

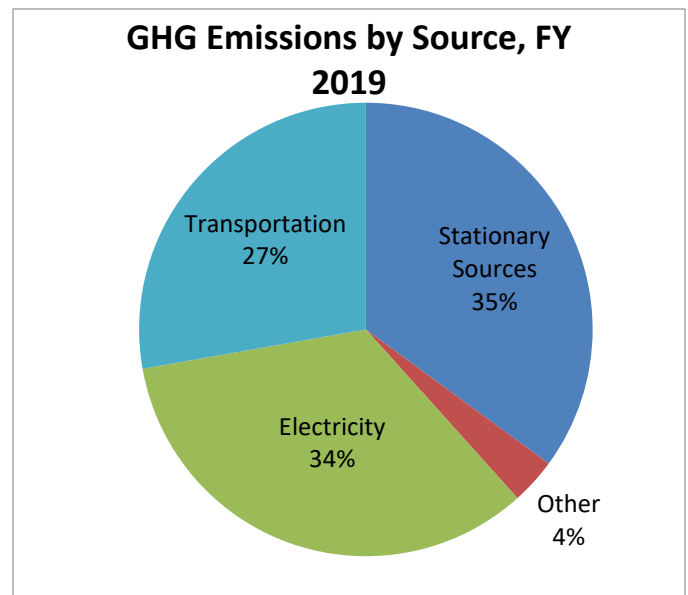
GREENHOUSE GAS INVENTORY FY 2019 UPDATE

OVERVIEW

Temple University (Temple) has prepared a greenhouse gas (GHG) inventory program in support of its participation in Second Nature’s Climate Commitment. This inventory is an update which summarizes Temple’s fiscal year (FY) 2019 GHG emissions and supplements the previously published inventory for fiscal years 2006 through 2018.

In FY 2019, Temple University’s total gross emissions were 157,290 metric tons of carbon dioxide equivalent (MTeCO₂). Of the total emissions, 34% were attributable to purchased electricity consumption, 35% to stationary sources, and 27% to transportation activities with a large portion attributable to commuting. Mobile sources (university fleet), refrigerants, fertilizers, purchased steam, and transmission and distribution losses made up the remainder, approximately 4% of the total emissions.

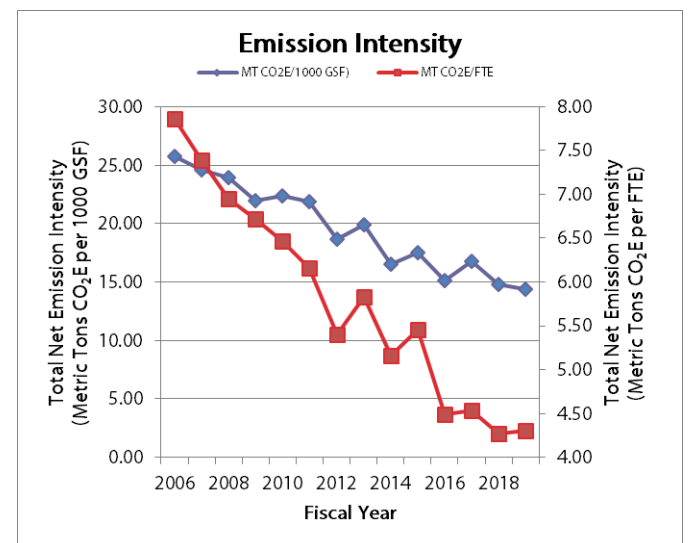
The primary emission sources were: purchased electricity, stationary combustion, and commuting (student, faculty and staff). This collectively accounted for approximately 97% of total annual gross emissions.



TRENDS FROM FY 2006 TO FY 2019

Total gross emissions increased by 1.2% from FY 2018 to FY 2019 which is due primarily to the increase of greenhouse gasses attributed to commuting (student, faculty and staff). Temple’s gross emissions decreased by 26.1% since FY 2006.

Normalizing emissions by variables such as square footage and population is helpful to establish trends. In FY 2019, total gross emission intensity per 1000 gross square feet (GSF) decreased relative to FY 2018 and total gross emission intensity per full-time equivalent students (FTE) decreased relative to FY 2018. Overall, Temple’s normalized gross emission intensity has decreased since FY 2006 (44.0% for GSF and 45.1% for FTE).



