

# GREENHOUSE GAS INVENTORY FY 2012 UPDATE

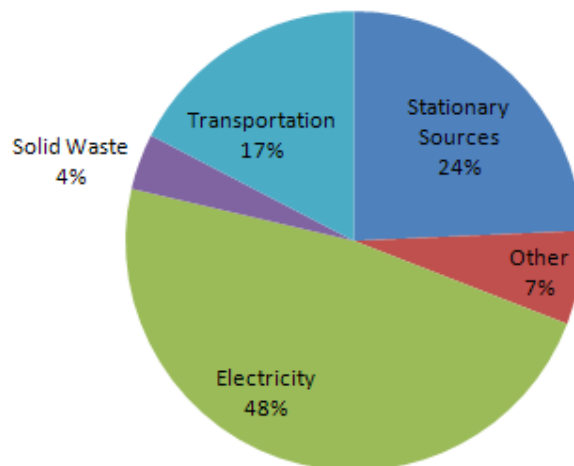
## OVERVIEW

Temple University (Temple) has prepared a greenhouse gas (GHG) inventory program in support of its participation in the American College and University Presidents' Climate Commitment (ACUPCC). This inventory is an update which summarizes Temple's fiscal year (FY) 2012 GHG emissions and supplements the previously published inventory for fiscal years 2006 through 2011.

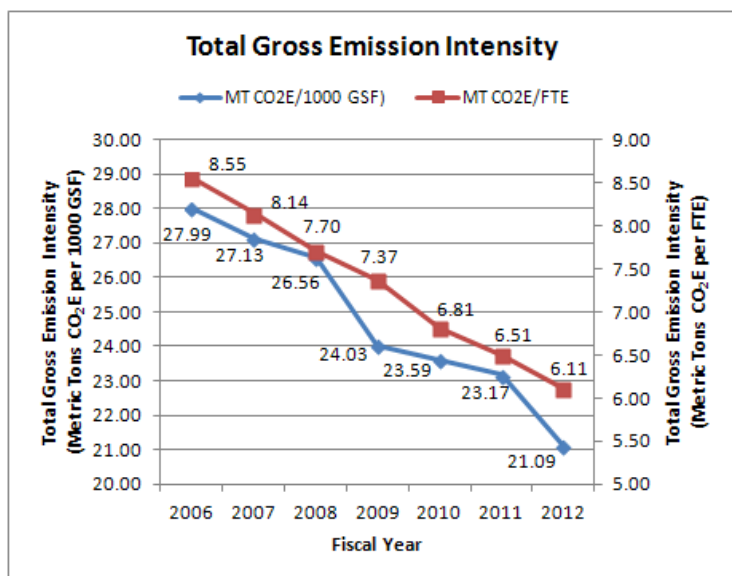
In FY 2012, Temple University's total gross emissions were 195,033 metric tons of carbon dioxide equivalent (MTeCO<sub>2</sub>). Of the total emissions, 48% were attributable to purchased electricity consumption, 24% to stationary sources and 17% to transportation activities with a large portion attributable to commuting. Mobile sources (university fleet), refrigerants, fertilizers, purchased steam, solid waste, and transmission and distribution losses made up the remainder, approximately 11% of the total emissions. Temple's total gross emissions were reduced to a net of 189,983 MTeCO<sub>2</sub> through carbon offsets.

The primary emission sources were: purchased electricity, stationary combustion, and commuting (student, faculty and staff). This collectively accounting for approximately 89% of total annual gross emissions.

**GHG Emissions by Source, FY 2012**



## TRENDS FROM FY 2011 TO FY 2012



Total gross emissions decreased by 7% from FY 2011 to FY 2012. The largest decrease occurred in Scope 3 emissions due to the decrease in air travel and decrease in solid waste emissions (refer to the Greenhouse Gas Emissions Summary below).

In FY 2012, total gross emission intensity per 1000 gross square feet (GSF) declined by 9% and total gross emission intensity per full-time equivalent students (FTE) declined by 6% relative to FY 2011. Normalizing emissions by variables such as square footage and population is helpful to establish trends.

*As of December 2012, average emission intensities for reporting ACUPCC peer institutions are 18.62 MTeCO<sub>2</sub>/1000 GSF and 7.24 MTeCO<sub>2</sub>/FTE. Temple's emission intensity is slightly higher on a GSF basis and slightly lower on a FTE basis.*

