

# Saint Louis University Greenhouse Gas Inventory Executive Summary

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FY2017

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## Introduction

A greenhouse gas (GHG) inventory is a comprehensive analysis of all emissions created from energy used by an institution. Greenhouse gases are gases which absorb radiated heat in the atmosphere. As these gases absorb heat, the atmospheric temperature rises. This creates climate change. The most common and impactful greenhouse gases are carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), and nitrous oxide (N<sub>2</sub>O).

The tool used to complete the greenhouse gas inventory is SIMAP – Sustainability Indicator Management & Analysis Platform. This online tool measures emissions from six primary greenhouse gases:

- Carbon dioxide (CO<sub>2</sub>)
- Methane (CH<sub>4</sub>)
- Nitrous oxide (N<sub>2</sub>O)
- Hydrofluorocarbons (HFC)
- Perfluorocarbons (PFC)
- Sulphur hexafluoride (SF<sub>6</sub>)

These six greenhouse gases measured in SIMAP are calculated as a unit of CO<sub>2</sub>e (carbon dioxide equivalent). Carbon dioxide is used as the normalizing factor because it is so prevalently produced through fossil fuel burning, and it is the most widely known greenhouse gas.

This greenhouse gas inventory report for FY17 marks the completion of Saint Louis University's fourth comprehensive greenhouse gas inventory.

## Methodology

SIMAP details what data are needed for the inventory. As an online tool created specifically for colleges and universities to measure their greenhouse gas emissions, SIMAP streamlines the process and provides an accessible platform to conduct a greenhouse gas inventory. Once all data are entered in SIMAP, the tool calculates all amounts entered and creates total emissions measured in metric tons of carbon dioxide equivalent (mtCO<sub>2</sub>e).



Emissions are categorized by source into three categories: Scope 1, Scope 2, and Scope 3.

Scope 1 emissions are from sources owned and operated by the University; these emissions are also combusted on-site. Scope 2 emissions are from sources purchased by the University, and combusted off-site. Scope 3 emissions are from sources neither owned nor operated by the University, but are created due to University activities.

