

THE UNIVERSITY OF CHICAGO

Greenhouse Gas Emissions Inventory Report **2012–2020**

July 2021



THE UNIVERSITY OF
CHICAGO

Office of
Sustainability

Contents

Executive Summary	3
Introduction	4
Reporting and Methodology	5-8
Summary of Updates	9
Results	10-14
Conclusion	15
Appendix A: Greenhouse Gas Emissions Inventory Analysis FY2012-FY2020	16
Appendix B: Greenhouse Gas Emissions Inventory Organizational Boundary FY2012-FY2020	17-22
Appendix C: Summary of Updates	23-24
Appendix D: Additional Resources	25
Appendix E: Assumptions	26
Appendix F: Brief Summary of Fiscal Year 2020 Energy Conservation Progress	27
Acknowledgments	28

Executive Summary

2030 goal absolute emissions decreased by more than 1% from the target base year to fiscal year 2020.

Overview

The University of Chicago Greenhouse Gas Emissions Inventory Report 2012–2020 is the latest release of the greenhouse gas emissions inventory and has been updated from the 2015, 2016, 2018, and 2019 releases of the inventory results.

This report includes a brief background on environmental sustainability at the University of Chicago, a look how the University’s greenhouse gas emissions are calculated, a summary of changes from the previous releases of the inventory results, and the results of the University’s current greenhouse gas emissions inventory.

The greenhouse gas emissions inventory includes the University of Chicago Hyde Park campus, excluding the medical campus.

Absolute Emissions

Scopes 1 and 2 absolute greenhouse gas emissions declined by more than 1% from the target base year to fiscal year 2020. Emissions from natural gas increased by almost 14% in the same time period. This is largely attributed to the expansion of the organizational boundary by more than 14%.

Scopes 1 and 2 absolute greenhouse gas emissions declined by almost 6% from fiscal year 2019 to fiscal year 2020. The COVID-19 pandemic had a significant impact on the reduction of greenhouse gas emissions from fiscal year 2019 to 2020.

In April 2020, the University of Chicago’s greenhouse gas emissions reduction goal changed from a 20% reduction in scopes 1 and 2 carbon intensity by 2025 to a 50% reduction of scopes 1 and 2 absolute emissions by 2030. Therefore, the focus of this report is absolute emissions. Prior reporting focused on carbon intensity.

Carbon Intensity

Carbon intensity, emissions per building area, is an interesting metric to consider; it allows us to understand the emissions profile on a per square foot basis.

Scopes 1 and 2 carbon intensity declined by 13% from the target base year to fiscal year 2020.

Scopes 1 and 2 carbon intensity declined by 8% from fiscal year 2019 to fiscal year 2020.

Introduction

The University of Chicago

The University of Chicago is located in the Hyde Park community on Chicago's South Side, 15 minutes south of the city center. Chicago's Hyde Park campus covers 217 acres and includes more than 135 buildings operated and managed by Facilities Services. These buildings host and support multiple academic programs, research, arts, and culture. Various space functions include classrooms, laboratories, administration, athletics, recreation, dining, and residential. Facilities Services (facilities.uchicago.edu) is responsible for the design, construction, renovation, operation, and maintenance of campus and residential buildings, property, and infrastructure.



UChicago Sustainability

The University of Chicago is committed to creating a sustainable campus. With its tradition of rigorous inquiry, the University is positioned to evaluate the challenges of sustainability and create measurable results.

One such challenge is climate change, a complex and global phenomenon that requires an in-depth understanding of greenhouse gas emissions. These emissions are a reflection of natural resource consumption across several sources, so understanding the scopes and sources of emissions is a critical step in campus sustainability planning. Managing greenhouse gas emissions is one of the University's top sustainability priorities.

Raising visibility and awareness of environmental issues on campus, and engaging students, faculty, and staff to develop and implement sustainable initiatives is also important.

The University of Chicago [Sustainability Plan](#) includes goals in nine areas: Climate Change and Energy, High Performance Buildings, Multi-Modal Transportation, Waste Reduction, Food Systems, Green Space, Water Conservation, Environmentally Preferable Procurement, and Building Awareness and Partnerships.

In April 2020, the University announced a new greenhouse gas emissions reduction goal of a 50% reduction by 2030; this new goal applies to 2020 through 2030. The 2030 goal is applicable to this report.

2030 Goal

Greenhouse gas emissions reduction is the key sustainability goal as the University seeks to understand and reduce its contribution to climate change.

2030 goal: the University has a goal to reduce its absolute greenhouse gas emissions by 50% by 2030

Greenhouse gas emissions are tied to all major campus operations, including buildings, transportation, waste, food, landscape, and procurement. Each of these areas is included in the Sustainability Plan, with energy efficiency in buildings as the top priority. By reducing building energy use, the University reduces greenhouse gas emissions and realizes major economic benefits.

The first step in managing greenhouse gas emissions is quantifying the emissions. The University's greenhouse gas emissions inventory provides a clear understanding of the emissions profile. Understanding the inventory enables the Office of Sustainability (sustainability.uchicago.edu), in collaboration with Facilities Services Operations and various partners across campus, to develop and implement sustainability initiatives targeted to areas of specific concern or inefficiency. Further, it allows the monitoring of sustainability progress for cost effectiveness, environmental benefit, and social responsibility.

Reporting and Methodology

Inventory Overview

Greenhouse gas emissions inventory data was collected for fiscal years 2009 through 2020.

The greenhouse gas emissions were quantified using an internally developed calculation tool. The tool was developed in collaboration with Facilities Services Campus Planning + Sustainability, Facilities Operations, IT Services Analytic and Business Information Services Team, and IT Services Project Management Office.

This new tool automates the calculation and visualization of greenhouse gas emissions, connects with University systems of record, allows more frequent internal reporting of natural gas and electricity emissions, and informs timely decisions for campus operations. This development advances the technology and sustainability at the University of Chicago.

The inventory was completed according to widely accepted referenced standards. The referenced standards used for the greenhouse gas emissions inventory include *The World Resources Institute Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)* (2004), *The Climate Registry General Reporting Protocol, Version 2.0* (2013), and *The Climate Registry General Reporting Protocol, Version 3.0* (2019).

Calculations

Emissions from greenhouse gases (such as carbon dioxide, methane, and nitrous oxide) can be calculated by taking the amount of fossil fuel consumed and multiplying it by the appropriate emissions factor and global warming potential.

The global warming potential is used to convert metric tons of specific greenhouse gases to metric tons of carbon dioxide equivalents [MT eCO₂]. This conversion is based on the gas's relative impact on climate change compared to that of carbon dioxide. The global warming potential indicates the contribution each gas makes to climate change relative to carbon dioxide.

For example, emitting a metric ton of methane (CH₄) has the same impact on climate change as emitting 28 metric tons of carbon dioxide. The global warming potentials of several prominent gases relative to CO₂ are reported in Table 1.1. By converting all emissions into the same unit, MT eCO₂, the contribution of emissions sources can be more easily aggregated and compared. This also enables comparison between organizations. Therefore, the units of measure shown at right are used for greenhouse gas emissions.

Common Name	Chemical Formula	GWP
Carbon dioxide	CO ₂	1
Methane	CH ₄	28
Nitrous oxide	N ₂ O	265

Source: [IPCC Fifth Assessment Report](#)

Units of Measure

Absolute Emissions

metric tons equivalent carbon dioxide per fiscal year
[MT eCO₂/FY]

Carbon Intensity

kilograms equivalent carbon dioxide per square foot per fiscal year
[kg eCO₂/sqft/FY]

Where:

eCO₂ = equivalent carbon dioxide

FY = fiscal year

MT = 1 metric ton = 1,000 kilograms

Reporting and Methodology

Temporal Boundary

The temporal boundary is fiscal years 2012 through 2020. The University's fiscal year is July 1 through June 30. For example, fiscal year 2012 is July 1, 2011, through June 30, 2012. See page 8 for more information.

