Greenhouse Gas Emissions Inventory Summary

FY14-FY24

Updated April 21, 2025

USC University of Southern California

EXECUTIVE SUMMARY

- USC is committed to achieving **climate neutrality** for annual **Scopes 1 & 2** emissions by **FY25** and for annual **Scope 3** emissions by **FY35** (with a 50% reduction in Scope 3 emissions by 2028, using FY14 as the baseline).

- In FY24, **USC's academic facilities Scope 1 & 2 emissions are 69,814 MTCDE*,** a 50.0% emissions reduction since FY14.

- In FY24, **USC's academic facilities Scopes 3 emissions are 114,586 MTCDE,** a 33.1% emissions reduction since FY14.

- The success is due in part to a 16.4% improvement in energy efficiency, as well as 55.0% drop in the electricity carbon-intensity from LADWP, and sourcing of renewable energy credits (RECs) from an LADWP program, covering about ~29.0% of USC's electrical usage.

***MTCDE -** Metric Tons Carbon Dioxide Equivalent

BOUNDARIES AND PURPOSE OF INVENTORY

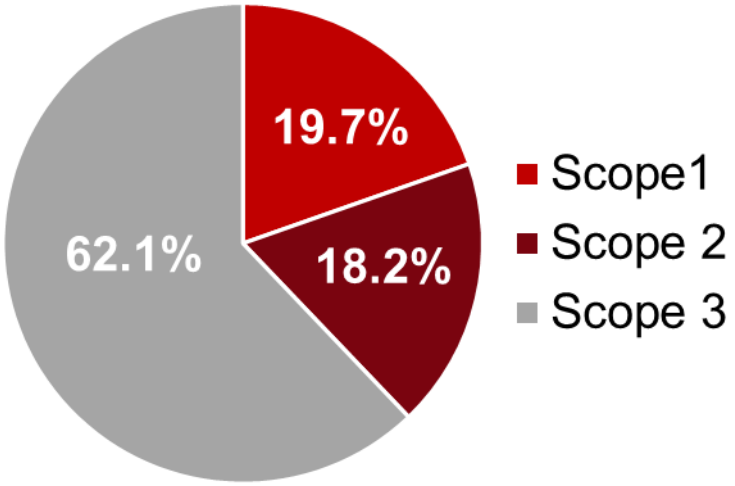
This greenhouse gas (GHG) inventory, representing FY14-24, documents the carbon footprint of USC's academic facilities, including the following campuses and locations:

- University Park Campus and off campus buildings
- University Park North Housing
- USC Health Sciences Campus *(excluding HC2, HC3, HC4, NOR, NTT, SST)*
- USC Wrigley Institute for Environmental Studies in Catalina
- USC Pacific Asian Museum
- USC Hotel
- Galen Center
- LA Memorial Coliseum

The **organizational** boundaries have shifted over the past few years, as UCS's healthcare enterprise facilities now track their emissions separately. The **operational** boundaries have been updated to include the Coliseum for FY24, resulting in a different baseline with this change: USC tracks its scope 1 and Scope 2 emissions (*i.e.*, power, ventilation, heating and cooling buildings; fleet fuels; refrigerant and fertilizer use.) Scope 3 emissions from select sources - namely from commuting, business travel, waste disposal, and fuel and energy-related activities (FERA) – are also reported.

This report has been created by Unlimited Carbon Assistance Network, an independent consultant that analyzes clients' GHG emissions management efforts. It is a tool for assessing USC's progress toward its climate and sustainability goals.