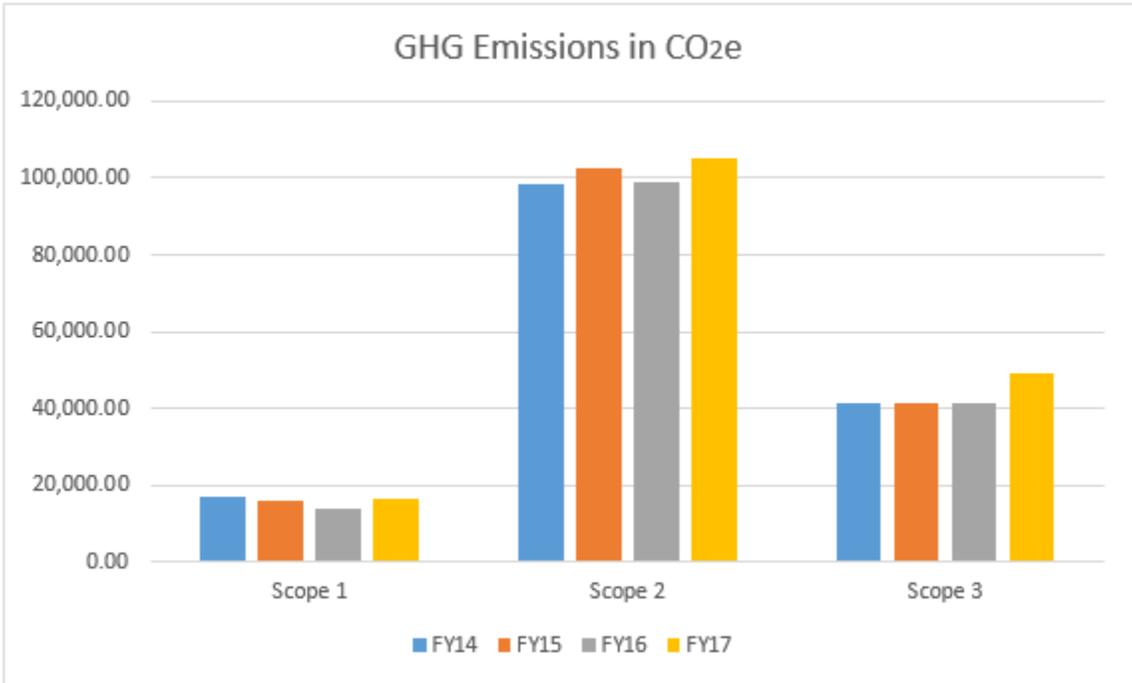
## Summary Statistics

FY17 Metrics	Total	Per Campus User	Per Student	Per 1,000 Sq. Ft.
Gross Emissions (Scope 1 + 2)	121,498.90	9.12	10.12	20.18
Gross Emissions (Scope 1 + 2 + 3)	170,844.29	12.83	14.23	28.38
Net Emissions	170,776.47	12.82	14.23	28.37

## Results

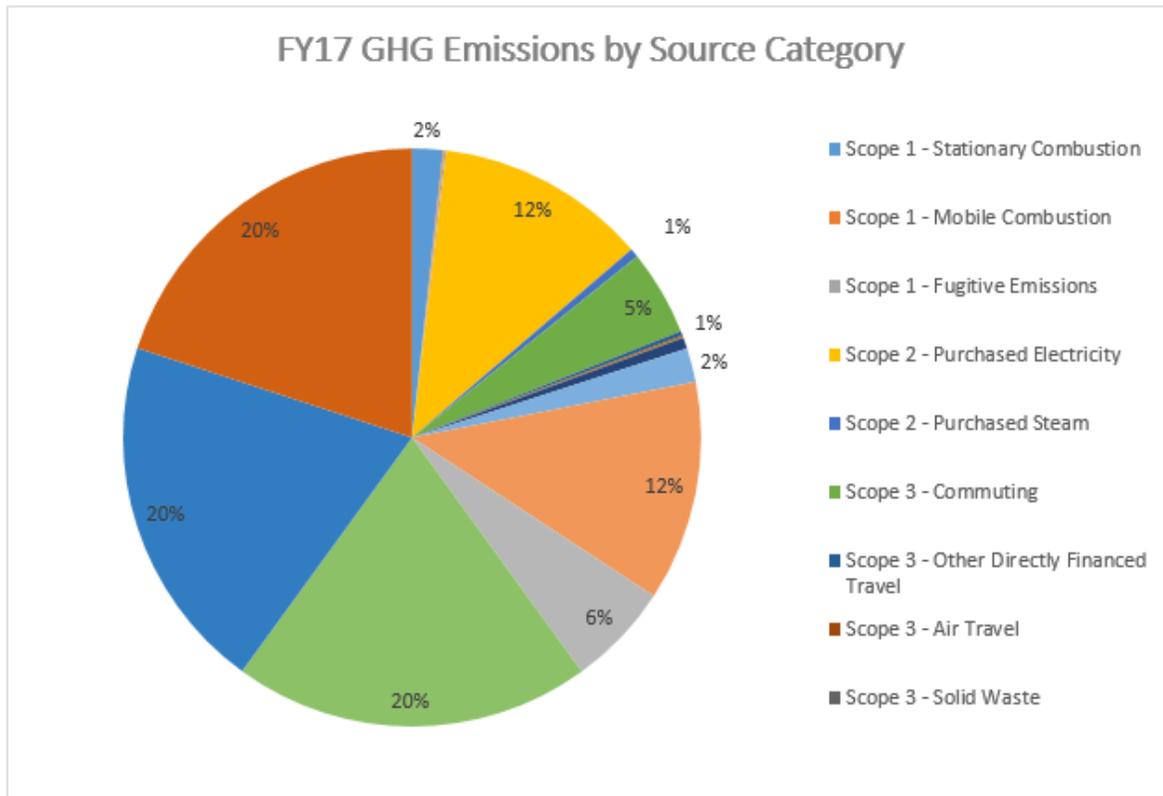
In FY17, SLU’s gross GHG emissions totaled 170,844.28 mtCO<sub>2e</sub>. Based on EPA conversions, this is equivalent to the amount of emissions created by about 36,583 vehicles driven for one year or the amount of electricity used by about 18,448 homes in one year. If 44 wind turbines were installed, SLU’s total emissions could be offset. Stated another way, it would require 201,230 acres of U.S. forests to sequester this amount of emissions, equivalent to 716 times the size of SLU’s 281-acre campus.

