as important leaders in driving sustainable solutions.

Institutions such as the University of Texas at Arlington (UTA) are uniquely positioned to make deep emission reductions in their own operations while educating and supporting the climate leaders of the future. Attending a university that is leading in mitigation work is an invaluable experience for students, one that has far-reaching implications.

UTA's FY 2023 greenhouse gas emission inventory is summarized in this report with proposed next steps.

DEFINITIONS

AASHE STARS	the Association for the Advancement of Sustainability in Higher Education (AASHE) runs the Sustainability, Tracking, Assessment and Rating System (STARS), which is a transparent, self-reporting framework for colleges and universities to measure their sustainability performance
climate change	a change in global or regional climate patterns, in particular a change apparent from the mid- to late 20th-century onwards and attributed largely to the increased levels of atmospheric carbon dioxide produced by the use of fossil fuels
fugitive emissions	result from the direct release of greenhouse gas compounds into the atmosphere of from various types of equipment and processes, such as refrigeration and air conditioning systems, fire suppression systems, and the purchase and release of industrial gases
greenhouse gasses	any gas that has the property of absorbing infrared radiation (net heat energy) emitted from the earth's surface and reradiating it back to the earth surface, thus contributing to the greenhouse effect
Scope 1 emissions	direct greenhouse gas emissions occurring from sources that are owned or controlled by the institution, including combustion of fuels to produce electricity, steam, heat, or power using equipment in a fixed location such as boilers, burners, heaters, furnaces, incinerators and combustion fuels by institution-owned cars, tractors, buses, and other transportation devices
Scope 2 emissions	indirect greenhouse gas emissions that are a consequence of activities that take place within the organizational boundaries of the institution, but that occur at sources owned or controlled by another entity; includes purchased electricity, purchased heating, purchased cooling, and purchased steam
Scope 3 emissions	all indirect emissions not covered in Scope 2; examples include purchased goods and services, capital goods, waste generated in operations, business travel, commuting (employee and student), end-of-life treatment of sold products, downstream leased assets, franchises, and investments

METHODOLOGY

The primary tool used for this work was the University of New Hampshire's Sustainability Indicator Management & Analysis Platform (SIMAP), a greenhouse gas tracking tool that is widely used within the higher education community.

This platform performs calculations on raw data that result in emission information for carbon dioxide, methane, and nitrous oxide. This data is then aggregated into the common unit of metric tons of carbon dioxide equivalent, or $MTCO_2e$.

The fiscal year 2023 data presented in this report was collected and analyzed by UTA's Sustainability Program Manager, Mashaal Atif Butt.

A few assumptions were made in the data analysis process due to the unavailability of certain information:

1. Diesel and distillate oil #2 are the same substance, since SIMAP only has the option to calculate emissions for the latter as a stationary source.

2. The nature and purpose of gasoline combustion on campus was unknown, so the emission factor for motor gasoline was used.

3. The small amount of diesel used in the campus fleet in fiscal year 2023 was absorbed into SIMAP's "Stationary Source: Diesel" category starting in FY 22, which is why there is no data in the "Transportation source: diesel fleet" since that year

RESULTS

The table below shows results by source after FY23 data was entered into the University of New Hampshire's Sustainability Indicator Management & Analysis Platform (SIMAP). It also shows the change in emissions from fiscal year 2018 to fiscal year 2023.

Table 1. — Scopes 1 and 2 greenhouse gas emissions ($MTCO_2e$) by source, fiscal years 2019–2023

Scope	Emissions sources ($MTCO_2e$)	FY 18	FY 19	FY 20	FY 21	FY 22	FY 23	FY 18–23 change
1	Stationary source: natural gas	18,851	21,161	20,623	20,718	21,027	22,286	18.22%
1	Stationary source: gasoline	3,500	3,021	2,548	2,311	2,350	2,455	-29.86%
1	Stationary source: diesel	41	35	64	62	26	31	-23.29%
1	Stationary source: solar	0	0	0	0	0	0	0.00%
1	Transportation source: gasoline fleet	745	637	560	508	516	539	-27.65%
1	Transportation source: diesel fleet	8	3	1	1	0	-	-100.00%
1	Refrigerants and chemicals	332	373	3,864	4,065	4,226	3,662	1,003.53%
2	Purchased electricity	52,078	49,095	43,924	40,291	43,702	48,052	-7.70%

KEY TAKEAWAY

EMISSIONS HAVE DECREASED IN THE PAST FIVE YEARS

Greenhouse emissions at UTA have decreased overall since FY18 (see Fig.1). Even though purchased electricity continues to have the highest impact on our emissions, accounting for 62% of the total, our scope 2 emissions have decreased from FY18. Natural gas, refrigerants, stationary gasoline usage and mobile sources make up the other 38% (Fig. 3).