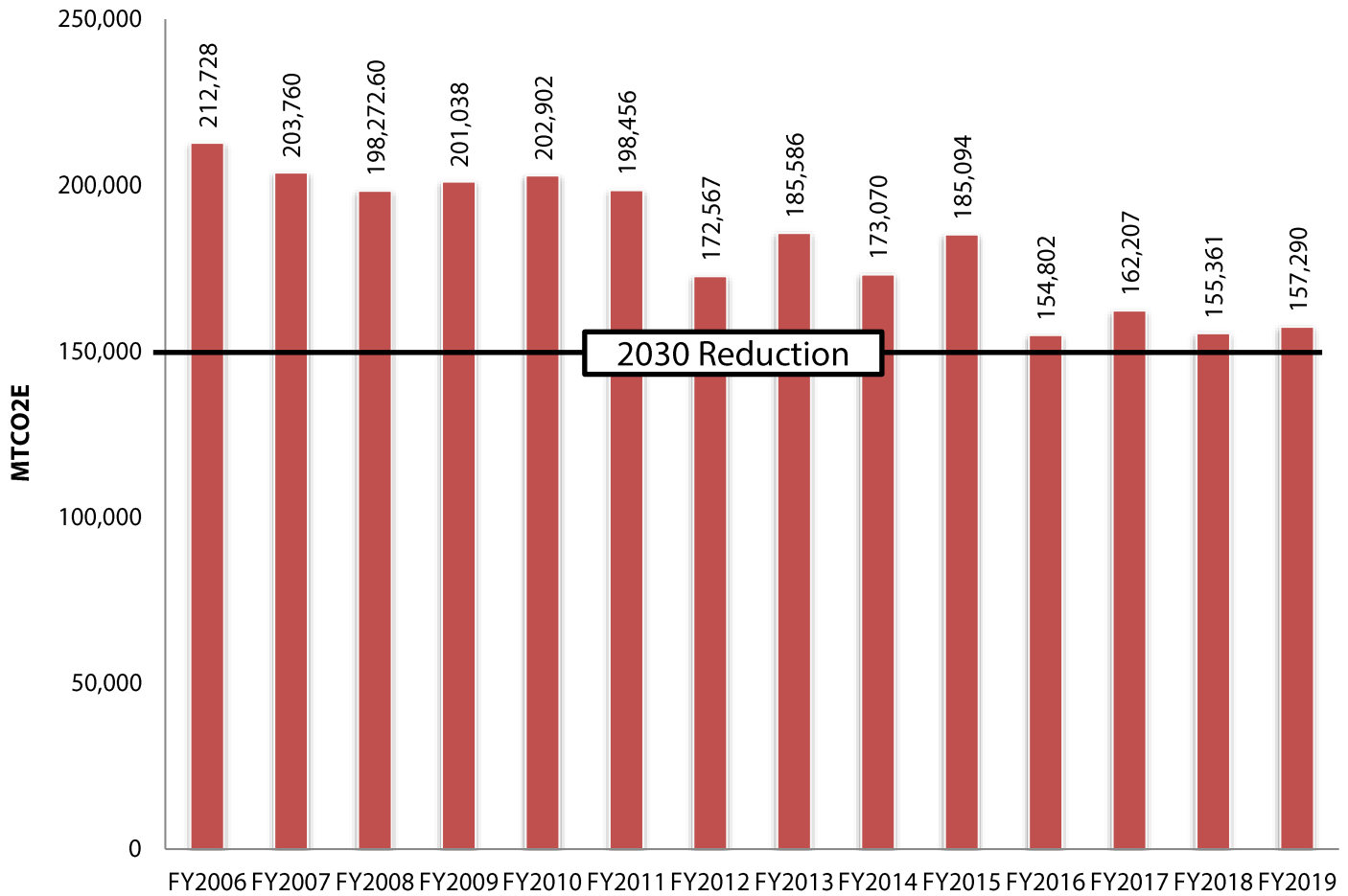
GREENHOUSE GAS EMISSIONS SUMMARY

Emissions Source		FY2006	FY2018	FY2019	Difference FY18 to FY19	%Change FY06 to FY19	% Change FY18 to FY19
Scope 1 Emissions (MT CO ₂ E)	Stationary (oil, natural gas, propane)	57,174	55,723	54,909	-814	-4.0%	-1.5%
	Mobile (University fleet)	625	1,041	875	-166	40.0%	-15.9%
	Refrigerants & Chemicals	1,930	127	763	636	-60.5%	501.9%
	Fertilizer	9.65	2.24	1.74	-0.50	-82.0%	-22.3%
	Total Gross Emissions Scope 1	59,738	56,893	56,549	-344	-5.3%	-0.6%
Scope 2 Emissions (MT CO ₂ E)	Purchased Electricity	104,559	55,648	53,034	-2,613	-49.3%	-4.7%
	Purchased Steam	278	699	694	-5	149.7%	-0.7%
	Total Gross Emissions Scope 2	104,837	56,346	53,728	-2,618	-48.8%	-4.6%
Scope 3 Emissions (MT CO ₂ E)	Faculty Commuting	2,177	2,749	5,197	2,448	138.8%	89.0%
	Staff Commuting	3,959	7,667	10,890	3,222	175.0%	42.0%
	Student Commuting	12,325	18,824	19,508	684	58.3%	3.6%
	University Financed Travel	5,582	9,249	7,890	-1,359	41.4%	-14.7%
	Solid Waste	13,760	-3	-3	0.67	-100.0%	-20.7%
	Transmission & Distribution Losses	10,353	3,636	3,531	-105	-65.9%	-2.9%
	Total Gross Emissions Scope 3	48,155	42,122	47,014	4,892	-2.4%	11.6%
Scope 1-3 Gross Emissions (MT CO ₂ E)	Total Gross Emissions	212,731	155,361	157,290	1,929	-26.1%	1.2%
	Gross Square Footage (GSF) ¹	8,266,175	10,509,012	10,908,684	399,672	32.0%	3.80%
	Full-time Equivalent Students (FTE)	27,055	36,397	36,423	26	34.6%	0.07%
	Total Gross Emission Intensity/1000 GSF	25.74	14.78	14.42	-0.36	-44.0%	-2.5%
	Total Gross Emission Intensity/FTE	7.86	4.27	4.32	0.05	-45.1%	1.2%
Scope 1-3 Net Emissions (MT CO ₂ E)	Offsets (On-site Compost)	-3.4	0.0	0.0	0.0	-100.0%	0.00%
	Total Net Emissions	212,728	155,361	157,290	1,929	-26.1%	1.2%