In FY17, SLU’s total Scope 1 emissions were higher due to a drastic increase in fugitive emissions from improved data collection, an increase in stationary combustion, and a slight increase in mobile combustion (fleet vehicles). Scope 2 emissions increased due to an increase in purchased electricity at the University. The most noticeable increase was in Scope 3 due to a higher portion of the campus population reporting that they commute in single occupancy vehicles. It is important to note that other directly financed travel, in Scope 3, was significantly lower than in previous years.



## Emissions by Scope

The following figures show emissions by category per scope. Some contributing categories account for one percent or smaller of total emissions. The table below shows the amounts of each source category in mtCO<sub>2</sub>e. The University's waste is taken to a landfill that performs CH<sub>4</sub> recovery and electric generation. The use of waste to create electricity allows for a negative amount of emissions in this category.



### Data & Explanation of FY17 GHG Emissions by Source Category

Category	mtCO <sub>2</sub> e
Scope 1 - Stationary Combustion (natural gas)	14,498.07
Scope 1 - Mobile Combustion (fleet)	673.81
Scope 1 - Fugitive Emissions (refrigerants & chemicals, fertilizers)	972.47
Scope 2 - Purchased Electricity	101,044.49
Scope 2 - Purchased Steam	4,310.06
Scope 3 - Commuting	40,889.73
Scope 3 - Other Directly Financed Travel (University funded travel of bus, car, and rail)	1,993.78
Scope 3 - Air Travel (from University funded travel - does not include air fleet)	797.62
Scope 3 - Solid Waste	-75.24
Scope 3 - Office Paper	454.96

## Comparisons

### *City of St. Louis*

When compared to the city of St. Louis, Missouri, SLU's FY17 net emissions contribute roughly 1.2% to the total measured emissions of St. Louis' calendar year 2015 emissions. The city of St. Louis measured emissions in two groups: community emission and government emissions. These emissions are 7,219,170 and 7,113,221 mtCO<sub>2e</sub>, respectively. The city's total emissions for 2015 is 14,332,391 mtCO<sub>2e</sub>. SLU's campus is 281 acres. The city of St. Louis is 42,227.2 acres. SLU accounts for 0.7% of the total city's acreage.

### *Peer Group*

Net emissions created by SLU are nearly double that of the peer average. The peer group used for comparison consists of mid-western doctorate-granting universities with enrollment between 10,000-15,000, total building square footage between 3,000,000 to 8,000,000, and who are signatories of the Second Nature Climate, Carbon or Resilience Commitments. These criteria resulted in the six universities shown in the table below. A list of all universities reporting to Second Nature can be found at [reporting.secondnature.org](http://reporting.secondnature.org).

One important caveat to the peer comparison section of this report is that Second Nature does not differentiate universities that include only scope 1 and 2 from those that include all three scopes. This distinction would help to provide a more accurate representation of emissions data and contribute to a more accurate peer analysis.

<b>FY17 Metrics (MTCO<sub>2e</sub>)</b>	<b>Total</b>	<b>Per Student FTE</b>	<b>Per 1,000 Sq. Ft.</b>
<b>SLU Net Emissions</b>	170,776	14.23	28.37
<b>Case Western Reserve University</b>	173,299	16.02	21.66
<b>Cleveland State University</b>	59,742	4.28	11.08
<b>Indiana State University</b>	77,109	5.68	16.73
<b>Loyola University Chicago</b>	98,009	6.60	18.30
<b>University of Daytona</b>	80,099	7.87	18.96
<b>University of Minnesota-Duluth</b>	54,797	4.97	15.37
<b>Average Peer Net Emissions*</b>	90,509	8.70	17.02

### **Data and report compiled by:**

Amy Hargis  
Project Analyst  
Division of Facilities Services

Please contact [greenbilliken@slu.edu](mailto:greenbilliken@slu.edu) for any inquiries.