

University of Pittsburgh
Department of Civil and Environmental Engineering

FINAL REPORT

**Greenhouse Gas Inventory of
University of Pittsburgh**

June 2, 2010

Revised August 2, 2010

By

Dr. Melissa M. Bilec
Assistant Professor

Can B. Aktas
Graduate Student Researcher

Contents

Preface	5
Executive Summary	6
1. Introduction.....	8
2. Clean Air-Cool Planet Campus Carbon Calculator	8
3. Boundaries of the Inventory.....	9
3.1. Organizational Boundaries	9
3.2. Operational Boundaries	9
3.3. Temporal Boundaries	10
4. Emissions	10
4.1. Scope 1 Emissions.....	10
4.1.1. Stationary combustion	10
4.1.2. University Fleet.....	10
4.1.3. Refrigerants	12
4.1.4. Agricultural activities	12
4.2. Scope 2 Emissions.....	13
4.2.1. Purchased Electricity and Steam	13
4.3. Scope 3 Emissions.....	14
4.3.1. Directly Financed Outsourced Travel	14
4.3.2. Commuter travel	15
4.3.3. Waste.....	17
4.3.4. Wastewater	17
4.3.5. Paper	17
5. Discussion of Results	18
5.1. Comparison of Results with Respect to Other Institutions	21
6. Recommendations for Future GHG Inventory Studies	22
7. Conclusions.....	23
Acronyms	24
Appendix A.....	25
Appendix B.....	26
References	65

LIST OF FIGURES

Figure 1. Detailed distribution of Greenhouse Gas Emission Results	6
Figure 2. Sub-regions as defined by e-GRID	13
Figure 3. Fuel Mix of Electricity Consumed by University of Pittsburgh	14
Figure 4. Detailed Distribution of UPitt’s FY2008 GHG Emission Results.....	18

LIST OF TABLES

Table 1. Summary of Greenhouse Gas Emissions for University of Pittsburgh for Fiscal Year 2008	7
Table 2. Fugitive Emissions for Fiscal Year 2008	12
Table 3. Summary of UPitt’s GHG Emissions for Fiscal Year 2008	19
Table 4. GHG Emission Results for University of Pittsburgh Reported Using Different Metrics to Facilitate Comparison with respect to Other Institutions, FY2008	21
Table 5. Comparative Results of Higher Education Institutions used for Peer Group Benchmarking, Sorted According to Net Emissions	21
Table 6. List of Contacts and Information Received	25
Table 7. List of higher educational institutions which have reported their GHG emissions, ranked according to net emissions.....	26
Table 8. List of higher educational institutions which have reported their GHG emissions, ranked according to emissions per full time student equivalent	39
Table 9. List of higher educational institutions which have reported their GHG emissions, ranked according to emissions per gross building space	52

Preface

This report presents the greenhouse gas inventory results for University of Pittsburgh (UPitt).

The authors acknowledge the contribution of Laura Zullo from Facilities Management Department of UPitt, who provided valuable data that allowed us to complete the inventory. In addition, we sincerely thank all other UPitt staff members who provided us data and shared important information regarding their sustainable practices. Financial support for the project was provided by Mascaro Center for Sustainable Innovation (MCSI). We are grateful for their support.

Executive Summary

The objective of this report is to assess the Greenhouse Gas (GHG) Inventory for the Pittsburgh Campus of University of Pittsburgh (UPitt). The report presents a GHG emissions inventory from direct or indirect activities of UPitt. We anticipate that the report will serve as a guideline for any committee or group aiming to reduce the emissions of UPitt in the future. Understanding current GHG levels is a necessary step towards developing policies and strategies to lower GHGs.

For this benchmark study, fiscal year 2008 was chosen as the temporal boundary in order to be able to observe the impact of switching to the new Carrillo St. steam production plant that has ultra-low NO_x control technology, the lowest to be used by any higher educational institute in the U.S. [1].

A vast majority of emissions were from purchased electricity and steam. These two categories are responsible for 71% of total emissions. Directly financed air travel follows as the next category having the highest percentage of GHG emissions. Global warming contribution of each category is given as a percent of total emissions in Figure 1.