Organizational Boundary

The operational control approach was used to define the organizational boundary, since this is how the University can make the most impact for a positive change. Operational control is defined as having the authority to introduce and implement operating policies. Under the operational control approach, emissions from each operation within the University's operational control must be reported. Refer to [Appendix B](#).

Operational Boundary (Scopes)

Emissions from scopes 1, 2, and 3, as applicable to the University of Chicago, are tracked and reported, as indicated in [Table 1.2](#).

The 2030 goal is based on absolute emissions and includes scopes 1 and 2.

Greenhouse gas emissions from refrigerants and chemicals, including HFCs (hydrofluorocarbons) and PFCs (perfluorocarbons), are omitted from this report and will be included, as appropriate, when verifiable and reliable data is available. The following greenhouse gases are also not reported as they are not present on campus: SF₆ (sulfur hexafluoride) and (NF₃)³ (nitrogen trifluoride).

The following greenhouse gases are tracked and reported: CO₂ (carbon dioxide), CH₄ (methane), and N₂O (nitrous oxide).

Scope 1: Direct Emissions (mandatory reporting)

- Combusting fuels on campus for heating and cooling
- Combusting fuels to power campus-owned transportation vehicles
- Off-gassing of fertilizers used on campus
- Fugitive release of refrigerants and chemicals that are greenhouse gases (not reported)

Scope 2: Indirect Emissions (mandatory reporting)

Off-campus combustion of fuels to produce electricity, steam, or chilled water for the campus

Scope 3: Other Indirect Emissions (optional reporting, not included in 2025 goal)

- Air and ground travel for University business and air travel for study abroad (fuel combusted in personal or transit vehicles/aircraft)
- Solid landfilled waste (landfill methane and/or emissions from incineration only)
- Transmission and distribution losses from scope 2 electricity

Reporting and Methodology

Table 1.2: Data Compiled for the Greenhouse Gas Emissions Inventory	
Institutional	Unit of Measure
Student, Faculty, and Staff Population	[count/FY]
FICM Gross Area	[sqft/FY]
Scope 1: Direct Emissions (mandatory reporting)	Unit of Measure
Distillate Fuel Oil #2	[gallons/FY]
Natural Gas	[MMBtu/FY]
Unleaded Fuel (University-Owned Fleet and UGo Shuttles)	[gallons/FY]
Diesel Fuel (University-Owned Fleet and UGo Shuttles)	[gallons/FY]
Refrigerants and Chemicals, Fugitive Emissions*	[pounds/FY]
Fertilizer, Nitrogen	[pounds N/FY]
Scope 2: Indirect Emissions (mandatory reporting)	Unit of Measure
Electricity	[kWh/FY]
Scope 3: Other Indirect Emissions (optional reporting)	Unit of Measure
Business Travel (Air, Automobile)	[miles/FY]
Study Abroad Travel (Air)	[miles/FY]
Landfilled Waste	[short tons [†] /FY]
*Omitted from reporting. Expected to be a very small amount of overall University emissions. Reporting is anticipated when verifiable and reliable data is available.	
[†] 1 short ton = 2,000 pounds	



Reporting and Methodology

Target Base Year

The target base year is used as a basis for setting and tracking progress toward a greenhouse gas emissions reduction goal. In other words, the target base year is used to assess greenhouse gas emissions performance. For example, to assess performance for fiscal year 2020, the greenhouse gas emissions from fiscal year 2020 are compared to the greenhouse gas emissions from the target base year.

The target base year can be calculated or selected based on when reliable and verifiable emissions data are available. If calculated, the target base year is an average of annual emissions over several consecutive years. This is done to account for unusual fluctuations (such as weather) in greenhouse gas emissions that would make a single year's data unrepresentative of the University's typical emissions profile. The target base year emissions should be as close to a "typical" year as possible.

The results of the greenhouse gas emissions inventory data integrity analysis indicated that in order to comply with *The World Resources Institute Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)* (2004), the target base year should be calculated using an average of fiscal years 2012 through 2014 because of the following reasons:

- This average is typical of the University's emissions profile.
- The data from these years is verifiable and reliable.

The target base year is an average of greenhouse gas emissions for fiscal years 2012, 2013, and 2014.

Therefore, the decision was made to begin the inventory at fiscal year 2012, but still keep the fiscal years 2009 through 2011 data on file for historical purposes. The result is that the University of Chicago official greenhouse gas emissions inventory begins at fiscal year 2012.

Analysis

The greenhouse gas emissions inventory is evaluated in two ways:

- Absolute Emissions
[MT eCO₂/FY]
- Carbon Intensity
(emissions per square foot)
[kg eCO₂/sqft/FY]

Absolute emissions are used for the 2030 goal.

2030 Goal Reporting Summary

2030 goal: The University has a goal to reduce its greenhouse gas emissions by 50% by 2030.

The 2030 goal is based on absolute emissions and includes scopes 1 and 2.

The 2030 goal is analyzed by comparing 2030 greenhouse gas emissions to the target base year greenhouse gas emissions.

The target base year is an average of greenhouse gas emissions for fiscal years 2012, 2013, and 2014.

Emissions from scope 3, as applicable to the University of Chicago, are tracked and reported, although they are not part of the 2030 goal.

Summary of Updates

The below notes are updates from the FY2012–FY2019 University of Chicago greenhouse gas emissions inventory to the current inventory.

Organizational Boundary

The organizational boundary was updated as indicated in [Appendix B](#) and [Table C.1](#). These updates caused the FICM gross area to change from previous reporting periods for fiscal year 2012 through fiscal year 2019. [Appendix A](#) includes the FICM gross area per fiscal year for the current reporting period.

Global Warming Potentials

The global warming potentials from the Intergovernmental Panel on Climate Change remain the same as reported in the FY2012–FY2019 greenhouse gas emissions inventory; the Fifth Assessment Report remains the most current version. Therefore, global warming potentials did not change for the FY2012–FY2020 inventory, as noted in [Table 1.1](#).

Emissions Factors

U.S. EPA emissions factors can change for two reasons:

- Lag time in data sets being released. It usually takes one to two years for data sets to be released. For example, for electricity, eGRID2019, which includes 2019 data, was released on February 23, 2021. Regional emissions and generation resource integrated database (eGRID) release dates are available in the [U.S. EPA eGRID Questions and Answers/What years are available for eGRID?](#) For a summary of what is new in eGRID2019, refer to the

[United States Environmental Protection Agency](#). The [U.S. EPA eGRID Technical Guide](#) contains more detailed information.

- Updates to methodology. U.S. EPA factors can and do change due to methodology updates. For example, emissions factors for solid landfilled waste declined significantly from the previous reporting period to the current reporting period. This is due to the availability of new and updated information. Refer to the [U.S. EPA Versions of the Waste Reduction Model \(WARM\)](#) for additional information. Version 15 is used in the current reporting period.

[Table C.2](#) contains a summary of absolute greenhouse gas emissions, global warming potentials, and U.S. EPA regional eGRID emissions factors versions by reporting period and fiscal year. This table demonstrates that greenhouse gas emissions inventories are dynamic. When new data, information, emissions factors, and/or global warming potentials become available that were not available during the reporting period, they are incorporated in the next reporting period, as appropriate. When emissions factors are updated, they are applied retroactively, where applicable, making the greenhouse gas emissions inventory dynamic. To demonstrate this point, [Table C.2](#) summarizes the emissions factors used for scope 2 electricity for the most recent five reporting periods. The most significant updates to emissions factors from the last reporting period to the current reporting period are discussed below.

eGRID emissions factors were updated (see [Table C.2](#)) by the United States Environmental Protection Agency from eGRID2018 in the previous reporting period to eGRID2019 in the current reporting period. This update impacts scope 2 emissions (electricity) and scope 3 emissions (transmission and distribution losses) for fiscal years 2019 and 2020.

Carbon dioxide emissions factors for natural gas declined for most fiscal years in the inventory from the previous reporting period to the current reporting period.

Refer to the [Results](#) section of this report for additional discussion on these impacts.

Additional Updates

Some emissions have increased from the previous reporting period to the current reporting period for the same fiscal years due changes in the organizational boundary as discussed above.