FY 24 “MARKET-BASED” OVERVIEW



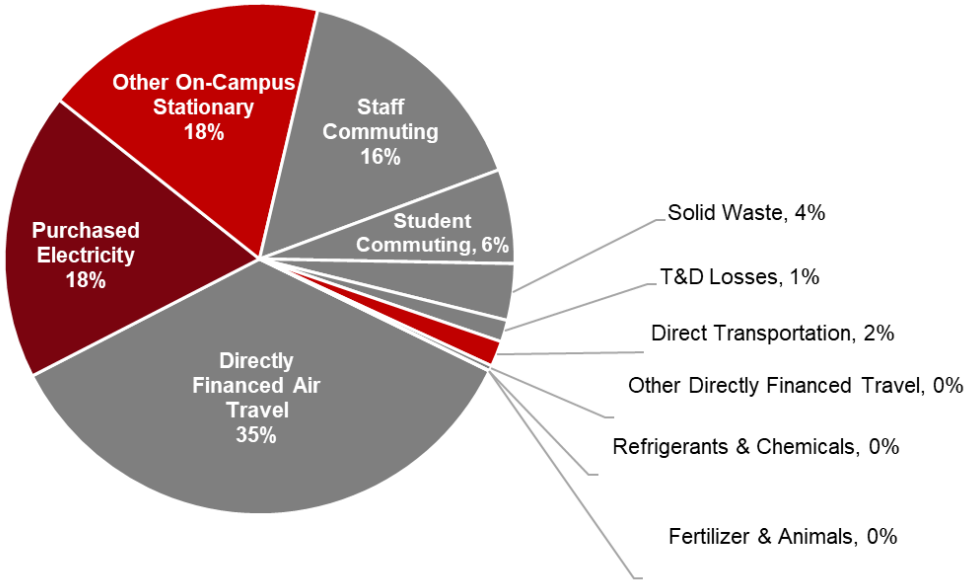
Scope	GHG MTCDE	% of Total
1	36,197	19.7%
2	33,616	18.2%
3	114,586	62.1%
Total	**184,399**	**100.0%**

In FY24, USC’s total academic facilities emitted an estimated **184,399 metric tons carbon dioxide equivalent (MTCDE).**

Scopes 1 & 2 GHG emissions are **69,814 MTCDE** (**50.0%** lower than the FY14 baseline), and **Scopes 3** GHG emissions are **114,586 MTCDE** (**33.1%** lower than the FY14 baseline).

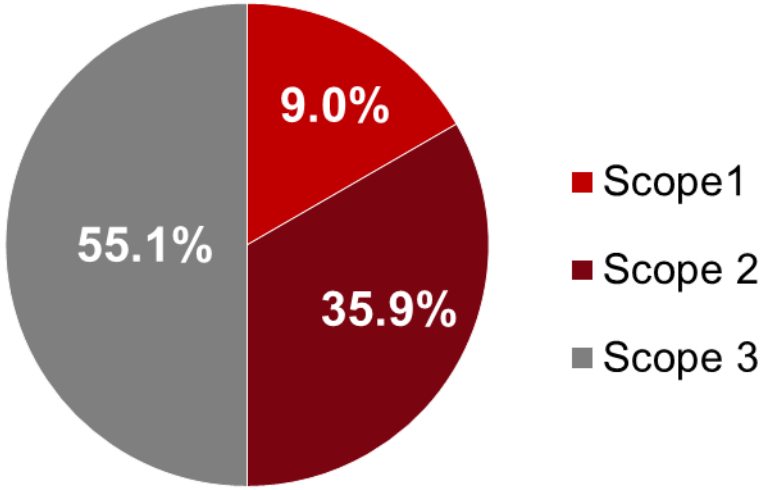
DETAILED FY24 "MARKET-BASED" OVERVIEW

Scopes	Source	MTCDE	% of Total
1	Other On-Campus Stationary	33,171	18.0%
1	Direct Transportation	2,987	1.6%
1	Refrigerants & Chemicals	35	0.0%
1	Fertilizer & Animals	4	0.0%
2	Purchased Electricity	33,616	18.2%
1 and 2	**TOTAL**	**69,813**	**37.9%**
3	Staff Commuting	28,890	15.7%
3	Student Commuting	10,995	6.0%
3	Directly Financed Air Travel	64,947	35.2%
3	Other Directly Financed Travel	617	0.3%
3	Solid Waste	6,587	3.6%
3	T&D Losses	2,549	1.4%
3	**TOTAL**	**114,586**	**62.1%**
1, 2 and 3	**TOTAL**	**184,399**	**100.0%**



Due to renewable energy sourcing, emissions from purchased electricity was dramatically reduced and now has a smaller footprint (18.2%). Indirect commuting emissions from employees and students (21.7%) is smaller than previous years. Emissions from financed travel has climbed to pre-pandemic levels and are once again a sizable portion (35.2%) and is now the largest emissions source for USC. Emissions from natural gas and other non-transportation fuels are also meaningful drivers (18.0%). Campus waste disposal, other business travel, fleet vehicles and refrigerant use were minor contributors.