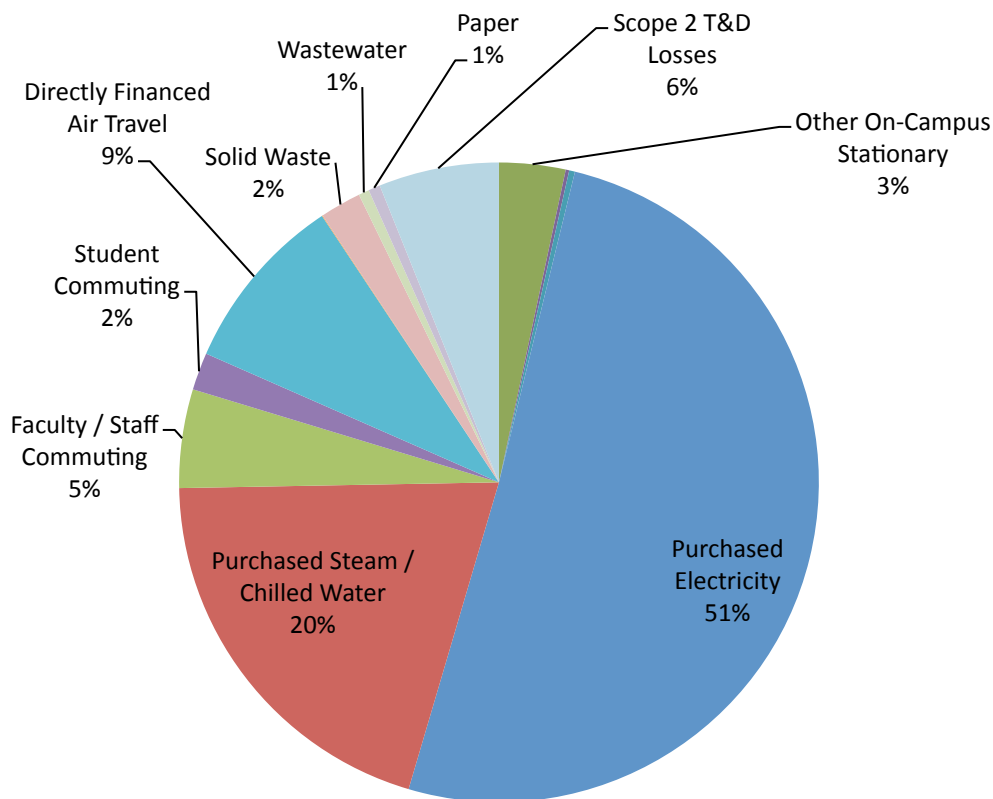


Figure 1. Detailed distribution of Greenhouse Gas Emission Results

Different operational boundaries may be chosen for the GHG inventory of a campus. Having different options restrains accurate comparison of results among different schools. Emission results obtained through using four different operational boundaries are presented in Table 1.

Table 1. Summary of Greenhouse Gas Emissions for University of Pittsburgh for Fiscal Year 2008

Category	Metric ton CO₂E
Purchased Electricity	138,700
Purchased Steam	55,100
Directly Financed Air Travel	24,800
Steam Transmission Losses	16,600
Faculty / Staff Commuting	13,600
Natural Gas	9,200
Solid Waste	5,700
Student Commuting	5,200
Paper	1,600
Wastewater	1,500
Refrigerants	800
University Fleet	500
Total Emissions	273,400
Reporting Metric	
Required reporting (Scope 1 and 2)	204,200
Scopes 1 and 2, Air Travel, Solid Waste Management	234,700
Scopes 1 and 2, Transportation and Solid Waste Management	253,600
All Accountable Emissions	273,400

1. Introduction

Universities have the knowledge that is necessary to create a sustainable environment at their campuses. Increasing number of student communities, and increased enrollment in the sustainability field illustrate the increasing attention directed towards sustainability. Higher education institutions are often responsible for teaching and conducting research on environmental issues such as climate change. Educational institutions have the opportunity to lead society towards the solution of this global problem, which is a common threat for humans regardless of country and location.

This report stems from this understanding and aims to quantify and therefore facilitate strategies that will eventually reduce campus emissions. GHG inventory is a first step towards effective reduction policies since one main purpose of the inventory is to identify hotspots among different sources.

There are three stages to the GHG inventory process: data collection; GHG emissions calculation; and data analysis for climate action planning [2-3].

- Step one: Data Collection – many items of raw data are required to conduct a GHG inventory, such as purchased electricity, transportation, solid waste, refrigerants, offsets, etc.
- Step two: Emissions Calculations – collected data is then processed as input into a calculator tool. The American College and University Presidents' Climate Commitment (ACUPCC) recommends the use of Clean Air Cool Planet Campus Carbon Calculator (CA-CP calculator). The CA-CP calculator is an Excel-based spreadsheet that uses national inventories and methodologies of the Intergovernmental Panel on Climate Change (IPCC) and calculators of the Greenhouse Gas Protocol, and has been adapted for use with higher education institutions. The CA-CP calculator covers all emission sources with the defined scopes of the ACUPCC.
- Step three: Data Analysis – the calculator converts all emissions into CO₂ equivalent terms in order to compare GHG sources and identify hotspots within the institution. These areas then form the greatest opportunities for emission reductions.

The report begins by introducing the CA-CP calculator, and then boundaries are defined. Results are presented under each category together with the various assumptions made during calculations. Discussion of results and recommendations for updating this report in the future are presented. The last chapter of the report is the conclusions section.

2. Clean Air-Cool Planet Campus Carbon Calculator

The CA-CP calculator is a widely used tool to calculate GHGs, and is specifically designed for schools. Currently, it is used by over 500 schools in North America [4].

The tool is an Excel spreadsheet designed to facilitate data collection and analysis. This first step forms the basis for institutional action on reducing greenhouse gas emissions. Although the primary purpose of the tool is to conduct a greenhouse gas inventory, the tool can be used to facilitate other tasks also. If data regarding carbon reduction projects are available, such as the amount of reduction expected for a certain commodity, the tool can be used to estimate future GHG emissions taking into account “business as usual” emissions and reductions from potential projects.

The calculator uses standard methodologies and emission factors given by the GHG Protocol Initiative, and is a preferred tool by the ACUPCC [4]. CA-CP calculator version 6.4 tool was used in this project.

3. Boundaries of the Inventory

Three boundaries exist for calculating the campus GHG emissions: organizational, operational, and temporal.

3.1. Organizational Boundaries

Organizational boundaries are generally the highest-level of the three boundaries, and therefore the first boundaries that are drawn during the creation of the GHG inventory. Organizational boundaries state whether GHG emissions are measured for one department, school, or for the entire campus. Depending on this boundary, the facilities and buildings that are to be included into the analysis are determined. For this study, UPitt’s Oakland Campus was selected as the organizational boundary. Buildings managed and used by University of Pittsburgh Medical Center (UPMC) were excluded, as well as other regional campuses that belong to UPitt.

Within this organizational boundary, buildings owned and managed by UPitt at the Oakland Campus consisted of 78 buildings and had a gross building area of 9.4 million ft². During the study period, 24,755 full-time equivalent (FTE) students were enrolled at UPitt. Undergraduate student housings near the campus were included into the analysis. However, housing buildings owned by UPitt but are outside campus boundaries were not included in this analysis since each tenant is directly billed by utility companies in these buildings.