Additional updates between reporting periods are discussed in detail on page 8 of [the University of Chicago Greenhouse Gas Emissions Inventory Report \(2012-2019\)](#).

Results

Below is a discussion of the greenhouse gas emissions analysis as shown in [Appendix A](#) and the following pages. Refer to [Figures 2.1 and 2.2](#) for the results overview.

Overall

Scope 1 and 2 absolute greenhouse gas emissions declined by nearly 6% from fiscal year 2019 to 2020.

Greenhouse gas emissions from fiscal year 2019 to 2020 declined significantly. Three months of fiscal year 2020 occurred during the COVID-19 pandemic. The pandemic had a significant impact on reducing University greenhouse gas emissions from fiscal year 2019 to 2020.

For three months of the pandemic in fiscal year 2020, the population of campus decreased significantly as many employees were working from home and several classes were held remotely. Also for three months of the pandemic in fiscal year 2020, temperature and occupancy setbacks were established in campus buildings where possible, therefore reducing energy required to heat and cool spaces in the absence of building occupants. Fuel usage for University-owned fleet and UGo shuttles declined. The University's COVID-19 travel and financial policies limited domestic and international air travel for business needs and for study abroad programs, and therefore emissions from air travel and ground transport were reduced.

Solid landfilled waste absolute emissions increased by 6% during this same time period, likely attributed to the increase of disposables required in campus dining halls to be in compliance with COVID-19 safety protocols.

2030 goal absolute emissions decreased by more than 1% from the target base year to fiscal year 2020.

Absolute greenhouse gas emissions for scopes 1 and 2 declined by 1.4%, despite the increase of emissions from natural gas by 14.4% and an increase in FICM gross area of 13.6% during the same time period.

Scope 1 On-Campus Stationary

On-campus stationary sources are the largest contributors to scope 1 greenhouse gas emissions and include natural gas and distillate fuel oil #2. As indicated in [Figure 2.3](#), on-campus stationary sources were the second largest contributor to overall campus greenhouse gas emissions at almost 31% in fiscal year 2020. Distillate fuel oil #2 emissions are negligible when compared to natural gas emissions in fiscal year 2020.

As shown in [Appendix A](#), scope 1 absolute emissions increased by more than 14% from the target base year to fiscal year 2020. This is due to a more than 13% increase in FICM gross area and a nearly 16% increase in natural gas usage during the

same time period.

However, between fiscal year 2019 and fiscal year 2020, both the natural gas usage and the emissions declined by 3%. This decline occurred despite an almost 3% increase in FICM gross area between fiscal year 2019 and fiscal year 2020.

Fiscal year 2020 had almost 11% less heating degree days (less heating demand) than fiscal year 2019 and almost 4% less heating degree days (less heating demand) than the target base year. Fewer heating degree days in fiscal year 2020 compared to fiscal year 2019 and the target base year reduced the heating load and contributed to the 2.9% lower natural gas emissions levels calculated for fiscal year 2020 compared to fiscal year 2019. The 13.6% increase in the organizational boundary size compared to the target base year resulted in a 14.4% increase in emissions from natural gas compared to the target base year, despite the comparative reduction in heating degree days.

Scope 1 Other

In addition to on-campus stationary sources, scope 1 includes direct transportation (UGo shuttles and University-owned fleet) at 1% of overall campus greenhouse gas emissions in fiscal year 2020, and agriculture (nitrogen in fertilizer) at less than 1% of overall campus greenhouse gas emissions in fiscal year 2020. Refer to [Figure 2.4](#) for additional information.

Results

Figure 2.1: Results Overview for Scopes 1, 2, and 3 Absolute Greenhouse Gas Emissions by Source, Scope, and Fiscal Year [MT eCO₂]

Location-Based Method

	Scope 1 [MTCDE]		Scope 2 [MTCDE]		Scope 3 [MTCDE]				
	Other On-Campus Stationary	Direct Transportation	Agriculture	Electricity	Directly Financed Outsourced Travel Air	Other Directly Financed Travel	Study Abroad Travel Air	Solid waste	T&D losses
2012	41,867.5	1,685.1	22.1	84,348.1	22,916.2	1,169.9	2,379.7	3,372.8	8,515.9
2013	44,973.4	1,820.1	6.6	83,785.2	25,908.4	1,331.9	2,430.1	3,253.8	8,459.1
2014	48,995.2	1,973.1	6.8	84,568.0	29,510.3	1,535.2	2,246.7	3,158.0	4,422.8
2015	45,760.8	1,962.1	9.6	81,451.3	30,386.3	1,596.5	2,476.4	3,322.6	4,259.8
2016	47,345.7	1,744.8	6.3	88,052.7	29,932.8	1,027.8	2,039.8	2,649.0	4,139.4
2017	62,149.7	1,943.6	6.2	91,339.7	29,344.4	1,066.2	2,249.3	2,680.4	4,294.0
2018	52,095.2	2,306.6	8.3	86,494.9	30,997.4	1,459.0	2,425.8	2,770.8	4,439.4
2019	53,381.5	2,108.9	8.2	81,928.6	36,068.8	2,240.6	2,466.4	2,892.3	4,205.0
2020	51,818.9	1,918.7	5.9	75,827.0	29,131.8	1,269.6	2,177.0	3,074.6	3,891.9

NOTES

1. Verifiable and reliable data is used to the best of its availability during the current reporting period. Decisions are made with the best information available during the reporting period, and on the side of over reporting. Greenhouse gas emissions inventories are dynamic. When new data, information, emissions factors, and/or global warming potentials become available that were not available during the reporting period, they are incorporated in the next reporting period, as appropriate.
2. Referenced standards: *The World Resources Institute Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)* (2004), *The Climate Registry General Reporting Protocol, Version 2.0* (2013), and *The Climate Registry General Reporting Protocol, Version 3.0* (2019).
3. The greenhouse gas emissions are calculated using the operational control approach and the location-based method and an internal tool.
4. The greenhouse gas emissions inventory includes the University of Chicago Hyde Park campus, excluding the medical campus.
5. Goal: Reduce greenhouse gas emissions by 30% by 2030 for scopes 1 and 2 absolute emissions.
6. Target base year: the average of emissions from fiscal years 2012, 2013, and 2014.

Appendix A contains full inventory details.

Results

Scope 2 Electricity

As indicated in [Figures 2.2, 2.3, and 2.4](#), electricity is the largest contributor to campus greenhouse gas emissions and was 45% of overall campus emissions in fiscal year 2020.

Despite an emissions factor reduction from eGRID2018 to eGRID2019, electricity emissions increased from the previous reporting period to the current reporting period for some fiscal years. This increase is due to an increase in FICM gross area (updated organizational boundary) between reporting periods, as noted above.

From fiscal year 2019 to 2020, electricity usage and emissions decreased more than 7%. Emissions were lower due to a decrease in usage, partially attributed to setbacks, as previously discussed, and partially due to energy conservation measures in campus buildings.

From the target base year to fiscal year 2020, emissions due to scope 2 electricity declined by 10% while electricity usage increased by 16%. During the same time period, the FICM gross area within the greenhouse gas emissions organizational boundary increased by almost 14%. The reason that emissions declined while usage went up, is because the regional eGRID emissions factors were updated by the U.S. EPA as described above.

This electricity emissions decrease is the most significant reason for 2030 goal absolute emissions decrease of more than 1% from the target base year to fiscal year 2020.

Scope 3

While scope 3 is not part of the 2030 goal, it is important to note the third largest contributor to overall campus greenhouse gas emissions in fiscal year 2020 was business air travel at 17%. Other sources of scope 3 emissions in fiscal year 2020 included solid landfilled waste (2%), transmission and distribution losses from scope 2 electricity (2%), study abroad travel (1%), and business automobile travel (1%). Total scope 3 emissions were 23% of overall campus greenhouse gas emissions in fiscal year 2020. Refer to [Figures 2.3 and 2.4](#) for additional information.

Fiscal year 2020 scope 3 emissions declined by 17% when compared to fiscal year 2019. As previously noted, this decline is due to a decline in all areas of scope 3 emissions except solid waste. This decline is expected due to the COVID-19 pandemic as previously discussed.