## GREENHOUSE GAS EMISSIONS SUMMARY

		FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012
Scope 1 Emissions (MTCO <sub>2</sub> E)	Stationary (oil, natural gas, propane)	56,623	55,039	46,740	61,508	56,598	52,083	47,378
	Mobile (University fleet)	622	648	628	899	865	914	877
	Fugitive (Refrigerants & Cryogenic CO <sub>2</sub> )	1,930	1,868	1,848	2,522	2,516	2,510	2,506
	Process (Agriculture/Fertilizer)	14	11	13	6	4	6	5
	<b>Total Gross Emissions Scope 1</b>	<b>59,189</b>	<b>57,566</b>	<b>49,228</b>	<b>64,935</b>	<b>59,983</b>	<b>55,513</b>	<b>50,765</b>
Scope 2 Emissions (MTCO <sub>2</sub> E)	Purchased Electricity	104,685	99,868	103,287	89,959	92,592	92,552	93,160
	Purchased Steam	275	315	328	357	350	346	292
	<b>Total Gross Emissions Scope 2</b>	<b>104,960</b>	<b>100,183</b>	<b>103,615</b>	<b>90,316</b>	<b>92,942</b>	<b>92,898</b>	<b>93,451</b>
Scope 3 Emissions (MTCO <sub>2</sub> E)	Faculty/Staff Commuting	11,563	11,536	11,665	11,756	9,396	9,104	9,269
	Student Commuting	25,879	26,050	26,829	27,488	23,630	24,308	24,061
	Air Travel	5,726	6,187	6,028	6,524	7,486	8,643	479
	Solid Waste	13,676	13,028	12,136	10,442	11,009	10,191	7,780
	Transmission & Distribution Losses	10,368	9,894	10,233	8,916	9,176	9,172	9,229
	<b>Total Gross Emissions Scope 3</b>	<b>67,212</b>	<b>66,694</b>	<b>66,891</b>	<b>65,126</b>	<b>60,697</b>	<b>61,417</b>	<b>50,817</b>
Scope 1-3 Gross Emissions (MTCO <sub>2</sub> E)	<b>Total Gross Emissions</b>	<b>231,360</b>	<b>224,442</b>	<b>219,734</b>	<b>220,377</b>	<b>213,621</b>	<b>209,828</b>	<b>195,033</b>
	Gross Square Footage (GSF)	8,266,175	8,271,765	8,271,765	9,171,147	9,055,532	9,055,532	9,245,532
	Full-time Equivalent Students (FTE)	27,055	27,560	28,535	29,901	31,363	32,251	31,939
	Total Gross Emission Intensity/1000 GSF	27.99	27.13	26.56	24.03	23.59	23.17	21.09
	Total Gross Emission Intensity/FTE Student	8.55	8.14	7.70	7.37	6.81	6.51	6.11
Scope 1-3 Net Emissions (MTCO <sub>2</sub> E)	Offsets	-157	-2,334	-3,474	-5,144	-3,056	-3,668	-5,050
	<b>Total Net Emissions</b>	<b>231,203</b>	<b>222,109</b>	<b>216,260</b>	<b>215,233</b>	<b>210,565</b>	<b>206,160</b>	<b>189,983</b>
	Total Net Emission Intensity/1000 GSF	27.97	26.85	26.14	23.47	23.25	22.77	20.55
	Total Net Emission Intensity/FTE	8.55	8.06	7.58	7.20	6.71	6.39	5.95

**TOTAL GROSS EMISSIONS REPORTED TO ACUPCC<sup>1</sup>**      **226,219**    **223,497**    **218,284**    **233,138**    **230,567**    **218,783**

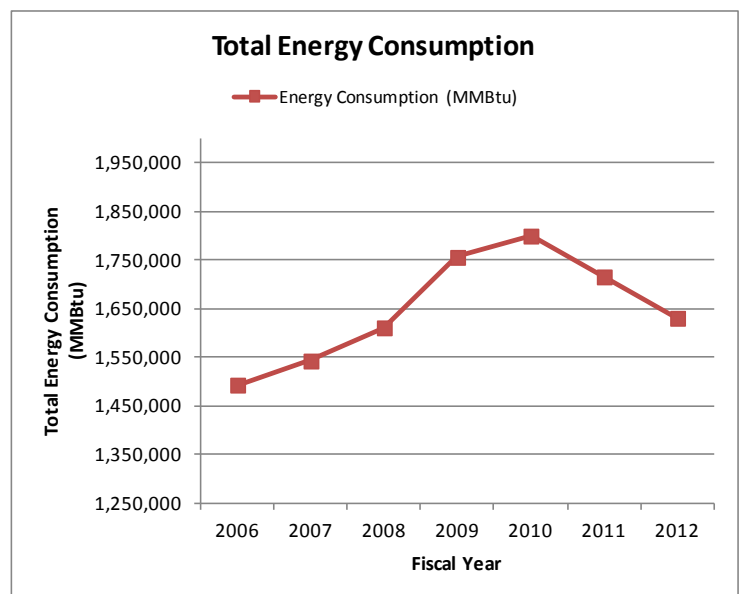
## EMISSION REDUCTIONS

Stationary source emissions, a significant contributor to Temple’s emissions, were reduced in FY 2012 by 4,705 MTeCO<sub>2</sub>. Less natural gas was used in FY 2012 and the use of #6 fuel oil was eliminated. Overall energy consumption decreased by 5% from FY 2011 to FY 2012.

The energy reduction trend may be attributed to:

- Continued upgrades to the underground steam distribution piping system;
- Installation of nine Building Automation Systems to control heating and ventilating systems;
- An overall warmer winter resulting in less consumption of fuel for heating systems.

Other notable reductions occurred in air travel and solid waste emissions. The university instituted a travel freeze



<sup>1</sup> Refer to Reporting Methodology section of this report

in April 2011 which caused a significant decrease in air travel and related emissions of over 8,000 MTeCO<sub>2</sub>.