3.2. Operational Boundaries

The operational boundaries identify sources to include in the inventory. The GHG protocol uses “scopes”, in which all emissions are categorized into three scopes [4-5].

Direct emissions from sources that are owned and controlled by UPitt fall under scope 1. Emissions coming from university fleet vehicles and refrigerants are also examples of scope 1 emissions.

Scope 2 emissions are indirect emissions from sources that are neither owned nor operated by UPitt, but whose products are linked to campus energy consumption. Purchased electricity and steam are examples of scope 2 emission sources.

Scope 3 emissions are other sources that are neither owned nor operated by UPitt but are either directly financed (i.e. commercial air travel paid by UPitt, waste removal) or are otherwise linked to the campus via influence or encouragement (i.e. air travel for study abroad programs, daily faculty, staff, and

student commuting). Emissions associated with paper consumption and landscaping activities are also included in this field.

Emissions that fall under Scopes 1 and 2 are mandatory and must be included in the inventory by the GHG protocol. Although Scope 3 emissions are deemed optional by the GHG protocol, researchers are encouraged to include as many emission sources as possible to obtain a realistic inventory for the institution.

3.3. Temporal Boundaries

The final boundary is the temporal boundary. The calculator uses fiscal years instead of calendar years since most schools use fiscal years to report results. Fiscal years typically begin on July 1st and end on June 30th.

For this study, fiscal year 2008 was used to develop a year one benchmark and observe the potential impact from the new Carrillo St. steam plant. The new steam plant uses natural gas instead of coal and has ultra-low NO_x control technology. Future GHG inventory studies can observe the impact of this decision on total GHG emissions of UPitt.

4. Emissions

The context of each emission source, results obtained, and assumptions made during calculations are detailed under each section below. Table 3 summarizes all of the information. However, individual data points input into the CA-CP calculator are also provided at the end of each subsection.

4.1. Scope 1 Emissions

Scope 1 emissions cover sources that are managed by UPitt and so are directly under its responsibility.

4.1.1. Stationary combustion

On-campus stationary sources at UPitt include combustion of natural gas used for heating air and water in some buildings. However, close to 80% of steam is purchased from a nearby steam plant and distributed via pipes, and therefore on-campus combustion levels are relatively low, at 9,162 metric ton CO₂ equivalent (MT CO₂E). Small amounts of natural gas used in laboratories and backup generators are also included in this value.

Conversion factors required to convert the amount of natural gas into energy units were obtained from EPA's Energystar website [6]. Carbon emission factors already input into the calculator, which are in accordance with the GHG protocol were used to estimate CO₂ equivalence of results.

- Stationary combustion: 173,169 MMBtu for natural gas

4.1.2. University Fleet

Another source of scope 1 emissions is the University Fleet. Emissions from the *production* of vehicles are neglected in the calculator since the majority of emissions over the life cycle of a vehicle are created

during its use phase, from combustion of fossil fuels. Gallons of fuel consumed over the period of study, separated according to type of fuel are required to estimate emissions.


UPitt has a policy to use biodiesel instead of regular diesel for vehicles that run on diesel. Unlike regular diesel derived from crude oil, biodiesel is made from animal fat and plant oils. CO₂ emitted during biodiesel combustion is theoretically offset by the carbon sequestered during the life of the fuel source, such as soybean or vegetable matter from which the biodiesel was derived. Biodiesel can be mixed with petroleum diesel to create different blends suitable for different vehicle engines and performance. A mix of 5% biodiesel and 95% petroleum diesel is labeled as a B5 mix, whereas pure biodiesel is labeled as B100 [7]. Although different grades of biodiesel are currently available in the market, only two biodiesel mixtures exist in Pittsburgh, B5 or B100 [8]. B5 type of blend was assumed to be used for the University Fleet since higher grades of biodiesel might cause performance problems especially during winter months. The difference in CO₂ emission factors for these two blends is less than 0.1%.

Based on data obtained from UPitt's Transportation Services, fuel consumption quantities were determined. Accordingly, 42,300 gallons of gasoline and 11,220 gallons of biodiesel of B5 blend were consumed. By using conversion factors, these values are converted into a total of 485 MT CO₂E.

Two assumptions were made related to data availability. Retrospective vehicles lists were not available; therefore, the first assumption was that the University Fleet size in December 2009 was the same as in June 2008. Out of 254 registered vehicles in December 2009, 51 belonged to other regional campuses and were excluded from the total. Of the remaining 203 vehicles, some were purchased after the study period of fiscal year 2008. However, there are two impediments to excluding those vehicles from the current list. First, although it would be easy to remove vehicles purchased during 2009 and 2010, the same is not true for vehicles purchased during 2008, since month of purchase is not specified in the list, and fiscal year ends at the end of June. Second, the list does not contain information about vehicles that were sold during this period. If new vehicles were purchased as replacements, then removing new vehicles from the list has the potential to decrease the University Fleet size and result in underestimation of actual fuel consumption. Therefore, the current list was used in this study assuming that the number of vehicles remained constant over the duration. This assumption could potentially overestimate actual emissions coming from University Fleet, although not at a level to cause significant changes in the end results.

The second assumption was related to fuel tracking systems as UPitt uses two separate systems to track fuel consumption, namely Voyager and Guttman Oil Fuel Tracking Systems. Close to 80% of Fleet vehicles are tracked via Voyager. However, data for fiscal year 2008 could not be found for Voyager, and fuel consumption was approximated from year 2009.

With respect to Guttman Oil, weekly fuel consumption reports for the entire fleet was obtained covering the period from October 2007 until June 2008. UPitt started to use Guttman Oil in October 2007 and previous data was not available. Therefore, although this data belongs to fiscal 08, it is not a full year of data. Results were increased by a third to account for the previous three months.