Fiscal year 2020 scope 3 emissions declined by almost 2% when compared to the target base year.

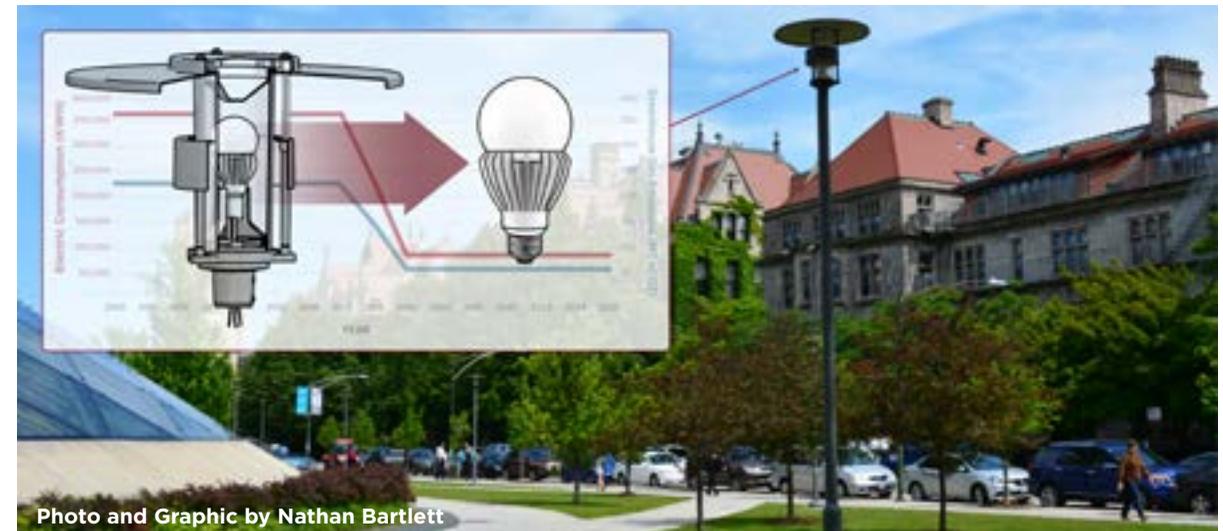


Photo and Graphic by Nathan Bartlett
Poulsen Lighting LED Retrofit. The University completed LED lighting of over 800 Poulsen lights throughout campus.

Results

Figure 2.2: Scopes 1, 2, and 3 Absolute Greenhouse Gas Emissions by Source, Scope, and Fiscal Year [MT eCO₂]

Location-Based Method

mouse over 2020 bars

- T&D losses
- Solid waste
- Other Directly Financed Travel
- Directly Financed Outsourced Travel Air
- Electricity
- Agriculture
- Direct Transportation
- Other On-Campus Stationary
- FICM Gross Area

SCOPE 1 natural gas, distillate fuel oil #2, University-owned fleet and UGo shuttles, nitrogen in fertilizer

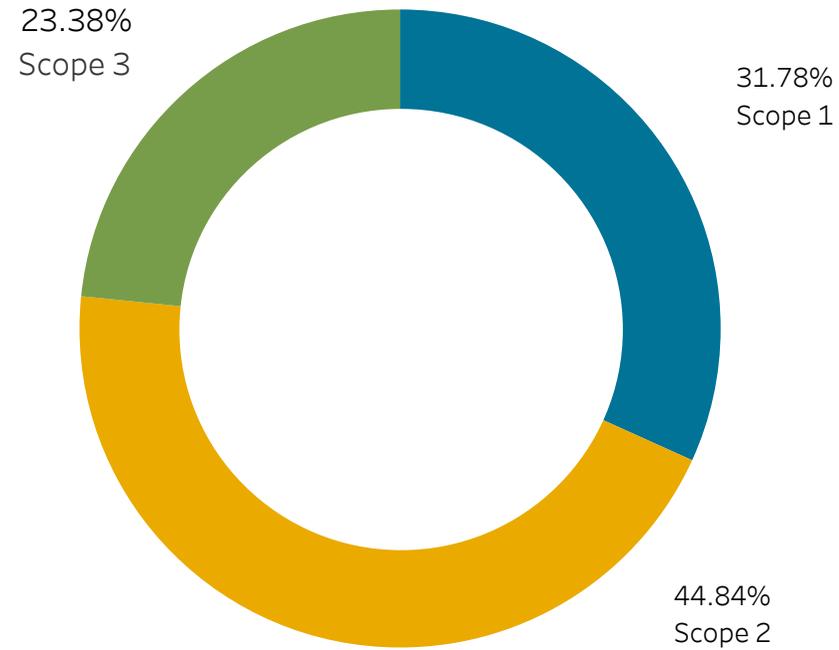
SCOPE 2 electricity

SCOPE 3 directly financed air travel, directly financed automobile travel, study abroad travel, solid landfilled waste, T&D losses

Results

FY2020 Scopes 1, 2, and 3 Absolute Greenhouse Gas Emissions by Source, Scope, and Fiscal Year [Percent] Location-Based Method

Figure 2.3



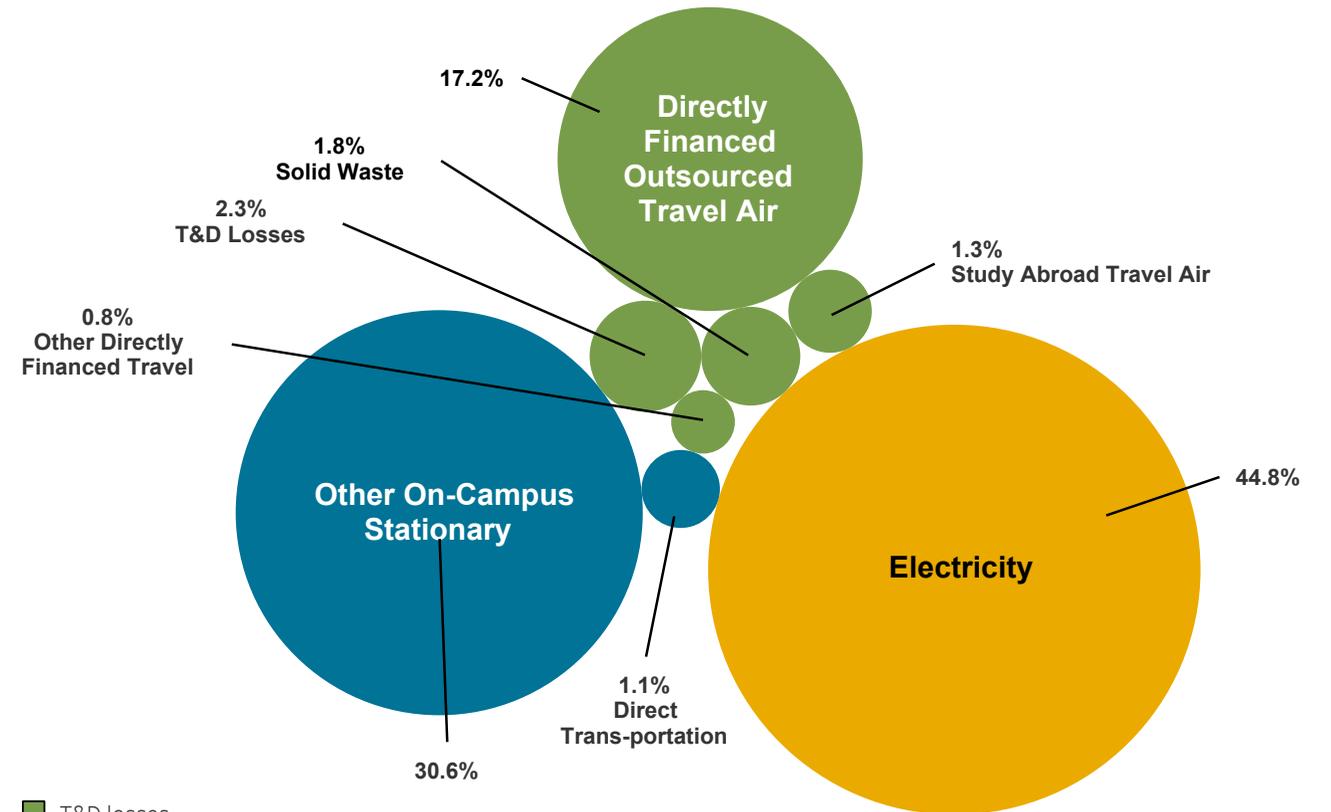
- Scope 1 TOTAL
- Scope 2 TOTAL
- Scope 3 TOTAL