Emissions from solid waste were reduced by almost 24% from FY 2011 to FY 2012. Beginning in January 2012, approximately 85% of Main Campus truck collections were transported to an Energy-from-Waste facility. Not only did this divert approximately 735 tons of waste from the landfill, but it also saved 2,300 MTeCO<sub>2</sub> in emissions. In addition, Temple produced 56 tons less waste from FY 2011 to FY 2012. The trash reduction trend may be attributed to:

- Implementation of the collection of food waste for composting in the Howard Gittis Student Center;
- Introduction of the Swap and Reuse Room, which redistributes surplus office supplies among university departments;
- Continued installation of water bottle refilling stations to reduce the number of single use bottles (the number of stations increased from 29 in FY 2011 to 103 in FY 2012).

Temple increased its compressed natural gas fleet from 21 vehicles in FY 2011 to 24 vehicles in FY 2012. This resulted in reduced diesel consumption.

Temple reduced FY 2012 GHG emissions from 195,033 MTeCO<sub>2</sub> to 189,983 MTeCO<sub>2</sub> (a 5,050 MTeCO<sub>2</sub> reduction) through offsets generated by the following on-campus activities:

- Composting (28 tons at Ambler campus);
- University computer reuse and recycling (4,712 units);
- Construction waste recycling (1,415 tons total from Architecture, Morgan Residence Hall and Pearson McGonigle).

## **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 (CO<sub>2</sub>), methane (CH<sub>4</sub>), and nitrous oxide (N<sub>2</sub>O). Using the methodology of Clean Air Cool Planet eCalculator tool (version 6.8), GHG emissions are expressed in Metric Tons of Carbon Dioxide Equivalent (MTeCO<sub>2</sub>). 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 MTeCO<sub>2</sub> is the sum of the emissions from each source. Data for each emission source was collected in a GHG scorecard and was used to populate the CA-CP Campus Carbon Calculator.

The FY 2012 GHG Inventory was generated using version 6.8 of the CA-CP Campus Carbon Calculator. Version 6.8 includes updated values for emission factors and global warming potentials. Therefore, the total gross emissions for FY 2006–2011 are different using version 6.8 than what was previously reported to the ACUPCC. Total emissions for FY 2006–2012 have been calculated using version 6.8 and the updated values are reflected in the Greenhouse Gas Emissions Summary.

Inventory boundaries and definitions are summarized as follows:

GHG Accounting Protocols	World Resources Institute/World Business Council for Sustainable Development (WRI/WBCSD) GHG accounting protocols in conjunction with the Clean Air – Cool Planet (CACP) Campus Carbon Calculator (v6.8)
Organizational Boundary	Includes only those campuses where the university has operational control and can enforce a change in policy. Includes: Main, Ambler, Health Sciences, Podiatric and Tyler campuses. Excludes: Temple University Health System and Center City, Harrisburg, Fort Washington and International Campuses.
Operational Boundary	Scope 1 – Direct emissions: stationary sources (natural gas, oil, propane), mobile sources (leased/owned University fleet), process sources (application of fertilizer), fugitive sources (refrigerant leakage, usage of CO <sub>2</sub> ). Scope 2 – Indirect emissions (those outside of the organizational boundary) from purchased electricity and steam. Scope 3 – Other indirect emissions from employee and student commuting, employee air travel, landfilled solid waste, and transmission and distribution losses.
<i>De minimis</i> threshold	5% - Emission sources that collectively account for a small percentage of entity-wide emissions (<5%) can be called <i>de minimis</i> and may be approximated. Temple’s <i>de minimis</i> sources include mobile sources, process sources, fugitive sources, purchased steam, and landfilled solid waste.
Baseline Year	Fiscal year 2005-2006 (FY 2006). This is the first year for which complete, verifiable emissions data is available.
Emissions Intensity Metric	Gross square footage (GSF) and full-time equivalent students (FTE). These are used to normalize emissions to account for institutional growth over time.
Reporting Frequency	Fiscal year (July 1 to June 30) reporting. Report FY 2006-2008 with updates FY 2009 through FY 2012 with reporting at least every other year subsequently.

## ACKNOWLEDGEMENTS

The Office of Sustainability would like to thank the following Temple University affiliates who contributed information and data to the FY 2012 GHG Inventory: Kurt Bresser, Facilities Management; Marshall Budin, Facilities Management; Janice Dietz, Campus Safety Services; Chuong Doan, Office of University Housing; Kristen Eaton, Office of Institutional Research and Assessment; Patricia Finley, Faculty Affairs & Faculty Development; Robert Gage, Sponsored Research Programs; Jon Gold, Facilities Management; Mark H. Gottlieb, Facilities Management; Craig Jankowski, Liacouras Center; Jonathan Latko, Computer Recycling Center; Jason Levy, Division of Student Affairs; Tom McCreesh, Facilities Management; David J. McDonough, Environmental Health & Radiation Safety; Tim Thiess, Athletics Business and Administration; Anthony Morris, Facilities Management Podiatric Medicine; Kurt Pflugfelder, Scheduling and Space Management; Craig Roncace, Facilities Management; Domenic Rudi, Office of University Housing; Evelyn Rush, Business Services.