-  University fleet: 42,300 gallons of gasoline and 11,220 gallons of biodiesel of B5 blend

4.1.3. Refrigerants

Hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs) are greenhouse gases that are often used for refrigeration and are accounted under Scope 1 emissions [4]. Under ideal conditions, these gases are used in a closed loop system and do not contribute to GHG once they are input into the system. However, leaks in the system result in fugitive emissions and are included in the GHG inventory since some of these refrigerants have high global warming potentials (GWP). The amount of fugitive emissions is assumed to be equal to the amount of refrigerants needed to recharge the systems during maintenance activities. Table 2 below presents the type and amount of refrigerant used at UPitt together with the GWP of each refrigerant. The total GHG potential from refrigerants was 800 MT CO₂E.

Table 2. Fugitive Emissions for Fiscal Year 2008

Refrigerant Type	GWP for 100 years	Source	Amount Used (lb)
R12	10,890	[9]	20
R123	77	[10]	400
R134a	1,300	[11]	41
R22	1,700	[12]	657
R404a	3,900	[13]	1
R414	1,450	[14]	19
R500	8,100	[13]	3
R503	15,000	[13]	1

- Refrigerants: Individual amounts given in Table 2 were input into the CA-CP calculator. GWP coefficients were also modified accordingly.

4.1.4. Agricultural activities

Since there are no herding animals at the Pittsburgh Campus, GHGs from animals were assumed to be zero. An agricultural activity which has potential GHG emissions is the use of fertilizers for landscaping activities, which is accounted under Scope 1 emissions. Synthetic fertilizers are used around the campus for landscaping. Synthetic fertilizers are labeled with their chemical makeup using three numbers to represent the percentages of nitrogen (N), phosphorus (P), and potassium (K). Therefore, a fertilizer having the numbers 10-15-20 would possess a nitrogen content of 10%, phosphorus content of 15%, and potassium content of 20%. Fertilizers contribute towards GHG emissions when a portion of their nitrogen content volatilizes and forms the compound N₂O.

Different commercial fertilizers have different nitrogen percentages. A weighted average was calculated based on the amount of fertilizer used and its specific nitrogen content. The resulting average was approximately 475 pounds of fertilizer having an average nitrogen content of 13%. By using the emission factors present in the CA-CP calculator, 0.3 MT CO₂E was obtained for GHG emissions from fertilizers.

- Fertilizers: 475 pounds with average nitrogen content of 13%

4.2. Scope 2 Emissions

Scope 2 emission sources cover purchased electricity and steam that are vital for the activities of UPitt. These two items usually make up the majority of emissions of any institution.

4.2.1. Purchased Electricity and Steam

Purchased electricity and steam are a part of scope 2 emissions of the GHG inventory. Electricity consumption was 198 million kWh for this study period.

The CO₂ emissions from purchased electricity were calculated using the emission factors present in the CA-CP calculator. The primary source is from U.S. EPA's E-GRID program [15]. E-GRID has fuel mix information both on a state level, and on a sub-region level based on fuel mix. UPitt is located in the RFC West power pool (RFCW) (Figure 2) with the majority of electricity generated from coal as presented in (Figure 3). The given regional fuel mix and emissions factors were used to convert electricity consumption into MT CO₂E emissions. The results yield 138,700 MT CO₂E for electricity consumption.