SCOPE 1 natural gas, distillate fuel oil #2, University-owned fleet and UGo shuttles, nitrogen in fertilizer

SCOPE 2 electricity

SCOPE 3 directly financed air travel, directly financed automobile travel, study abroad travel, solid landfilled waste, T&D losses

Figure 2.4



- T&D losses
- Solid waste
- Other Directly Financed Travel
- Directly Financed Outsourced Travel Air
- Electricity
- Agriculture
- Direct Transportation
- Other On-Campus Stationary

emissions from agriculture are negligible and too small to display

Conclusion

Managing greenhouse gas emissions is a top priority for the University of Chicago and it allows for progress in multiple areas of the **Sustainability Plan**.

The results of the UChicago 2012–2020 greenhouse gas emissions inventory indicate progress, but demonstrate the need for continued action, especially in area 2 of the Sustainability Plan, High Performance Buildings.

Since the 2030 goal is based on scopes 1 and 2 absolute emissions, and natural gas and electricity use in campus buildings contribute to approximately 70% of the University's greenhouse gas emissions, reducing electricity and natural gas consumption in campus buildings will make the biggest impact on reducing University greenhouse gas emissions.

Energy efficiency projects are currently underway and planned through 2025, as outlined in **the University of Chicago Greenhouse Gas Emissions Reduction Plan (FY2018–FY2025)** and **Appendix F**. An updated emissions reduction plan is in progress to reflect the new 2030 goal.

Only by collaborating together as a campus community, will the 2030 goal be achieved. For ways to get involved, please visit **sustainability.uchicago.edu**.



ABSOLUTE EMISSIONS	INSTITUTIONAL	SCOPE 1			SCOPE 2	SCOPE 3					SCOPE 1	SCOPE 2	SCOPE 3	SCOPES 1+2	SCOPES 1+2+3
	FICM Gross Area	Other On-Campus Stationary ¹	Direct Transportation ²	Agriculture ³	Electricity	Directly Financed Air Travel	Other Directly Financed Travel ⁴	Study Abroad Air Travel	Solid Waste	Scope 2 T&D Losses ⁵	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL
	[sqft]	[MT eCO ₂]	[MT eCO ₂]	[MT eCO ₂]	[MT eCO ₂]	[MT eCO ₂]	[MT eCO ₂]	[MT eCO ₂]	[MT eCO ₂]	[MT eCO ₂]	[MT eCO ₂]	[MT eCO ₂]	[MT eCO ₂]	[MT eCO ₂]	[MT eCO ₂]
% Change Target Base Year to FY2020	13.6%	14.4%	5.1%	-50.5%	-10.0%	11.6%	-5.7%	-7.4%	-5.7%	-45.4%	14.1%	-10.0%	-1.6%	-1.4%	-1.4%
% Change FY2019 to FY2020	2.6%	-2.9%	-9.0%	-28.7%	-7.4%	-19.2%	-43.3%	-11.7%	6.3%	-7.4%	-3.2%	-7.4%	-17.4%	-5.7%	-8.7%
Fiscal Year															
2012	8,090,775	41,867.5	1,685.1	22.1	84,348.1	22,916.2	1,169.9	2,379.7	3,372.8	8,515.9	43,574.8	84,348.1	38,354.5	127,922.9	166,277.4
2013	7,963,980	44,973.4	1,820.1	6.6	83,785.2	25,908.4	1,331.9	2,430.1	3,253.8	8,459.1	46,800.2	83,785.2	41,383.3	130,585.3	171,968.6
2014	7,789,702	48,995.2	1,973.1	6.8	84,568.0	29,510.3	1,535.2	2,246.7	3,158.0	4,422.8	50,975.1	84,568.0	40,873.1	135,543.1	176,416.2
2015	8,063,020	45,760.8	1,962.1	9.6	81,451.3	30,386.3	1,596.5	2,476.4	3,322.6	4,259.8	47,732.5	81,451.3	42,041.7	129,183.8	171,225.5
2016	8,498,838	47,345.7	1,744.8	6.3	88,052.7	29,932.8	1,027.8	2,039.8	2,649.0	4,139.4	49,096.8	88,052.7	39,788.9	137,149.5	176,938.4
2017	8,747,503	62,149.7	1,943.6	6.2	91,339.7	29,344.4	1,066.2	2,249.3	2,680.4	4,294.0	64,099.5	91,339.7	39,634.2	155,439.2	195,073.4
2018	8,800,337	52,095.2	2,306.6	8.3	86,494.9	30,997.4	1,459.0	2,425.8	2,770.8	4,439.4	54,410.2	86,494.9	42,092.4	140,905.0	182,997.4
2019	8,807,078	53,381.5	2,108.9	8.2	81,928.6	36,068.8	2,240.6	2,466.4	2,892.3	4,205.0	55,498.6	81,928.6	47,873.1	137,427.2	185,300.3
2020	9,031,821	51,818.9	1,918.7	5.9	75,827.0	29,131.8	1,269.6	2,177.0	3,074.6	3,891.9	53,743.4	75,827.0	39,544.8	129,570.4	169,115.2
target base year	7,948,152	45,278.7	1,826.1	11.8	84,233.8	26,111.6	1,345.7	2,352.2	3,261.5	7,132.6	47,116.7	84,233.8	40,203.6	131,350.4	171,554.1
FY2020 % of total	NA	30.6%	1.1%	0.003%	44.8%	17.2%	0.8%	1.3%	1.8%	2.3%	31.8%	44.8%	23.4%	76.6%	100.0%
FY2020 rank	NA	2	7	9	1	3	8	6	5	4	NA	NA	NA	NA	NA

CARBON INTENSITY (EMISSIONS/SQFT)	INSTITUTIONAL	SCOPE 1			SCOPE 2	SCOPE 3					SCOPE 1	SCOPE 2	SCOPE 3	SCOPES 1+2	SCOPES 1+2+3
	FICM Gross Area	Other On-Campus Stationary ¹	Direct Transportation ²	Agriculture ³	Electricity	Directly Financed Air Travel	Other Directly Financed Travel ⁴	Study Abroad Air Travel	Solid Waste	Scope 2 T&D Losses ⁵	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL
	[sqft]	[kg eCO ₂ /sqft]	[kg eCO ₂ /sqft]	[kg eCO ₂ /sqft]	[kg eCO ₂ /sqft]	[kg eCO ₂ /sqft]	[kg eCO ₂ /sqft]	[kg eCO ₂ /sqft]	[kg eCO ₂ /sqft]	[kg eCO ₂ /sqft]	[kg eCO ₂ /sqft]	[kg eCO ₂ /sqft]	[kg eCO ₂ /sqft]	[kg eCO ₂ /sqft]	[kg eCO ₂ /sqft]
% Change Target Base Year to FY2020	13.6%	0.6%	-7.7%	NA	-20.8%	-2.0%	-17.1%	-18.5%	-17.0%	-51.8%	0.3%	-20.8%	-13.5%	-13.2%	-13.3%
% Change FY2019 to FY2020	2.6%	-5.3%	-11.3%	NA	-9.8%	-21.2%	-44.7%	-13.9%	3.7%	-9.8%	-5.6%	-9.8%	-19.5%	-8.1%	-11.0%
Fiscal Year															
2012	8,090,775	5.2	0.2	0.0	10.4	2.8	0.1	0.3	0.4	1.1	5.4	10.4	4.7	15.8	20.6
2013	7,963,980	5.6	0.2	0.0	10.5	3.3	0.2	0.3	0.4	1.1	5.9	10.5	5.2	16.4	21.6
2014	7,789,702	6.3	0.3	0.0	10.9	3.8	0.2	0.3	0.4	0.6	6.5	10.9	5.2	17.4	22.6
2015	8,063,020	5.7	0.2	0.0	10.1	3.8	0.2	0.3	0.4	0.5	5.9	10.1	5.2	16.0	21.2
2016	8,498,838	5.6	0.2	0.0	10.4	3.5	0.1	0.2	0.3	0.5	5.8	10.4	4.7	16.1	20.8
2017	8,747,503	7.1	0.2	0.0	10.4	3.4	0.1	0.3	0.3	0.5	7.3	10.4	4.5	17.8	22.3
2018	8,800,337	5.9	0.3	0.0	9.8	3.5	0.2	0.3	0.3	0.5	6.2	9.8	4.8	16.0	20.8
2019	8,807,078	6.1	0.2	0.0	9.3	4.1	0.3	0.3	0.3	0.5	6.3	9.3	5.4	15.6	21.0
2020	9,031,821	5.7	0.2	0.0	8.4	3.2	0.1	0.2	0.3	0.4	6.0	8.4	4.4	14.3	18.7
target base year	7,948,152	5.7	0.2	0.0	10.6	3.3	0.2	0.3	0.4	0.9	5.9	10.6	5.1	16.5	21.6
FY2020 % of total	NA	30.6%	1.1%	0.003%	44.8%	17.2%	0.8%	1.3%	1.8%	2.3%	31.8%	44.8%	23.4%	76.6%	100.0%
FY2020 rank	NA	2	7	9	1	3	8	6	5	4	NA	NA	NA	NA	NA