# **ATTACHMENTS**

*GHG Scorecard  
Emissions Summary  
Responsible Parties*

<h1 style="text-align: center;">GHG SCORECARD</h1> <h2 style="text-align: center;">Reporting Year FY 2012</h2>			Campus Name:		Temple University <sup>a</sup> (Main, Tyler, Podiatry, Ambler, Health Sciences, and Residence Halls)						
			Campus Location (Address, City, State):		Office of Sustainability, Mitten Hall Lower Level 1913 N. Broad Street, Philadelphia, PA 19122						
			Contact Person:		Kathleen Grady, Director of Sustainability						
			Phone Number:		215-204-1715						
			Email:		<a href="mailto:kathleen.grady@temple.edu">kathleen.grady@temple.edu</a>						
			Notes		Units	Fiscal Year 2005-2006	Fiscal Year 2006-2007	Fiscal Year 2007-2008	Fiscal Year 2008-2009	Fiscal Year 2009-2010	Fiscal Year 2010-2011
Intensity Metrics	1.1	Total Building Space Gross Square Footage	ft <sup>2</sup>	8,266,175	8,271,765	8,271,765	9,171,147	9,055,532	9,055,532	9,245,532	
	1.2	Full Time Equivalent Students <sup>b</sup>	Unitless	27,055	27,560	28,535	29,901	31,363	32,251	31,939	
	1.3	Operating Budget	\$	804,240,000	842,030,000	902,984,000	974,851,000	1,004,230,000	1,073,697,000	1,123,257,000	
	1.4	Research Expenditures	\$	83,062,000	75,754,000	80,724,000	88,836,915	97,983,104	102,985,869	103,924,252	
	1.5	Energy Expenses	\$	23,319,394	20,838,548	23,760,037	25,655,691	23,193,373	24,679,710	24,388,493	
	1.6	Research Building Space Gross Square Footage	ft <sup>2</sup>	775,083	778,779	789,632	856,684	893,309	929,079	907,048	
	1.7	Full Time Students	Unitless	25,280	25,863	26,892	28,513	30,034	30,861	30,592	
	1.8	Part Time Students	Unitless	5,325	5,092	4,929	4,165	3,987	4,171	4,040	
	1.9	Summer School Students (FTE Sessions I & II)	Unitless	4,282	4,360	4,223	4,244	3,914	5,752	3,810	
	1.10	Faculty (Full Time Equivalent) <sup>b</sup>	<i>Include Harrisburg, TUCC and Fort Washington campuses, but are assumed to be non material</i>	Unitless	2,239	2,209	2,260	2,354	2,419	2,416	2,452
	1.11	Staff (Full Time Equivalent) <sup>b</sup>		Unitless	4,239	4,307	4,351	4,395	4,171	3,998	4,075
Scope 1 Emissions	2.1	<b>Stationary Sources</b>									
	2.1.1	Natural Gas	MMBtu	156,252	316,359	849,082	732,042	1,036,547	957,074	867,460	
	2.1.2	No. 2 Fuel Oil	Gallon	369,875	183,084	168,099	160,666	162,986	140,763	147,319	
	2.1.3	No. 6 Residual Oil	Gallon	3,982,568	3,254,949	9,315	1,888,688	9,606	2,955	0	
	2.1.4	Propane	Gallon	4,474	4,039	3,249	4,565	2,198	0 <sup>f</sup>	0	
	2.2	<b>Mobile Sources - Owned and Leased</b>									
	2.2.1	Diesel	Gallon	20,131	23,030	19,349	26,576 <sup>e</sup>	24,241	20,354	14,232	
	2.2.2	Gasoline	Gallon	43,804	43,264	45,095	66,506 <sup>d,e</sup>	63,008	63,476	63,302	
	2.2.3	Compressed Natural Gas	GGE	3,533	3,337	3,868	4,598	8,126	22,182	26,567	
	2.3	<b>Process Sources</b>									
	2.3.1	Cryogenic CO <sub>2</sub>	Pounds	227,322	90,357	46,613	193,720	179,820	165,901	157,100	
	2.4	<b>Fugitive Sources</b>	<i>Refrigerants covered under the Kyoto Protocol and Climate Registry are HFC's (not CFC's or HCFC's).</i>								
	2.4.1	HFC-134a Refrigerant Leakage	Pounds	2,817	2,817	2,817	3,753	3,753	3,753	3,753	
	2.5	<b>Agriculture</b>									
2.5.1	Fertilizer Application - Synthetic	<i>Assumes 16.48% nitrogen content (FY12)</i>	Pounds	17,130	14,581	14,223	7,501	4,510	6,176	5,123	
2.5.2	Fertilizer Application - Organic	<i>Assumes 5.72% nitrogen content (FY12)</i>	Pounds	50	375	0	0	500	4,700	4,175	
Scope 2 Emissions	3.1	Electricity usage	kWh	200,479,805	207,550,363	214,657,304	209,003,913	215,121,198	215,028,902	216,440,406	
	3.2	Purchased Renewable Electricity (Refer to Offsets)	kWh	240,000	4,786,000	4,546,000	0	0	0	0	
	3.3	Purchased Steam	MMBtu	3,807	4,357	4,528	4,933	4,832	4,785	4,032	

# GHG SCORECARD

## Reporting Year FY 2012

<b>Campus Name:</b>	Temple University <sup>a</sup> (Main, Tyler, Podiatry, Ambler, Health Sciences, and Residence Halls)
<b>Campus Location (Address, City, State):</b>	Office of Sustainability, Mitten Hall Lower Level 1913 N. Broad Street, Philadelphia, PA 19122
<b>Contact Person:</b>	Kathleen Grady, Director of Sustainability
<b>Phone Number:</b>	215-204-1715
<b>Email:</b>	<a href="mailto:kathleen.grady@temple.edu">kathleen.grady@temple.edu</a>
<b>Notes</b>	<b>Units</b>
	<b>Fiscal Year 2005-2006</b>
	<b>Fiscal Year 2006-2007</b>
	<b>Fiscal Year 2007-2008</b>
	<b>Fiscal Year 2008-2009</b>
	<b>Fiscal Year 2009-2010</b>
	<b>Fiscal Year 2010-2011</b>
	<b>Fiscal Year 2011-2012</b>