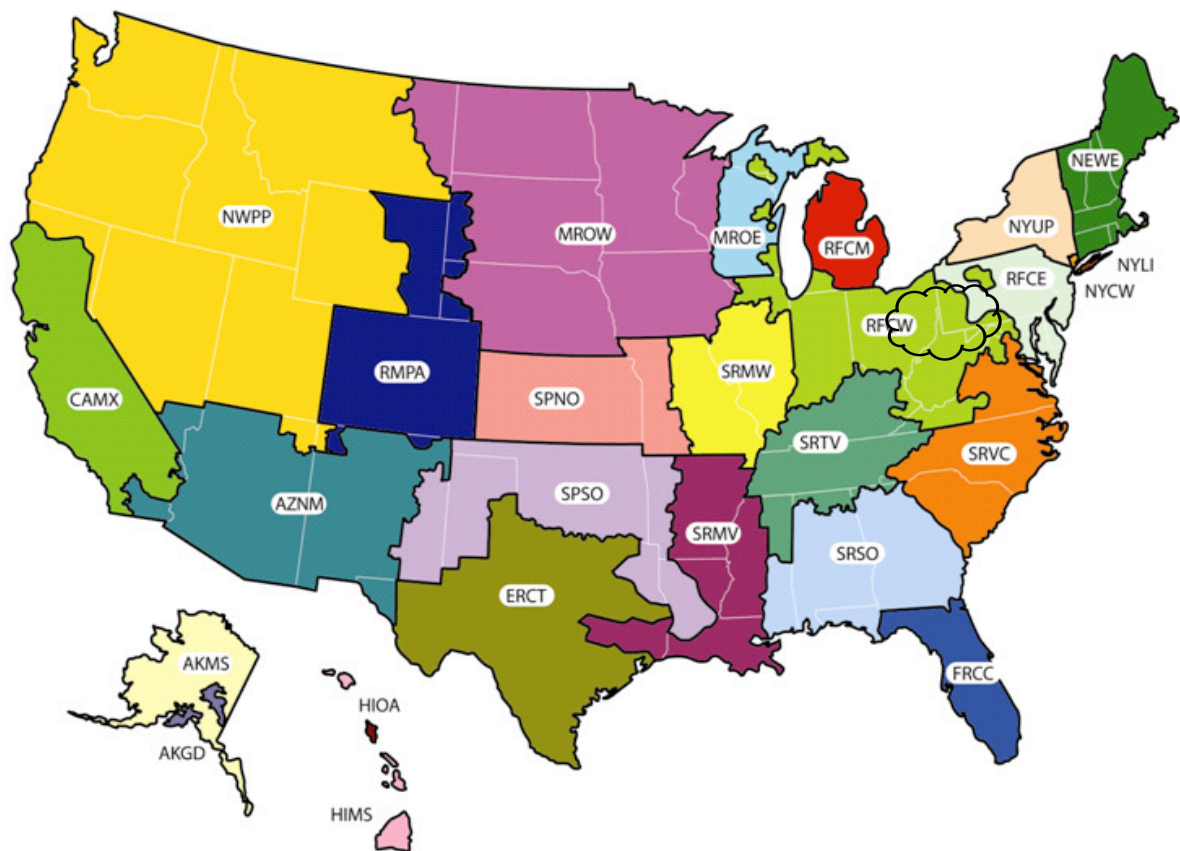


Figure 2. Sub-regions as defined by e-GRID [15]

2005 eGRID Subregion Resource Mix (RFCW)

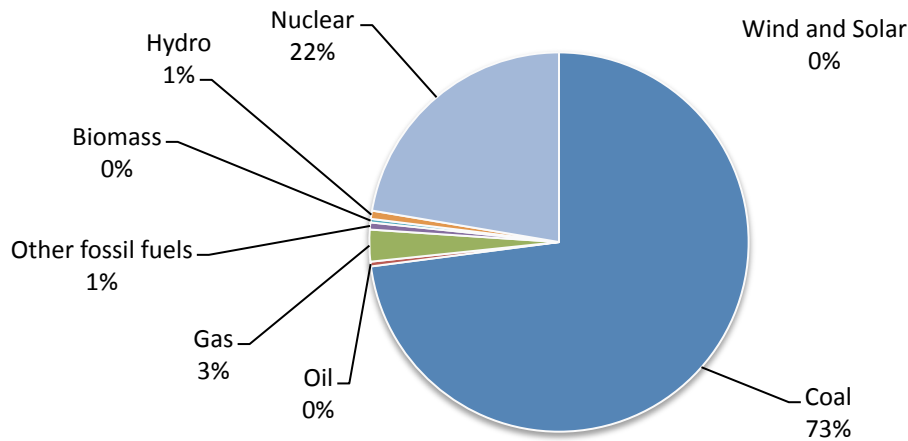


Figure 3. Fuel Mix of Electricity Consumed by University of Pittsburgh [15]

Imported steam is a common energy source for campuses in cities with centralized steam production [4]. The amount of steam used by individual buildings was obtained from UPitt's Facilities Management Department. The amount of steam was recorded in pounds and converted to energy units [6]. The total steam consumption was calculated to be 636,000 million British thermal units (MMBtu). By default, the CA-CP calculator assumes a fuel mix of 50% natural gas and 50% distillate oil for steam production. However, until July 2009, Bellefield Boiler Plant used both coal and natural gas to produce steam, and so distillate oil has been replaced with coal for the fuel mix used to produce steam, given in the CA-CP calculator. By using the exact fuel mix of the boiler plant obtained for the study period, total GHG emissions were found to be 55,100 MT CO₂E.

- Purchased electricity: 198,000,000 kWh
- Purchased steam: 636,000 MMBtu

4.3. Scope 3 Emissions

Sources that emit GHGs but that are indirectly related to UPitt are covered under scope 3. For example, UPitt contracts solid waste management, but emissions coming solid waste are the responsibility of UPitt. Another example is directly financed air travel.

4.3.1. Directly Financed Outsourced Travel

UPitt finances different modes of transportation for its operations which include air travel, rental car, bus, and personal mileage reimbursement. The different modes of financed travel are recorded as a single entry into the reimbursement statement that also includes items such as hotels, per diem, and meals. UPitt's current accounting system does not permit an analysis of total travel distances.

Cost information was obtained from UPitt's Transportation Services regarding the amount spent towards air travel by faculty, staff and the Athletic Department. For outsourced bus transportation, total distance travelled was given to be 440,000 miles.

Air travel data was only available in monetary values and therefore had to be converted into miles traveled before inputting into the CA-CP calculator. Association for the Advancement of Sustainability in Higher Education (AASHE) proposes to use guidelines given by the Air Transport Association (ATA) for air travel [16-17]. ATA has historical records of nominal air travel prices given in passenger miles. For 2008, the nominal price was 13.75 cents per passenger mile. However, in order to include taxes and certain fees, AASHE advises to increase unit costs by 20%, resulting in 16.5 cents per passenger mile. The use of this coefficient yields close to 32 million miles of air travel at UPitt, which includes financed travel for faculty, staff, and the Athletic Department.

Based on the data available, financed air travel emits 24,800 MT CO₂E and bus transportation emits 110 MT CO₂E.

- Directly financed air travel: 32,000,000 air miles
- Other directly financed travel: 440,000 miles

4.3.2. Commuter travel

There are several important factors that influence commuter habits of UPitt population. Subsidized and accessible public transportation, combined with the proximity of neighborhoods, which the students prefer to reside, present an advantageous situation for reducing campus emissions from commuting.

Currently there are 4,437 parking spaces within UPitt parking lots, 165 metered parking spaces allocated for public use, totaling 4,600 parking spaces at UPitt Oakland campus. In addition, UPitt currently has 3,084 parking permits issued to faculty and staff. Remaining parking spaces are allocated for daily parking.

There are currently 1,000 bike racks distributed around the campus. During warmer months, these racks are typically full, implying that 1,000 students bike to school when weather conditions permit. However, use of bike racks decreases during winter months, which forms the majority of the school year. In order to include this in the analysis, it was assumed that 30% of bike racks overall are used throughout the year.

Residence hall capacity in Oakland is 7,200 students. In addition, there are many student housing options in South Oakland. All of these students are assumed to walk to UPitt accounting for approximately 35% of student population.