FOOTNOTES

- ¹natural gas; distillate fuel oil #2
- ²University-owned fleet; UGo shuttles
- ³Nitrogen in fertilizer
- ⁴Rental car; personal mileage reimbursement
- ⁵T&D = transmission & distribution

FY2020 ABSOLUTE EMISSIONS RANK

1. Electricity	44.8%	top 3
2. Other on-campus stationary ¹	30.6%	top 3
3. Directly financed air travel	17.2%	top 3
4. Solid Waste	2.3%	middle
5. Scope 2 transmission & distribution losses ⁵	1.8%	middle
6. Study abroad air travel	1.3%	<2%
7. Direct transportation ²	1.1%	<2%
8. Other directly financed travel ⁴	0.8%	<2%
9. Agriculture ³	0.0%	<2%

target base year = average(FY2012 emissions, FY2013 emissions, FY2014 emissions)

Property Code	Property Name	2012	2013	2014	2015	2016	2017	2018	2019	2020	
A06	John Crerar Library	Included in boundary									
A07	Kersten Physics Teaching Center	Included in boundary									
A08	Hinds Laboratory	Included in boundary									
A12	Ingleside Hall	Included in boundary		Demolished	Demolished	Demolished	Demolished	Demolished	Demolished	Demolished	
A13	Bookstore	Included in boundary									
B01	Michelson Center for Physics	Included in boundary					Renovation	Renovation	Included in boundary		
B02	High Energy Physics	Included in boundary									
B03	Accelerator Building	Included in boundary									
B04	Astronomy and Astrophysics Center	Included in boundary	Demolished	Demolished	Demolished	Demolished	Demolished	Demolished	Demolished	Demolished	
B06	Low Temperature Laboratory	Demolished	Demolished	Demolished	Demolished	Demolished	Demolished	Demolished	Demolished	Demolished	
B07	Research Institutes	Included in boundary	Demolished	Demolished	Demolished	Demolished	Demolished	Demolished	Demolished	Demolished	
B08	Biopsychological Research Building	Included in boundary									
B34	Stagg Field Building	Included in boundary									
B65	William Eckhardt Research Center	Excluded from boundary					New Construction	Included in boundary			
B78	Ratner Athletics Center	Included in boundary									
B113	West Campus Combined Utility Plant	Included in boundary									
C01	Pierce Hall	Included in boundary		Demolished	Demolished	Demolished	Demolished	Demolished	Demolished	Demolished	
C02	Henry Crown Field House	Included in boundary									
C03	Regenstein Library	Included in boundary									
C04	Bartlett Commons	Included in boundary									
C05	Young Memorial Building	Included in boundary									

Boundary Status

- Included in boundary
- Excluded from boundary

Property Code	Property Name	2012	2013	2014	2015	2016	2017	2018	2019	2020
C13	Smart Museum of Art									
C14	Cochrane-Woods Art Center									
C15	Court Theatre									
C25	Joe and Rika Mansueto Library	New Construction								
C26	Campus North Residential Commons						New Construction			
C32	Max Palevsky Commons A/West									
C33	Max Palevsky Commons B/Center									
C34	Max Palevsky Commons C/East									
D01	Quadrangle Club									
D02	Mitchell Tower									
D03	Reynolds Clubhouse									
D04	Hutchinson Commons									
D05	Zoology Building									
D06	Anatomy Building									
D07	Hitchcock Hall									
D08	Snell Hall									
D09	Searle Chemistry Laboratory									
D10	Culver Hall									
D11	Erman Biology Center									
D12	Mandel Hall									
D13	5727 South University Avenue									
D14	5733 South University Avenue									
D16	Eckhart Hall									
D17	Ryerson Laboratory									
D18	Kent Chemical Laboratory									

Boundary Status
■ Included in boundary
■ Excluded from boundary

Property Code	Property Name	2012	2013	2014	2015	2016	2017	2018	2019	2020
D19	Jones Laboratory									
D20	Edward H. Levi Hall									
D21	Cobb Lecture Hall									
D22	Bond Chapel									
D23	Swift Hall									
D24	Rosenwald Hall									
D25	Walker Museum									
D26	Oriental Institute									
D29	Rockefeller Chapel									
D31	5855 South University Avenue									
D32	Beecher Hall									
D33	Green Hall									
D34	Kelly Hall									
D35	Foster Hall									
D36	Social Science Research Building									
D37	Stuart Hall									
D38	Harper Memorial Library									
D39	Haskell Hall									
D40	Wieboldt Hall									
D41	Classics Building									
D42	Goodspeed Hall									
D43	Gates Hall									
D44	Blake Hall									
D48	5737 South University Avenue						Renovation			
D53	Pick Hall									

Boundary Status
■ Included in boundary
■ Excluded from boundary

Property Code	Property Name	2012	2013	2014	2015	2016	2017	2018	2019	2020
E05	Lillie House									
E06	Sunny Gymnasium									
E07	Belfield Hall									
E09	Ida Noyes Hall									
E10	Judd Hall									
E11	University High School									
E12	Blaine Hall									
E13	International House									
E20	Wilder House									
E21	Breckinridge House									
E29	Middle School									
E30	Gordon Parks Arts Hall					New Construction				
E41	Kovler Gymnasium									
E44	Charles M. Harper Center									
E55	Earl Shapiro Hall				New Construction					
F02	South Steam Plant									
F08	Laboratory Service Building									
F12	1427 East 60th Street									
F15	South Campus Chiller Plant									
F16	Chicago Theological Seminary	Leased								
G01	1365 East 60th Street				Inactive	Inactive	Inactive	Inactive	Inactive	Inactive
G02	Chapin Hall									
G03	Keller Center					Renovation	Renovation	Renovation		
G04	Mott Building					Demolished	Demolished	Demolished	Demolished	
G30	6045 Kenwood Building									