BASELINE: "MARKET-BASED" OVERVIEW

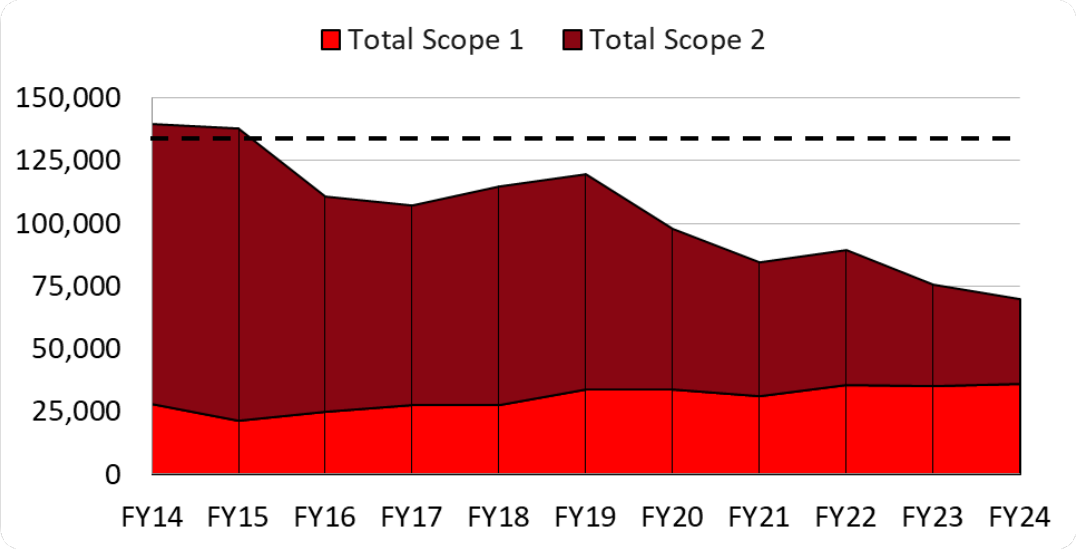


Scope	GHG MTCDE	% of Total
1	27,952	9.0%
2	111,656	35.9%
3	171,450	55.1%
Total	**311,059**	**100.0%**

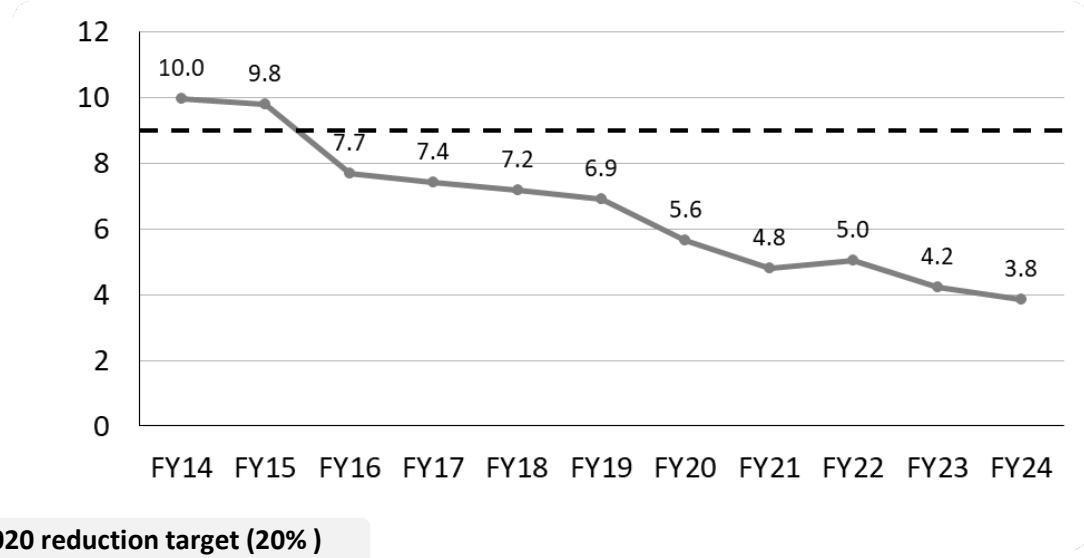
In the FY14 baseline year, USC's academic facilities emitted an estimated 311,059 metric tons carbon dioxide equivalent. 9% of those emissions were Scope 1 emissions, which means they occur directly as a result of burning fuels or using chemicals on the USC campus. Another 36% were Scope 2 emissions; these result from the purchased electricity used on campus. The largest emissions category —55% of the USC footprint—were the "Scope 3" emissions that are the indirect result of campus operations; for example, the emissions resulting from student and employee commuting, and from business travel.