Our emissions have, however, increased from FY22 to FY23. We must take note and find out where the university is using stationary gasoline as that is not a commonly reported number by other institutions.

Figure 1. — UTA's greenhouse gas emissions over time by scope

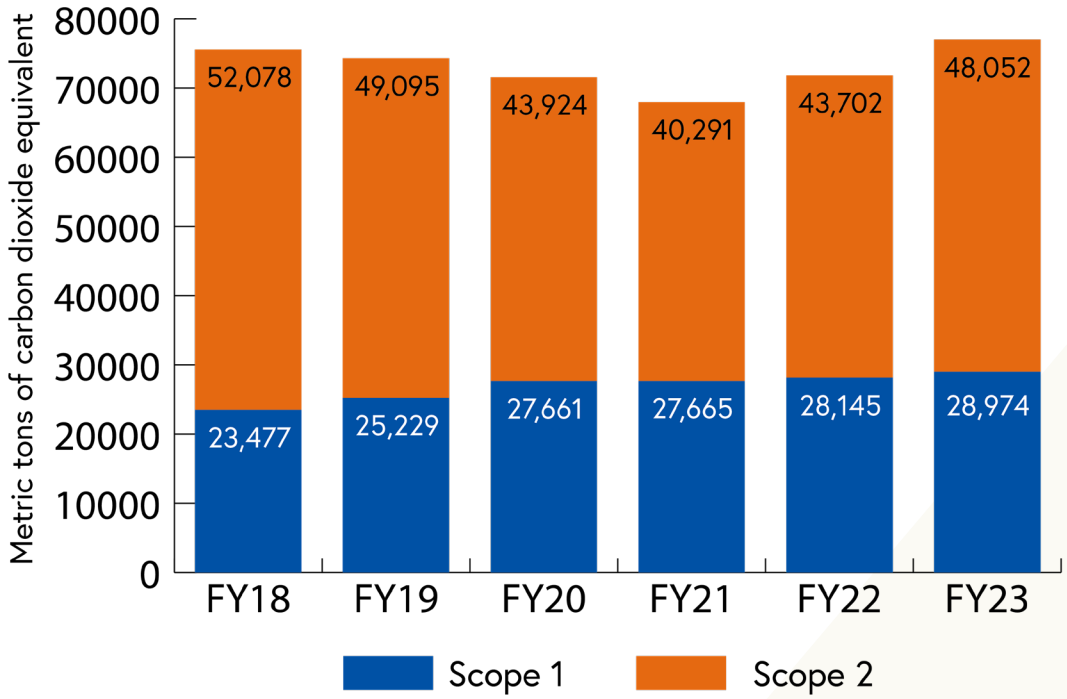


Figure 2. — UTA's greenhouse gas emissions over time by source

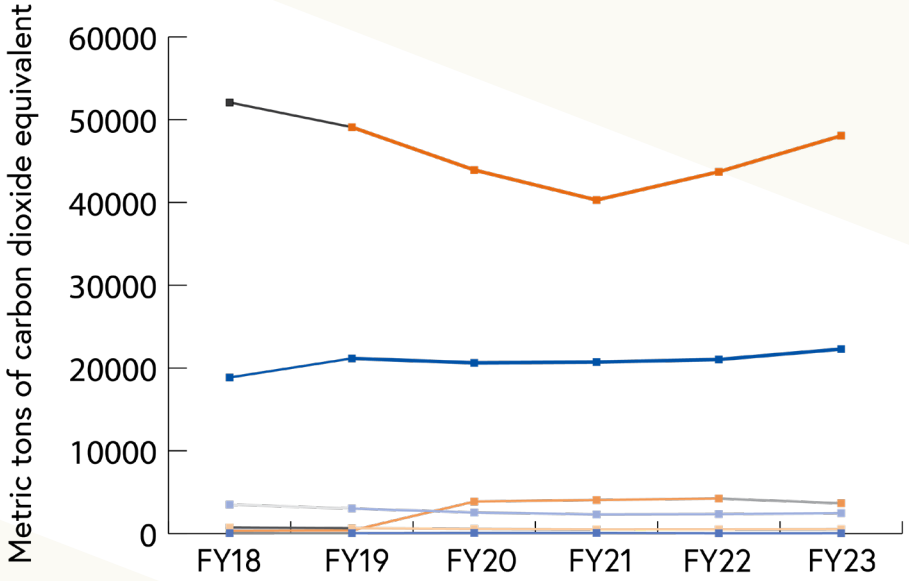
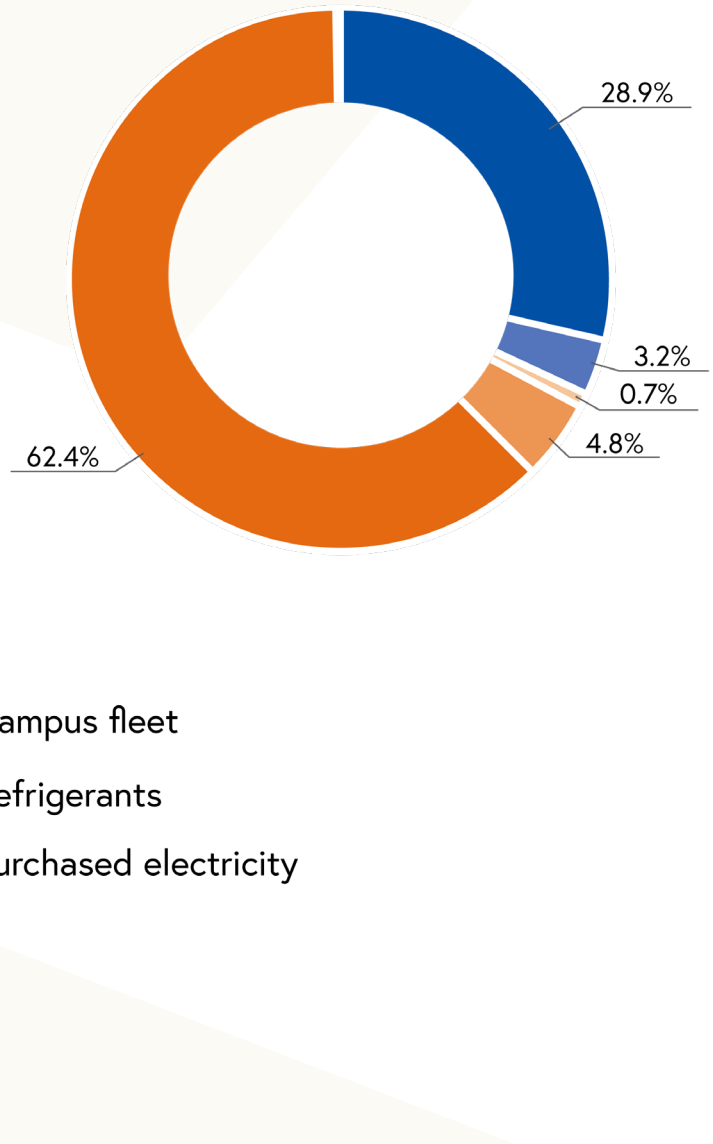


Figure 3. — UTA's FY23 greenhouse gas emissions by source



Another important note is that UTA's campus underwent an expansion in size between 2010 to 2023. Despite this expansion, the greenhouse gas emissions per square foot have been cut by almost a third in this time (see Fig. 4), indicating the success of low emission practices on campus when construction increases are neutralized. However, when looking at total emissions without accounting for the larger size of the campus, there is a small net increase from 2010 to 2023 (see Fig. 5). This is a reversal of the previous trend of emissions decreasing below 2010 levels between 2020 and 2022.