	Total Net Emission Intensity/1000 GSF	25.73	14.78	14.42	-0.36	-44.0%	-2.5%
	Total Net Emission Intensity/FTE	7.86	4.27	4.32	0.05	-45.1%	1.2%

¹GHG Emissions recalculated via SIMAP using market-based accounting per Second Nature's new protocol (location-based accounting utilized FY2006 through FY2017).

The increase in greenhouse gas emissions from FY 2018 to FY 2019 came mostly from Scope 3 sources (employee travel and commuting)..

Greenhouse Gas Emissions



REPORTING METHODOLOGY

The Greenhouse Gas Inventory quantifies Temple’s anthropogenic GHG emissions from energy consumption, waste disposal, agricultural activities, use of chemicals and refrigerants, and commuter transportation choices and tracks emissions of three primary greenhouse gases: carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O). Greenhouse Gas reporting includes only those campuses where the university has operational control and can enforce a change in policy (Main, Ambler, Health Sciences, and Podiatric campuses).

Using the methodology of SIMAP (<https://unhsimap.org/>), GHG emissions are expressed in Metric Tons of Carbon Dioxide Equivalents (MTeCO₂). The individual greenhouse gases are converted to carbon dioxide equivalent values using the global warming potential (GWP) of the respective gases to convert them to common units. The total MTeCO₂ is the sum of the emissions from each source. Previous inventories were generated using Clean Air – Cool Planet’s Campus Carbon Calculator and Carbon Map. Temple’s emissions data is recalculated annually to reflect updates to emission factors and global warming potentials.

ACKNOWLEDGEMENTS

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