SCOPE 1+ 2 EMISSIONS TRENDS: FY14-FY24

Absolute Scope 1+2 Emissions (Metric Tons eCO2)



Scope 1+2 Emissions/1000 GSF[1] (Metric Tons eCO2)

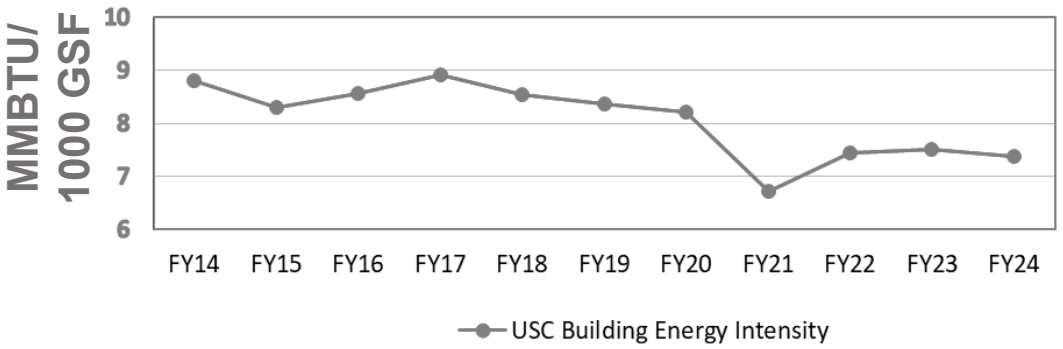


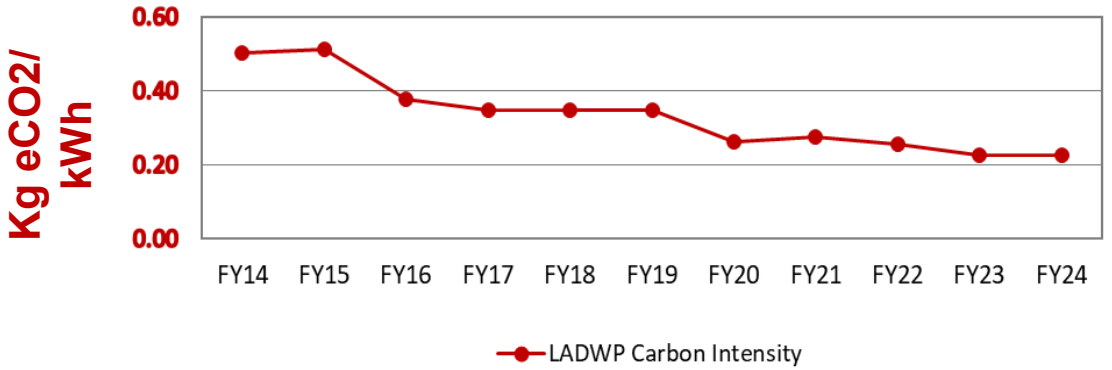
In FY24, absolute Scope 1 and 2 emissions were 50.0% lower than the FY14 baseline levels. Scope 1 emissions have increased 29.5%, as natural gas consumption has risen to support a 29.8% increase in campus square footage. This increase was offset by a 69.8% decrease in Scope 2 emissions, due mainly to the "greening" of USC's power supply, an 16.4% increase in energy efficiency, and the purchasing of RECs.

When normalized to account for campus growth, the Scope 1 and 2 emissions reduction is even greater. **USC FY24 S1+2 emissions-per-square-foot (i.e., emissions intensity) levels were 61.5% lower than FY14.**

1- Emission totals are subject to retroactive adjustments. Emission factors for the most current years are estimated using published placeholder values, which often are updated later by LADWP. Once updated data becomes available emission factors are applied retroactively.