Boundary Status

- Included in boundary
- Excluded from boundary

Property Code	Property Name	2012	2013	2014	2015	2016	2017	2018	2019	2020
H01	1155 East 60th Street									
H02	Laird Bell Law Quadrangle									
H03	Burton-Judson Courts									
H09	Renee Granville-Grossman Residential Commons									
H10	Arley D. Cathey Dining Commons									
I01	Social Service Administration									
I02	Midway Studios									
I03	6011-27 South Ingleside Avenue									
I04	Edelstone Center									
I10	6022-24 South Drexel Avenue									
I13	950 East 61st Street									
I29	6054 South Drexel Avenue									
I30	Reva and David Logan Center for the Arts		New Construction							
I32	Lorado Taft House									
I33	Kiln							New Construction	New Construction	
L29	Facilities Services					New Construction				
M68	1340 East 55th Street								New Construction	
N11	5608 South Stony Island Blvd									Demolished
N12	Alumni House									
O11	Neubauer Collegium for Culture and Society					New Construction				
O13	Institute of Politics		New Construction							
O15	5711 South Woodlawn Avenue							occupancy change		
O16	5710 South Woodlawn Avenue									
O20	5720 South Woodlawn Avenue									

Boundary Status
■ Included in boundary
■ Excluded from boundary

Property Code	Property Name	2012	2013	2014	2015	2016	2017	2018	2019	2020
O24	5730 South Woodlawn Avenue	Included in boundary								
O28	5736 South Woodlawn Avenue	Included in boundary								
O30	5740 South Woodlawn Avenue	Included in boundary		Renovation	Included in boundary					
O31	McGiffert House	Included in boundary		Renovation	Included in boundary					
O32	5750 South Woodlawn Avenue	Included in boundary		Renovation	Included in boundary					
O33	Robie House	Leased								
O36	Saieh Hall for Economics	Included in boundary	Renovation	Renovation	Included in boundary					

Boundary Status
■ Included in boundary
■ Excluded from boundary

Table C.1: Organizational Boundary Summary of Updates				
Property Code	Property Name	Status	Time Period Impacted	Reason
I32	Lorado Taft House	addition	FY2012-FY2020 and forward	This means the FICM gross area for I32 will be included. The utilities were already included in I02.
M68	1340 East 55th Street	addition	FY2020 and forward	New construction
O15	5711 South Woodlawn Avenue	addition	FY2019-FY2020 and forward	A non-University tenant (Paulson Institute) moved out and a University Department (CSL) moved into the building in October 2018.
O13	Institute of Politics	addition	FY2014-FY2020 and forward	Under construction and not yet used by the University in FY2012 and FY2013. Became University occupied between 2013 and 2014.
G30	6045 Kenwood Building	addition	FY2012-FY2020 and forward	Formerly Illinois Bell before the University purchased and renovated the building in 2009. Half of the building is occupied by the University (IT Services), and half of the building is leased out (Toyota T.I.). 100% of this property, FICM gross area and utilities, is included in the GHG organizational boundary in the interest of over reporting.
G03	Keller Center	addition	FY2020 and forward	Renovation
N11	5608 South Stony Island Blvd	removal	FY2020 and forward	Demolished
O33	Robie House	removal	FY2012-FY2020 and forward	Leased out 100% to non-University tenant

Table C.2: Absolute Greenhouse Gas Emissions in [MT eCO₂], Global Warming Potentials, and U.S. EPA Regional eGRID Emissions Factor Versions for Scope 2 Electricity by Reporting Period and Fiscal Year *Location-Based Method*

Fiscal Year	Reporting Period 5	Reporting Period 4	Reporting Period 3	Reporting Period 2	Reporting Period 1*
	FY2012-FY2020 Inventory Report July 2021	FY2012-FY2019 Inventory Report January 2021	FY2012-FY2018 Inventory Report October 2019	FY2012-FY2017 Inventory Report May 2018	FY2012-FY2015 Sustainability Plan November 2016
	GWP AR5	GWP AR5	GWP AR4	GWP AR4	GWP AR4
	Scopes 1 and 2 [MT eCO ₂]	Scopes 1 and 2 [MT eCO ₂]	Scopes 1 and 2 [MT eCO ₂]	Scopes 1 and 2 [MT eCO ₂]	Scopes 1, 2, and 3 [MT eCO ₂]
2012	127,922.9 rel. 2015, eGRID2012, 10th ed.	126,718.5 rel. 2015, eGRID2012, 10th ed.	126,747.5 rel. 2015, eGRID2012, 10th ed.	126,784.6 rel. 2015, eGRID2012, 10th ed.	194,427.6 rel. 2015, eGRID2012, 10th ed.
2013	130,585.3 rel. 2015, eGRID2012, 10th ed.	128,722.6 rel. 2015, eGRID2012, 10th ed.	128,744.1 rel. 2015, eGRID2012, 10th ed.	128,777.3 rel. 2015, eGRID2012, 10th ed.	199,515.9 rel. 2015, eGRID2012, 10th ed.
2014	135,543.1 rel. 2017, eGRID2014, 11th ed.	132,774.9 rel. 2017, eGRID2014, 11th ed.	132,795.8 rel. 2017, eGRID2014, 11th ed.	132,455.2 rel. 2017, eGRID2014, 11th ed.	206,220.7 eGRID2014
2015	129,183.8 rel. 2017, eGRID2014, 11th ed.	129,854.4 rel. 2017, eGRID2014, 11th ed.	129,883.1 rel. 2017, eGRID2014, 11th ed.	129,554.9 rel. 2017, eGRID2014, 11th ed.	200,796.1 eGRID2014
2016	137,149.5 rel. 2018, eGRID2016, 12th ed.	125,167.6 rel. 2018, eGRID2016, 12th ed.	125,195.3 rel. 2018, eGRID2016, 12th ed.	133,543.4 rel. 2017, eGRID2014, 11th ed.	NA
2017	155,439.2 rel. 2018, eGRID2016, 12th ed.	125,345.8 rel. 2018, eGRID2016, 12th ed.	125,443.9 rel. 2018, eGRID2016, 12th ed.	133,910.5 rel. 2017, eGRID2014, 11th ed.	NA
2018	140,905.0 rel. 2020, eGRID2018, 13th ed.	123,120.8 rel. 2020, eGRID2018, 13th ed.	127,963.5 rel. 2018, eGRID2016, 12th ed.	NA	NA
2019	137,427.2 rel. 2021, eGRID2019, 14th ed. §	125,223.2 rel. 2020, eGRID2018, 13th ed.	NA	NA	NA
2020	129,570.4 rel. 2021, eGRID2019, 14th ed. §	NA	NA	NA	NA
target base year		129,405.3	129,429.1		129,339.1

Global Warming Potential source:
[IPCC Fourth Assessment Report](#)
[IPCC Fifth Assessment Report](#)

Emissions Factor source:
[United States Environmental Protection Agency Emissions and Generation Resource Integrated Database \(eGRID\)](#)

§The latest version of the United States Environmental Protection Agency regional eGRID emissions factors were released on 23 February 2021, are called eGRID2019, are from 2019 data, and are the fourteenth edition.

The eGRID sub-region symbol is RFCW.
 The eGRID region name is RFC West.

eGRID release dates are available in the [U.S. EPA eGRID Questions and Answers/What years are available for eGRID?](#)

2030 GOAL

- Scope 1
- Natural Gas
 - Distillate Fuel Oil #2
 - Unleaded and Diesel Fuel (University-Owned Fleet and UGo Shuttles)
 - Fertilizer, Nitrogen

Scope 2
 Purchased Electricity

OTHER EMISSIONS

- Scope 3, optional reporting (included in reporting, not included in 2030 goal)
- Business Travel (Air, Automobile)
 - Study Abroad Travel (Air)
 - Landfilled Waste
 - Transmission and Distribution Losses from Scope 2 Electricity

*Includes scopes 1, 2, and 3, and includes commuting. In all subsequent reporting periods, scopes 1 and 2 are included for the 2030 goal, and commuting is excluded due to lack of data.