Figure 4. — UTA's greenhouse gas emissions per square foot from 2010 and 2022

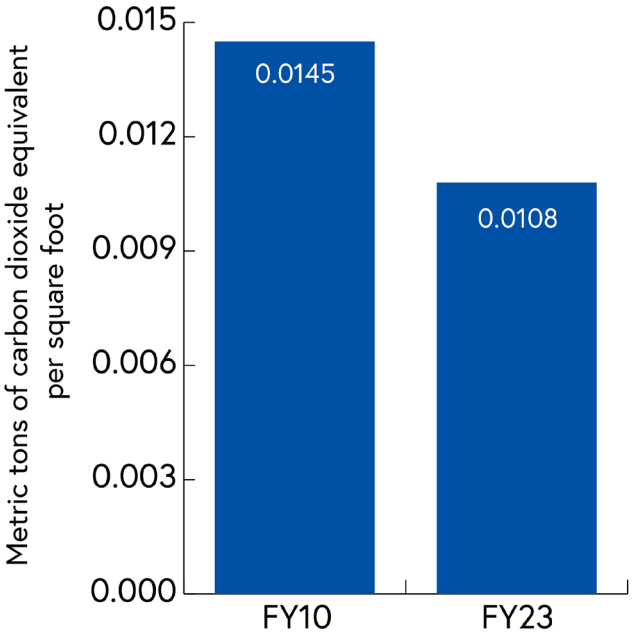
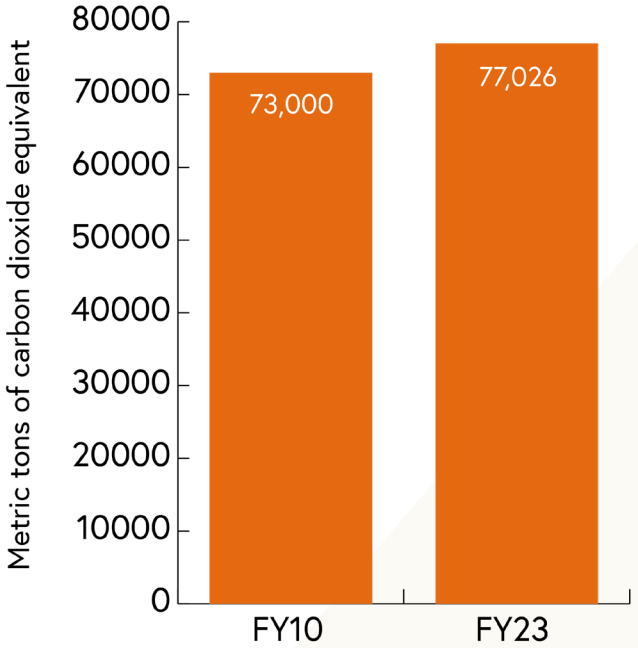


Figure 5. — UTA's total greenhouse gas emissions in 2010 and 2023



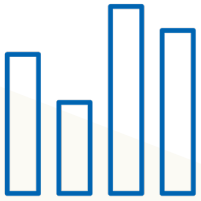
NEXT STEPS

#1: Track Scope 3 emissions

We have started the process of identifying and tracking our Scope 3 emissions and will include them in the fiscal year 2024 emissions report. Specifically, we will be looking into emissions data from purchasing, air travel and commuting.

#2: Improve data tracking

Track fugitive refrigerant emissions
In the future, tracking refrigerant emissions more closely will yield more accurate, and most likely lower, results. The screening method was used for the FY 2020–2022 calculations due to insufficient data for a different, more precise method. Facilities is currently working to track refrigerants more closely with the hope of having more accurate data for FY 2024.



Investigate emission sources
A significant portion of UTA's FY 20–23 Scope 1 emissions was from stationary gasoline use on campus. Finding out what this gasoline is used for and how to most accurately represent it in the emissions inventory would give UTA a more complete picture of their emissions. This is not a common source for universities to have in their inventories, and thus warrants some investigation.

#3: Create a Climate Action Plan

UTA will launch its first Climate Action Plan in 2024. The Climate Action Plan will set goals and a timeline for lowering our emissions. When FY24 emissions are calculated, we will be able to definitively measure our success towards reaching the goals.