Although their numbers are low, some students drive to campus. Detailed information regarding the number of students who drive to campus was assumed, which makes close to 1,250 students.

The remaining portion of students was assumed to use bus transportation to commute to the campus, which makes 60% of the total student population. Due to an agreement between UPitt and Port Authority of Pittsburgh, students ride buses without charge, which is a strong incentive aimed at increasing ridership.

Excluding faculty working for UPMC, Pitt had 2,154 faculty during fiscal year 2008. The vast majority of faculty is assumed to prefer to drive to work. The ratio of driving to work was assumed to be Faculty faculty. The [redacted] commute to work. Ratio of faculty using bikes to commute to work was neglected.

Carpooling data did not distinguish between faculty and staff, therefore, all carpooling personnel were assumed to be staff rather than faculty. This assumption is further supported by the fact that working hours of staff are more consistent allowing for carpooling. Faculty hours tend to be irregular. Number of participants for carpooling was 384. Combined with 65 people using vanpooling, the total number of shared ridership is close to 450, corresponding to less than 10% of UPitt staff.

Staff not commuting via carpooling is assumed to be equally divided among car and bus transportation. Similar to students and faculty, Pitt staff can ride buses without charge. This incentive together with regular work hours is assumed to result in higher ratio of bus transportation of staff compared to faculty. Data regarding actual bus usage of UPitt personnel and students was not available. Therefore, estimates were used for bus transportation. UPitt is currently in a transition to replace existing ids to allow for more data collection in the future.

In order to calculate emissions, distance travelled were input into the CA-CP calculator. For students not living at residence halls in Oakland or nearby neighborhoods, the average commuting distance was assumed to be 4 miles each way for driving and bus transportation. The area within 4 mile radius of Oakland includes several neighborhoods students prefer to reside such as Shadyside, Squirrel Hill, Greenfield, and several neighborhoods to the west of Oakland including half of Downtown.

avg distance commute faculty as compared to av miles for students, to increase the number of neighborhoods. The distance of 12.5 miles is the calculated weighted average distance for faculty and staff that drive to work and have parking permits.

Another input required to calculate emissions was the number of days students commuted, which can be assumed to be equal to the number of weeks they have classes. Majority of students attend school for Fall and Spring semesters. Attendance drops significantly during Summer semester. Excluding all holidays and break periods, students have 30 weeks of class period. They are assumed to commute to school for this period only.

For faculty and staff, 47 working weeks in a calendar year were assumed. Due to winter recess and other observed holidays, UPitt is closed approximately 3 weeks for faculty and staff. Assuming a 2 week paid vacation time, the number of working weeks in a year becomes 47.

- Commuting: 25,357,793 miles for personal vehicles and 13,316,745 miles for bus transportation for faculty and staff. For students, 1,485,270 miles for personal vehicles and 18,031,178 miles for bus transportation.

4.3.3. Waste

Solid waste is managed by Republic Waste Services and is landfilled without methane recovery or electricity generation. Landfills release methane and CO₂ emissions as organic waste decomposes. However, the CO₂ emissions are not included in the inventory since same, or even greater amounts of CO₂ would have emitted to the atmosphere under normal aerobic decomposition, as part of the natural life cycle of the biomass [7, 18]. Therefore, only methane emissions occurring at landfills need to be accounted for the inventory.

During fiscal year 2008, 5,246 tons of solid waste was generated by UPitt. The CA-CP calculator yields 5,688 MT CO₂E due to methane released from landfills.

- Solid waste: 5,246 short tons of solid waste with no CH₄ recovery

4.3.4. Wastewater

Based on data from UPitt's Facilities Management, wastewater was assumed to be equal to the amount of water consumed in almost all campus buildings. It is not clear whether there is a possibility to measure the actual contribution of UPitt to the municipal sewage stream. This problem has been stated by other researchers as well, but a solution to the problem could not be found. Even if the assumption made here is an overestimation of the actual situation, it results in 1,466 MT CO₂E from wastewater, which does not have a significant impact when compared to total emissions of UPitt.

- Wastewater: 278,350,000 gallons to the septic system

4.3.5. Paper

Paper is vital for almost any type of business establishment. It is perhaps more important for educational facilities where printed material in great quantities are consumed daily. Therefore, capturing this potentially significant emission source was another objective of the study, although not mandatory based on ACUPCC guidelines. Information regarding the quantity of purchased regular and recycled paper was obtained through the Budget Department. Based on this data, 13% of purchased paper includes some grade of post-consumer waste, of which 85% includes 30% post consumer waste. GHG emissions from paper consumption is 1,626 MT CO₂E.

- Paper: 1,113,742 lb of 0% recycled, 15,900 lb of 10% recycled, 5,463 lb of 20% recycled, 140,465 lb of 30% recycled, and 2,155 lb of 100% recycled paper use was input into CA-CP calculator.

5. Discussion of Results

GHG emissions of UPitt for fiscal year 2008 amounted to 267,518 MT CO₂E. The percentage result distribution is presented in Figure 4, followed by detailed information in Table 3.