Scope 3 Emissions	4.1	<b>Commuting</b>		<i>Commuting estimate scales results of 2007 Transportation Survey by changes in population.</i>				<i>Results of 2010 Transportation Survey</i>			
	4.1.1.1	Students - Personal Vehicle and Carpool	miles	40,423,487	41,098,357	42,469,074	44,261,494	43,730,922	44,985,741	44,529,009	
	4.1.1.2	Students - Bus	miles	12,075,649	12,277,252	12,686,724	13,222,171	8,082,767	8,314,695	8,230,277	
	4.1.1.3	Students - Light Rail	miles	14,703,838	14,949,318	15,447,909	16,099,893	10,619,730	10,924,453	10,813,539	
	4.1.1.4	Students - Commuter Rail	miles	23,965,406	24,365,508	25,178,149	26,240,801	22,546,479	23,193,430	22,957,951	
	4.1.2.1	Faculty - Personal Vehicle and Carpool	miles	8,841,388	8,722,924	8,924,313	9,295,501	5,380,854	5,374,181	5,454,260	
	4.1.2.2	Faculty - Bus	miles	505,092	498,324	509,829	531,034	72,431	72,341	73,419	
	4.1.2.3	Faculty - Light Rail	miles	2,271,375	2,240,941	2,292,679	2,388,038	461,153	460,581	467,444	
	4.1.2.4	Faculty - Commuter Rail	miles	1,834,940	1,810,354	1,852,150	1,929,186	2,381,676	2,378,722	2,414,166	
	4.1.3.1	Staff - Personal Vehicle and Carpool	miles	11,600,767	11,786,861	11,907,274	12,027,688	14,908,249	14,289,902	14,565,120	
	4.1.3.2	Staff - Bus	miles	3,673,904	3,732,839	3,770,973	3,809,108	1,213,516	1,163,183	1,185,585	
	4.1.3.3	Staff - Light Rail	miles	4,082,329	4,147,816	4,190,190	4,232,563	2,029,827	1,945,636	1,983,108	
	4.1.3.4	Staff - Commuter Rail	miles	4,840,899	4,918,544	4,968,802	5,019,049	2,837,898	2,720,191	2,772,580	
	4.1.4.1	Summer School Students - Personal Vehicle and Carpool	miles	1,238,925	1,261,493	1,221,855	1,227,931	1,068,849	1,570,777	1,040,448	
	4.1.4.2	Summer School Students - Bus	miles	370,102	376,844	365,003	366,818	197,555	290,326	192,306	
	4.1.4.3	Summer School Students - Light Rail	miles	450,653	458,862	444,443	446,654	259,562	381,451	252,665	
	4.1.4.4	Summer School Students - Commuter Rail	miles	734,507	747,887	724,387	727,989	551,070	809,850	536,427	
	<b>4.2</b>	<b>Employee Business Air Travel<sup>g</sup></b>	miles	9,076,920	10,134,582	10,240,294	11,083,249	12,717,634	14,682,240	813,067	
	<b>4.3</b>	<b>Solid Waste</b>									
	4.3.1	Solid Waste landfilled	U.S. Tons	4,440	4,229	3,940	3,390	3,574	3,308	2,517	
		Solid Waste Energy-from-Waste <sup>h</sup>	U.S. Tons							735	
	4.3.2	Incinerated Waste <sup>c</sup> (waste to energy plant not used for school power)	U.S. Tons	35	31	42	12.6	12.8	16.5	18.2	
<b>Offsets</b>											
		RECs	kWh	240,000	4,786,000	4,546,000	0	0	0	0	
		Composting (on-campus)	U.S. Tons	80	80	0	35.9	36.8	24.0	28.4	
		Computer recycling	MTeCO <sub>2</sub>	0	0	0	3,199	3,042.0	3,107.0	3,005.0	
		Construction Waste Recycling	MTeCO <sub>2</sub>	0	0	1,287	1,931	0.0	552.0	2,034.0	

Notes:

a Includes only those campuses where the university has operational control (excludes Center City, Harrisburg, Ft. Washington, Japan, and the Health System facilities, including Temple University Hospital buildings located on the Health Sciences Campus)

b FTE numbers reflected those reported by Temple University. Temple calculates FTE as full-time plus one-third part-time for students and faculty; full-time plus one half part-time for staff. CA-CP calculates FTE as full-time plus one-half part-time for students, faculty and staff

c Total includes Temple University Hospital

d FY 2009 is the first year that Athletics vehicle consumption counted in inventory

e Corrected Values - values updated/corrected in FY2010 Inventory

f Discontinued use of propane in FY2011 and converted system to steam

g Air travel mileage is not representative of all university air travel. Miles reported in the GHG inventory includes travel booked by Temple Campus Travel and does not include travel booked independently through exceptions.