Acronyms and Chemical Formulas

Maroon text indicates UChicago-specific acronyms

BTU	British thermal unit
CH ₄	methane
CBECS	Commercial Buildings Energy Consumption Survey
CO ₂	carbon dioxide
CR	The Climate Registry
eCO ₂	equivalent CO ₂
EF	emissions factor
eGRID	emissions and generation resource integrated database
FICM	Facilities Inventory and Classification Manual
FS	Facilities Services
(FS) ²	Facilities Services Facility Standards
FY	fiscal year
GHG	greenhouse gas
GWP	global warming potential
HFC	hydrofluorocarbons
IPCC	Intergovernmental Panel on Climate Change
kWh	kilowatt hour
MMBtu	1 MMBtu = 1x10 ⁶ Btu
MT	1 metric ton = 1,000 kg
(NF ₃) ³	nitrogen trifluoride
N ₂ O	nitrous oxide
OS	Office of Sustainability
PFC	perfluorocarbons
SF ₆	sulfur hexafluoride
SP	Sustainability Plan

Links

The University of Chicago
uchicago.edu

Facilities Services
facilities.uchicago.edu

Office of Sustainability
sustainability.uchicago.edu

Sustainability Plan
sustainability.uchicago.edu/sp

Facilities Services Facility Standards (FS)²
facilities.uchicago.edu/about/partners/facilitiesstandards

Sources

Referenced Standards

[The Climate Registry General Reporting Protocol, Version 2.0 \(2013\)](#)
[The Climate Registry General Reporting Protocol, Version 3.0 \(2019\)](#)

[The World Resources Institute Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard \(Revised Edition\) \(2004\)](#)

Global Warming Potentials

[IPCC Fifth Assessment Report](#)

Emissions Factors

[United States Environmental Protection Agency Emissions and Generation Resource Integrated Database \(eGRID\)](#)

- The eGRID sub-region symbol is RFCW.
- The eGRID region name is RFC West.

Calculation Tool

Internally developed tool

Area (square footage)

[Facilities Inventory and Classification Manual \(FICM\)](#)

Climate Zone

Chicago is in CBECS climate zone 2.

[United States Climate Zones for 2003 CBECS](#)

- Verifiable and reliable data is used to the best of its availability during the current reporting period. Decisions are made with the best information available during the reporting period, and on the side of over reporting. Greenhouse gas emissions inventories are dynamic. When new data, information, emissions factors, and/or global warming potentials become available that were not available during the reporting period, they are incorporated in the next reporting period, as appropriate.
- Referenced standards: *The Climate Registry General Reporting Protocol, Version 2.0 (2013)*, *The Climate Registry General Reporting Protocol, Version 3.0 (2019)*, and *The World Resources Institute Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition) (2004)*.
- The greenhouse gas emissions inventory includes the University of Chicago Hyde Park campus, excluding the Medical Campus.
- The greenhouse gas emissions are calculated using the operational control approach and the location-based method.
- Goal: Reduce greenhouse gas emissions by 20% by 2025 for scopes 1 and 2 carbon intensity.
- Target base year: 2012–2014 average emissions.
- Scopes; Scope 1: Natural Gas, Distillate Fuel Oil #2, Unleaded Fuel (University-Owned Fleet and UGo Shuttles), Diesel Fuel (University-Owned Fleet and UGo Shuttles), Fertilizer, Nitrogen; Scope 2: Purchased Electricity; Scope 3 (included in reporting, not included in 2025 goal): Business Travel (Air, Automobile), Study Abroad Travel (Air), Landfilled Waste, Transmission and Distribution Losses from Scope 2 Electricity.
- Population includes students, faculty, staff, and the University of Chicago Laboratory School students.
- Each fiscal year's Autumn Quarter demographic data is used as the data point (i.e. for FY2017, Autumn Quarter 2016 data is used).
- Harper Court staff population is included, even though Harper Court (building) is not within the greenhouse gas emissions organizational boundary. The Harper Court staff population is included because occupants of Harper Court also inhabit campus, contribute to the waste, use the shuttles, water, and other resources on campus. Additionally, they participate in commuting to/from campus, and business travel. The Harper Court building is not included because it is not University owned and is not within the University's operational control.
- Guests and visitors are excluded from the population data.
- Biological Sciences Division population is excluded since BSD is also excluded from the physical campus scope of the inventory.
- Biological Sciences Division properties are excluded except where under Facilities Services operational control.
- Building areas are measured in gross square feet using Facilities Inventory and Classification Manual (FICM) areas.
- For new construction or demolished buildings: if a building is "online" (utility data is available for it) for 6 months or more (≥ 6 mo) of the fiscal year, its area and utility data are included in the greenhouse gas emissions calculations.
- E44 Charles M. Harper Center is not within the operational control of Facilities Services but it is included in the greenhouse gas emissions inventory because it is contiguous to the rest of campus, a high profile professional school, and a campus partner.
- 100-year global warming potentials IPCC Fifth Assessment Report. United States Environmental Protection Agency Emissions and Generation Resource Integrated Database (eGRID) eGRID sub-region symbol RFCW, eGRID region name RFC West.
- Utility data is from utility billing.
- Steam data is adjusted to include the portion of steam serving the buildings in the organizational boundary.
- A86 Gordon Center for Integrative Science: utilities and area (sqft) are adjusted to include the portion of the building included in the organizational boundary since the other portion of the building is occupied by the medical campus. 100% of fuel oil is included in the inventory as it is used for required testing of the emergency generators and the generators are operated by Facilities Services.
- Fuel oil for buildings on the medical campus is excluded from the inventory.
- Fuel oil is zero for some fiscal years.
- University-owned fleet data tracked and reported is only what is included in the IT Services database (fuel that was filled up on campus at the Fuel Depot). If fuel was filled up off campus, it is not tracked and reported.
- Data includes fuel used for all University-owned fleet such as Facilities Services, the Library, IT Services, the Press Building, the University of Chicago Booth School of Business, UCPD (starting in FY2017), etcetera. It excludes the medical center fleet.
- The UCPD fleet does not have any vehicles that use diesel fuel. The UCPD fleet is University owned.
- UGo Daytime and UGo Nightride shuttles: Since the lease between UChicago and the shuttle vendor is an operating lease, and the consolidation method is operational control, the gallons of fuel usage from the UGo Shuttles are included in scope 1 of the greenhouse gas emissions inventory calculations.
- This report excludes fugitive emissions from refrigerants and other chemicals.
- The air travel data is all employee (anyone on the University payroll) air travel from expense reporting.
- A portion of the faculty/staff air travel data contains student air travel. This occurs when the employee (anyone on University payroll) purchases the travel on behalf of the student.
- Conversion factors for USD (\$) to miles of international and domestic air travel were used from [Airlines for America](#), except for fiscal year 2015, which was extrapolated from previous years since Airlines for America did not have any 2015 conversion rates listed. Note: Airlines for America no longer reporting on the passenger yield data point that is necessary to convert air travel dollars to miles. In the absence of this data, the last available year's data (FY2017) is used for FY2018.
- The rental car data is partial data as it reflects only what is booked through the University's preferred contracts.
- For personal mileage reimbursement, the data is only for employees (anyone on University payroll).
- Assumed all study abroad travel originated from Chicago O'Hare International Airport per student participating in the program.
- Landfilled waste: Data includes all buildings included in the greenhouse gas emissions organizational boundary, as well as many residential properties not within the organizational boundary (which contribute a small portion of the total data). Data excludes Harper Court, Gleacher Center, or any leased space. Data excludes construction waste. New waste hauler arrived on campus in 2016.
- If a building is leased out less than 100%, it is included. If a building is leased out 100% it is included if University personnel frequently occupy it, otherwise it is excluded.

In fiscal year 2020, the University completed and initiated several energy conservation measures as outlined below.

- Completed seven preventative maintenance and commissioning (PM + Cx) projects.
- Initiated seven new PM +Cx projects.
- Completed lighting upgrades at Bartlett Commons, Ratner Athletics Center, and Hinds Laboratory.
- Began steam blanket insulation project.
- Completed four retro-commissioning light (RCx-light) audits, including at Arley D. Cathey Dining Commons, Edelstone Center, Rockefeller Chapel, and Henry Crown Field House.
- Developed and began implementation of chilled water optimization projects and a water conservation project at Gordon Center for Integrative Science.

Refer to sustainability.uchicago.edu/energy for additional information.

THE UNIVERSITY OF CHICAGO

Greenhouse Gas Emissions Inventory Report 2012–2020

July 2021

sustainability.uchicago.edu

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