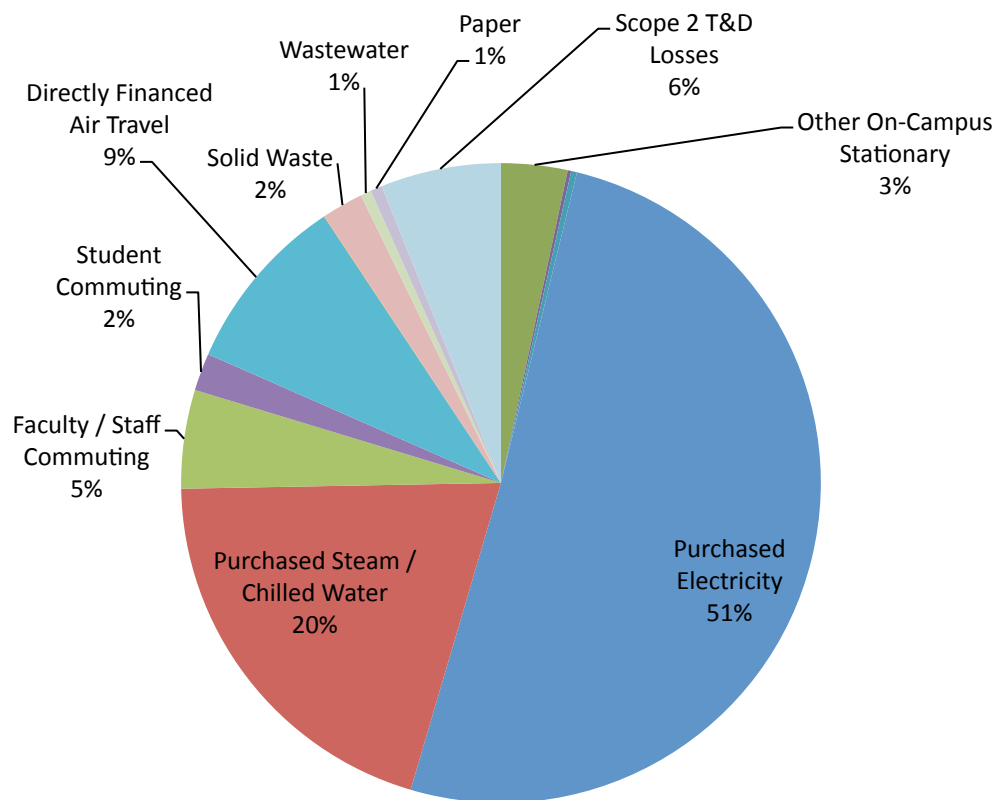


Figure 4. Detailed Distribution of UPitt's FY2008 GHG Emission Results

Table 3. Summary of UPitt's GHG Emissions for Fiscal Year 2008

	2008	Energy Consumption	CO ₂	CH ₄	N ₂ O	CO ₂ E
		MMBtu	kg	kg	kg	Metric Tonnes
Scope 1	Co-gen Electricity	-	-	-	-	-
	Co-gen Steam	-	-	-	-	-
	Other On-Campus Stationary	173,169	9,135,679	913	18	9,200
	Direct Transportation	6,794	474,287	80	28	500
	Refrigerants & Chemicals	-	-	-	-	800
	Agriculture	-	-	-	1	0
Scope 2	Purchased Electricity	1,516,172	138,141,644	961	1,824	138,700
	Purchased Steam / Chilled Water	762,771	49,293,289	5,173	402	55,100
Scope 3	Faculty / Staff Commuting	188,794	13,342,553	2,189	774	13,600
	Student Commuting	71,069	5,124,457	375	157	5,200
	Directly Financed Air Travel	125,950	24,728,701	244	280	24,800
	Other Directly Financed Travel	1,533	110,924	6	3	100
	Study Abroad Air Travel	-	-	-	-	-
	Solid Waste	-	-	247,311	-	5,700
	Wastewater	-	-	58,454	412	1,500
	Paper	-	-	-	-	1,600
	Scope 2 T&D Losses	190,097	16,256,744	367	202	16,600
Offsets	Additional					-
	Non-Additional					-
Totals	Scope 1	179,963	9,609,966	993	47	10,400
	Scope 2	2,278,943	187,434,933	6,134	2,226	193,800
	Scope 3	577,443	59,563,379	308,945	1,827	69,100
	All Scopes	3,036,349	256,608,278	316,073	4,101	273,400
	All Offsets					-
					Net Emissions:	273,400

The scoped approach, as defined previously, categorizes emission sources based on level of responsibility but does not dictate the boundaries to be used for emissions reporting. The final decision is left to the discretion of the institution. Nevertheless, some guidelines by the GHG Protocol Initiative and the ACUPCC exist to ensure that reported results are compatible with each other. Proposed boundaries are as follows [4]:

- *All Scope 1 and scope 2 emission sources:* Scope 1 and 2 are minimum levels for reporting emissions. The World Resources Institute (WRI) Corporate Accounting and Reporting Standard

require reporting of all Scope 1 and Scope 2 emissions, but considers scope 3 emissions optional. ACUPCC on the other hand requires scope 1 and scope 2 emissions, as well as scope 3 categories of commuting and directly financed air travel.

- *All directly financed emissions*: This boundary includes Scope 1 and Scope 2 emissions as well as directly financed Scope 3 emissions such as air travel and solid waste management.
- *All directly financed emissions, and selected directly encouraged emissions*: In addition to the previous boundary, this boundary includes Scope 3 emissions that are encouraged, but not necessarily financed. A policy in effect that requires students to study abroad for a certain period of time would indirectly require them to use air transportation, although they might not be reimbursed for the trip. Another category to consider would be the daily commuting of students, faculty and staff, especially in locations with few public transportation options.
- *All directly financed or significantly encouraged emissions as well as selected upstream emissions*: This would be the largest boundary for reporting campus GHG emissions. In addition to the previous boundary, certain Scope 3 emissions are also included, mainly for allocating reductions to these sources. For example, if a policy to decrease paper consumption is in effect, then paper category could be included in the inventory to observe the impact of paper reduction policy.

Selection of a study boundary is vital for a GHG inventory study. Selection of a limited boundary would result in the exclusion of some important emission sources and result in an underestimation of the actual emissions from the institution. On the other hand, developing an inventory for all actual emissions requires significant amounts of time and resource; further, data is often not available. The impact of selection of any one of the above four boundaries is demonstrated in Table 4 below. Emission results for UPitt increased by 35% from selecting the most limited boundary to the most extended boundary. Reporting emissions by any one of these defined boundaries are allowed. This fact should be recognized during comparison of results with respect to other institutions, since different studies use different boundaries which directly affect end results.