h 85% of Main Campus trash collected by Temple trucks is sent to a Energy-from-Waste facility (began Jan. 2012)

**TEMPLE UNIVERSITY FY 2012 Greenhouse Gas Inventory**  
**Greenhouse Gas Emissions Summary FY2006 - FY2012**  
*prepared by the Office of Sustainability*

CA-CP v6.8*			FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY2011	FY2012	Difference FY11 to FY12	% Change FY11 to FY12
Scope 1 Emissions (MT CO <sub>2</sub> E)	1	Stationary (oil, natural gas, propane)	56,623	55,039	46,740	61,508	56,598	52,083	47,378	-4,705	-9.0%
	2	Mobile (University fleet)	622	648	628	899	865	914	877	-38	-4.1%
	3	Fugitive (Refrigerants & Cryogenic CO <sub>2</sub> )	1,930	1,868	1,848	2,522	2,516	2,510	2,506	-4	-0.2%
	4	Process (Agriculture/Fertilizer)	14	11	13	6	4	6	5	-2	-28.6%
	5	<b>Total Gross Emissions Scope 1</b>	<b>59,189</b>	<b>57,566</b>	<b>49,228</b>	<b>64,935</b>	<b>59,983</b>	<b>55,513</b>	<b>50,765</b>	<b>-4,749</b>	<b>-8.6%</b>
Scope 2 Emissions (MT CO <sub>2</sub> E)	6	Purchased Electricity	104,685	99,868	103,287	89,959	92,592	92,552	93,160	608	0.7%
	7	Purchased Steam	275	315	328	357	350	346	292	-55	-15.7%
	8	<b>Total Gross Emissions Scope 2</b>	<b>104,960</b>	<b>100,183</b>	<b>103,615</b>	<b>90,316</b>	<b>92,942</b>	<b>92,898</b>	<b>93,451</b>	<b>553</b>	<b>0.6%</b>
Scope 3 Emissions (MT CO <sub>2</sub> E)	9	Faculty/Staff Commuting	11,563	11,536	11,665	11,756	9,396	9,104	9,269	165	1.8%
	10	Student Commuting	25,879	26,050	26,829	27,488	23,630	24,308	24,061	-247	-1.0%
	11	Air Travel	5,726	6,187	6,028	6,524	7,486	8,643	479	-8,164	-94.5%
	12	Solid Waste	13,676	13,028	12,136	10,442	11,009	10,191	7,780	-2,411	-23.7%
	13	Transmission & Distribution Losses	10,368	9,894	10,233	8,916	9,176	9,172	9,229	57	0.6%
	14	<b>Total Gross Emissions Scope 3</b>	<b>67,212</b>	<b>66,694</b>	<b>66,891</b>	<b>65,126</b>	<b>60,697</b>	<b>61,417</b>	<b>50,817</b>	<b>-10,600</b>	<b>-17.3%</b>
Scope 1 - 3 Gross Emissions (MT CO <sub>2</sub> E)	15	<b>Total Gross Emissions</b>	<b>231,360</b>	<b>224,442</b>	<b>219,734</b>	<b>220,377</b>	<b>213,621</b>	<b>209,828</b>	<b>195,033</b>	<b>-14,795</b>	<b>-7.1%</b>
	16	Gross Square Footage (GSF) <sup>1</sup>	8,266,175	8,271,765	8,271,765	9,171,147	9,055,532	9,055,532	9,245,532	190,000	2.1%
	17	Full-time Equivalent Students (FTE)	27,055	27,560	28,535	29,901	31,363	32,251	31,939	-312	-1.0%
	18	Total Gross Emission Intensity/1000 GSF	<b>27.99</b>	<b>27.13</b>	<b>26.56</b>	<b>24.03</b>	<b>23.59</b>	<b>23.17</b>	<b>21.09</b>	-2.08	-9.0%
	19	Total Gross Emission Intensity/FTE	<b>8.55</b>	<b>8.14</b>	<b>7.70</b>	<b>7.37</b>	<b>6.81</b>	<b>6.51</b>	<b>6.11</b>	-0.40	-6.1%
Scope 1 - 3 Net Emissions (MT CO <sub>2</sub> E)	20	Purchased Offsets / Other Offsets	-157	-2,334	-3,474	-5,144	-3,056	-3,668	-5,050	-1,382	37.7%
	21	<b>Total Net Emissions</b>	<b>231,203</b>	<b>222,109</b>	<b>216,260</b>	<b>215,233</b>	<b>210,565</b>	<b>206,160</b>	<b>189,983</b>	<b>-16,177</b>	<b>-7.8%</b>
	22	Total Net Emission Intensity/1000 GSF	<b>27.97</b>	<b>26.85</b>	<b>26.14</b>	<b>23.47</b>	<b>23.25</b>	<b>22.77</b>	<b>20.55</b>	-2.22	-9.7%
	23	Total Net Emission Intensity/FTE	<b>8.55</b>	<b>8.06</b>	<b>7.58</b>	<b>7.20</b>	<b>6.71</b>	<b>6.39</b>	<b>5.95</b>	-0.44	-6.9%

**Total Gross Emissions Reported to ACUPCC\*: 226,219 223,497 218,284 233,138 230,567 218,783**

\* Changes from the FY2006-FY2012 reported inventories:

GHG Emissions for FY2006-FY2009 calculated using CA-CP v6.4

GHG Emissions for FY2010 calculated using CA-CP v6.6 (increase in emission multipliers for electricity and solid waste)

GHG Emissions for FY2011 calculated using CA-CP v6.7 (reduction in emission multiplier for electricity)

GHG Emissions for FY2012 calculated using CA-CP v6.8 (updated emission factors and GWP correction)

updated 12/12/2012



## TEMPLE UNIVERSITY FY 2012 Greenhouse Gas Inventory

### Responsible Parties for Data Collection

prepared by the Office of Sustainability

GHG Scorecard Section	Description	Name	Title	Phone	Email	Notes
1.1	Gross square footage	Tom McCreesh (Brenda Washington)	Director, Planning and Design Facilities Management	215-204-8113	mccreesh@temple.edu	Information received by email from Tom McCreesh to Katherine Switala Elmhurst on 9/14/12. File: FY2012_GrossSF.pdf
1.2	Student Populations	Kristen Eaton	Research Analyst Institutional Research	215-204-4842	kristen.eaton@temple.edu	Information received by email from Kristen Eaton on 12/17/12. File: FY2012_Enrollment.pdf and FY2012_SummerEnrollment.pdf
1.3	Operating budget		Office of Management and Budget			Information obtained from the Office of Management and Budget website: www.temple.edu/budget (FY12 Budget Package - Total Revenue line item) File: FY2012_Temple Budget.pdf
1.4	Research budget (expenditures)	Robert Gage	Director Sponsored Research Office of Research Administration	215-204-7467	robert.gage@temple.edu	Information received by email from Rob Gage to Katherine Switala Elmhurst on 11/26/12. File: Research Expenditures_DirectIndirectsFY2012.xls
1.5	Energy expenses	Kurt Bresser	Energy Manager Facilities Management	215-204-4515	kurt.bresser@temple.edu	Information received by email from Kurt Bresser to Katherine Switala Elmhurst on 10/22/12. File: FY2012_Energy.pdf
1.6	Research building space gross square footage	Kurt Pflugfelder	Space Management Coordinator Scheduling and Space Management	215-204-6122	kurt.pflugfelder@temple.edu	Information received by email from Kurt Pflugfelder to Katherine Switala Elmhurst on 10/2/12 File: FY2012 Laboratory Room Records.xls
1.7-1.11	Faculty and staff populations	Patricia Finley	Faculty Affairs & Faculty Development	215-204-5736	finleyp@temple.edu	Faculty and staff data obtained from Patricia Finley via Robert Gage on 12/10/12. File: 2011_Presidents_Book_Combined pdf.pdf
2.1	Stationary sources	Kurt Bresser	Energy Manager Facilities Management	215-204-4515	kurt.bresser@temple.edu	Information received by email from Kurt Bresser to Katherine Switala Elmhurst on 10/22/12. File: FY2012_Energy.xlsx
2.2	Mobile sources (OFM)	Mark H. Gottlieb	Superintendent of Service Operations Facilities Management	215-204-9627	mark.gottlieb@temple.edu	Information received by email from Mark Gottlieb to Katherine Switala Elmhurst on 9/27/12 File: MainAmblerHSC_VehiclesFY2012.pdf File: FuelConsumption_FY2012Combined.xlsx
2.2	Mobile sources (Campus Security)	Janice Dietz	Executive Assistant Campus Safety Services	215-204-7900	janice.dietz@temple.edu	Information received by email from Janice Dietz to Katherine Switala Elmhurst on 10/23/12 File: CampusSecurity_VehiclesFY2012.pdf File: FuelConsumption_FY2012Combined.xlsx

## TEMPLE UNIVERSITY FY 2012 Greenhouse Gas Inventory

### Responsible Parties for Data Collection

prepared by the Office of Sustainability

GHG Scorecard Section	Description	Name	Title	Phone	Email	Notes
2.2	Mobile sources (Health Sciences Center)	Jon Gold	Engineering Supervisor Facilities Management - HSC	215-707-3179	jonjgold@temple.edu	Information received by email from Jon Gold to Kathleen Grady on 11/13/12 File: HSC MASTER FUEL Consumption_FY2012.xls File: FuelConsumption_FY2012Combined.xlsx
2.2	Mobile sources (Residence Halls)	Chuong Doan	Sr. Business Manager Residence Halls Office of University Housing	215-204-4793	chuong.doan@temple.edu	Information received by email from Chuong Doan to Katherine Switala Elmhurst on 11/12/12 File: ResHall Vehicles_FY2012.pdf File: FuelConsumption_FY2012Combined.xlsx
2.2	Mobile sources (Athletics)	Tim Thiess	Athletic Business Manager Athletics Business and Administration	215-204-2489	tthiess@temple.edu	Information received by email from Tim Thiess to Katherine Switala Elmhurst on 9/26/12. (An estimate of actual mileage was reported - an estimated average of 22MPG was assumed) File: Athletics Vehicle Summary Mileage FY12.xls File: FuelConsumption_FY2012Combined.xlsx
2.3	Process sources (Cryogenic CO2)	Delores Tyler Kurt Bresser	Purchasing Energy Manager Facilities Management	215-926-2023 215-204-4515	LMTDDT@temple.edu kurt.bresser@temple.edu	Information received from Delores Tyler to Katherine Switala Elmhurst on 11/15/12. File: Airgas Dry Ice 2012.xlsx
2.4	Fugitive sources (Refrigerants)	Kurt Bresser	Energy Manager Facilities Management	215-204-4515	kurt.bresser@temple.edu	Information received from Kurt Bresser to Katherine Switala Elmhurst on 10/22/12. Number remains unchanged from FY2011 to FY2012 File: FY2012_Energy.pdf
2.5	Agriculture	Craig Roncace	Supervisor Facilities Management	215-204-1303	craig.roncace@temple.edu	Information received from Craig Roncace to Katherine Switala Elmhurst on 10/9/12 File: GroundsFertGreenhouse12.xlsx
3.1	Purchased electricity	Kurt Bresser	Energy Manager Facilities Management	215-204-4515	kurt.bresser@temple.edu	Information received by email from Kurt Bresser to Katherine Switala Elmhurst on 10/22/12. File: FY2012_Energy.xlsx
3.2	Purchased renewable energy (credits; offsets)	Kurt Bresser	Energy Manager Facilities Management	215-204-4515	kurt.bresser@temple.edu	Information received from Kurt Bresser to Katherine Switala Elmhurst on 10/22/12. File: FY2012_Energy.pdf
3.3	Purchased steam	Kurt Bresser	Energy Manager Facilities Management	215-204-4515	kurt.bresser@temple.edu	Information received by email from Kurt Bresser to Katherine Switala Elmhurst on 10/22/12. File: FY2012_Energy.pdf
4.1	Commuting	NA - used results from 2010 Temple Transportation Survey				