ENERGY VS CARBON INTENSITY: FY14-FY24





Leading factors to carbon reduction

- **USC's building energy intensity (the amount of natural gas, propane and electricity used per square foot) for buildings was 16.4% lower in FY24 than FY14.** FY21 shows an anomalous dip, due to shutdowns from the COVID-19 pandemic. Energy intensity rebounded in FY22 and FY23 but nevertheless continues an overall downward trend.

- **USC's carbon reductions are also significantly due to the "greening of the grid."** The University gets most of its power from LADWP, which has cut its carbon intensity (the amount of eCO2 emitted per kWh of electricity it produces) by 55.0% since 2014.

- **USC also procures renewable energy credits (RECs) through an agreement with LADWP.** The RECs further reduce the carbon footprint on ~29.0% of the University's electrical usage in FY 24.

METHODOLOGY

The data for this inventory was provided from utility bills (LADWP for electricity, SoCalGas for Natural Gas), data from other Facilities staff outside of the Energy office (for propane, fertilizer applied on campus, and municipal solid waste), and reports run on square footage during spring 2025. Fleet fuel usage was estimated to be the same as in FY21, due to a lack of available data for FY22-FY24. Given that fleet emission are a de minims source for USC (historically <3%), we have confidence that this is a reasonable placeholder.

For the years 2015, 2016, 2017 and 2018, emissions for commuting were estimated/projected based on the rate of change in (Full-Time Equivalent) student enrollment from the 2014 baseline year (for student commuting). For 2020, a 30% across-the-board reduction from 2019 commuting vehicle miles traveled was assumed, due to changes induced by the COVID-19 pandemic. For 2021, a further 50% across the board reduction was applied. For the FY22 and onward updates, methodologies were changed to incorporate AQMD commuter survey data, allowing for much greater confidence in the mode share and distance numbers. While the survey breaks commuters down by subtype (e.g. undergrad versus grad students, faculty vs staff), the total commuting emissions were aggregated into the two categories (employee and student) to allow for continuity between historic reporting and this new method for gathering and analyzing activity data.

For air travel, a portion of miles traveled was provided directly by the travel agencies that service campus travel needs; in addition, the dollars spent on airfare were converted to air passenger miles using conversion factors from the Bureau of Transportation Statistics (BTS). Spending on ground transportation for which mileage was not available was paired with EPA EEIO factors to calculate associated emissions.

All calculations were done using the Sustainability Indicator Management and Analysis Platform (SIMAP), EF version 2024 (the most up to date available at time of calculation). The SIMAP 2024 emission factors shifted to use of EPA Hub for waste-related emissions factors, resulting in a retroactive increase in waste emissions for all years. Global Warming Potential (GWP) values are from the IPCC Sixth Assessment Report (AR6). The selected radiative forcing factor was 2.7 and the air travel cost version was “BTS.”

For Market Based Scope 2 emissions calculations, an LADWP supplier-specific emission factor was applied to the properties that use LADWP (UPC, UPC North, HSC campus and the USC Hotel). These supplier specific emissions factors were published by LADWP (for which the last available update was the 2023 version: 499 lbs/MWh) and reflect the municipal utility’s generation mix. The Pacific Asian Museum used the Pasadena Water and Power 2023 Power content label value of 835 lbs/MWh). Facilities in Catalina used the residual mix for E-Grid region CAMX.

FTE figures used for benchmarking were drawn from IPEDS data, accessed from the USC Institutional Research site (http://oir.usc.edu/ipeds/); specifically, the “12-Month Enrollment” and “Human Resources” reports.

Gross Square Footage is tracked by USC Facilities.

DEFINITIONS

FTE - Full-time Employee

FY - Fiscal Year (July to June)

GHG - Greenhouse Gas

LADWP - Los Angeles Department of Water and Power

Market Based - GHG calculation method using supplier-specific emissions factors, rather than a “Location Based” method that uses emissions factors for the entire grid region.

MTCDE - Metric Tons Carbon Dioxide Equivalent

Scope 1 - Emissions from sources owned or controlled by an organization (e.g. on-site combustion for building heating, refrigerants, owned or leased vehicles)

Scope 2 - Emissions from purchased energy from utilities (e.g. the electricity supplied by LADWP)

Scope 3 - Emissions from sources not owned or directly controlled by an organization but resulting from the organization’s activities or value chain (e.g. waste processing, business travel, employee and student commuting)