**TEMPLE UNIVERSITY FY 2012 Greenhouse Gas Inventory**  
**Responsible Parties for Data Collection**  
*prepared by the Office of Sustainability*

GHG Scorecard Section	Description	Name	Title	Phone	Email	Notes
4.2	Air travel	Evelyn Rush	Administrative Specialist Business Services	215-204-5144	emrush@temple.edu	Information received by email from Evelyn Rush to Kathleen Grady on 11/2/12 File: Airline Travel_FY2012.pdf
4.3.1	Solid waste* (Main, Ambler, HSC)	Mark H. Gottlieb	Superintendent of Service Operations Facilities Management	215-204-9627	mark.gottlieb@temple.edu	Information received by email from Mark Gottlieb to Katherine Switala Elmhurst on 9/27/12 File: SolidWaste_MainAmblerHSC_FY2012.pdf File: TrashTonnageCombined_FY2012.xlsx
4.3.1	Solid waste* (Residence Halls)	Domenic Rudi	Senior Finance Housing Maintenance Operations	215-204-9636	drudi2@temple.edu	Information received by email from Domenic Rudi to Kathleen Grady on 11/13/12 File: Temple Housing-11-13-2012.xlsx File: TrashTonnageCombined_FY2012.xlsx
4.3.1	Solid waste* (College of Podiatric Medicine)	Anthony Morris	Area Manager Facilities Management - Podiatric	215-625-5240	amorris@tuspm.temple.edu	Information received by email from Anthony Morris to Kathleen Grady on 11/12/12 File: SolidWaste_Podiatry_FY2012.pdf File: TrashTonnageCombined_FY2012.xlsx
4.3.1	Solid waste* (Gittis Student Center)	Jason Levy	Director Student Services Division of Student Affairs	215-204-7131	jason.levy@temple.edu	Information received by email from Jason Levy to Katherine Switala Elmhurst on 11/7/12 File: Gittis Waste removal FY2012.xlsx File: TrashTonnageCombined_FY2012.xlsx
4.3.1	Solid waste* (Liacouras Center)	Craig Jankowski	Operations Manager Liacouras Center	215-204-2400	cjankowski@liacourascenter.com	Information received by email from Craig Jankowski to Katherine Switala Elmhurst on 11/9/12. File: Liacouras TrashRecycling_FY2012.xls File: TrashTonnageCombined_FY2012.xlsx
4.3.2	Incinerated solid waste	David McDonough	Hazardous Waste Manager Environmental Health & Radiation Safety	215-707-0109	david.mcdonough@temple.edu	Information received by email from David McDonough to Katherine Switala Elmhurst on 10/3/12 File: Incinerated Waste FY2012 data.pdf
	Offsets (Composting)	Marshall Budin	Sr. Facilities Specialist	215-204-8460	marshall.budin@temple.edu	Information received by email from Marshall Budin to Katherine Switala Elmhurst on 11/14/12. File: FY2012 Ambler Compost.pdf
	Offsets (Computer Recycling)	Jonathan Latko	Temple Computer Recycling Center	215-204-4749	latko@temple.edu	Information received by email from Jonathan Latko to Katherine Switala Elmhurst on 10/8/12. Data converted to offsets using Temple Computer Recycling calc FY2012.xls developed by O'Brien and Gere. File: CRC TotalCollectionData_FY2012.xls
	Offsets (Construction Recycling)	Tom McCreesh	Director, Planning and Design Facilities Management	215-204-8113	mccreesh@temple.edu	Information received by email from Tom McCreesh to Katherine Switala Elmhurst on 9/18/12. Construction waste recycling was reported for Pearson McGongile, ARCH and ResHall in FY2012. File: Construction Emissions offsets_FY2012.xls

\* Solid waste data compiled together into FY2012 Recycling and Trash Report