For comparing results found here with other institutions of higher education, metrics were defined such as using scope 1 and 2 sources only, including air travel and solid waste management in addition to scopes 1 and 2, including all transportation activities and solid waste management in addition to scopes 1 and 2, and finally all accountable emission sources, as shown in Table 4. Comparing schools based on their net emissions only, results in misleading conclusions since every school has different student enrollment numbers as well as different number of buildings to continue their educational and research activities. For a logical comparison, emission results are usually converted into one of the metrics given below. If institutional data such as student numbers and gross building area are input into the CA-CP calculator, such conversions are done automatically and presented together with results in the spreadsheet.

Table 4. GHG Emission Results for University of Pittsburgh Reported Using Different Metrics to Facilitate Comparison with respect to Other Institutions, FY2008

Metrics	Scope 1 and Scope 2	Scopes 1 and 2, Air Travel, Solid Waste Management	Scopes 1 and 2, Transportation and Solid Waste Management	All Accountable Emissions
Operating Budget, g CO₂E / \$	139.3	160.2	173.1	186.5
Students, MT CO₂E/ FTE student	8.3	9.5	10.2	11.0
Community Members, MT CO₂E / Person	6.5	7.4	8.0	8.7
Building Space, MT CO₂E / 1000 ft²	21.7	25.0	27.0	29.1

5.1. Comparison of Results with Respect to Other Institutions

Numerous sources and GHG Inventory reports published by other higher education institutions were reviewed in order to determine UPitt's performance when ranked according to greenhouse gas emissions. Due to the number of institutions involved, the full list is provided in Appendix B and is sorted according to different categories. Table 5 below shows UPitt's performance among a group of peer institutions commonly used for benchmarking purposes. As was discussed previously, selection of an extended operational boundary for UPitt increases emissions by close to one third when compared to reporting only mandatory emission sources. Both results are provided in Table 5.

Table 5. Comparative Results of Higher Education Institutions used for Peer Group Benchmarking, Sorted According to Net Emissions [19-22]

Institution	Year of Study	Net emissions, MT CO₂E	MT CO₂E/FTE student	MT CO₂E/1000 ft²
SUNY - Buffalo	2007	145,152	5.2	14.2
University of Delaware	2009	152,542	8.7	29.1
Carnegie Mellon University	2007	163,680	18.2*	34.6
University of Pittsburgh – mandatory sources only	2008	204,200	8.3	21.7
Temple University	2009	227,993	7.6	24.9
University of Pittsburgh – all accountable sources	2008	273,400	11	29.1
Rutgers University	2008	309,060	9.4*	16.7
University of Maryland - College Park	2007	351,144	10.8	27.7
Pennsylvania State University	2008	455,069	10.5*	22.5
The Ohio State University	2009	661,037	12.3	29.3

* Number of full time students only was used instead of number of full time equivalent students

6. Recommendations for Future GHG Inventory Studies

Several assumptions were required during this study in order to include as many emission sources as possible. However, some of these assumptions may have resulted in overestimation of actual values. For the next inventory study, expected emission results combined with a detailed list of contacts and types of data required will greatly reduce the time and effort required to gather the necessary information. This information will allow researchers to allocate more time towards some of the assumptions made in this first GHG inventory report for UPitt, therefore, increasing the accuracy of emission results.

Besides necessary assumptions, some types of data could not be found retrospectively. The vehicles registered in the University fleet, for example, change continuously. The exact list for fiscal year 2008 together with the fuel consumption of those vehicles was not available. The next inventory conducted should be able to receive more accurate data, therefore, eliminating the assumptions.

The decision to select fiscal year 2008 was supported by the fact that a transition from the old steam plant to a new steam plant having ultra-low NOx control technology was planned. Emission levels were reported in this benchmark study before any significant reduction strategies were implemented. A decrease in emissions related to steam production is expected in the next GHG Inventory.

Purchased electricity is the largest source of emissions of UPitt, which makes more than half of the total amount. Pittsburgh is located in a coal dominant fuel mix region, inevitably impacting the total emissions of UPitt and resulting in higher emissions for all metrics when compared to some other states like Oregon where the use of renewable energy in the fuel mix is higher. For this study, fuel mix information given by EPA's E-Grid program was used. Future studies should determine the exact fuel mix of electricity used by UPitt. Cost benefit analysis of purchasing green power is also another area that is worth investigating, since this strategy can reduce total GHG emissions significantly. In addition, there is a limit to the amount of emission reductions that can take place by using the same fuel mix used to generate electricity.

Air travel data recording could be improved. Travel reimbursements made by UPitt, although they may contain different modes of transportation, is recorded in the same manner. Determining accurate travel data divided into categories (e.g. air travel, study abroad program, rented vehicles, etc.) requires the arduous task of reviewing and sorting thousands of entries which require significant amount of time and personnel. If such resources are available, it is advised to go through records to increase accuracy of results in the future. A policy change that separates entries based on mode of transportation would facilitate this process, but would require additional personnel to be employed by the Budget Department.

Since information on commuting preference of faculty and students were not available, rough estimates were required to calculate emissions. These assumptions could result in overestimation of emissions from commuting but this was the preferred approach to make sure that emissions were not underestimated. Future inventories could implement a campus-wide survey at the beginning of the study to learn about commuting behavior of students, faculty and staff. Preparation, data collection and interpretation of a survey require long periods of time. Therefore, surveys should be planned and executed from the beginning of a study.

7. Conclusions

GHG emissions of UPitt were quantified in this study. Emissions originating from different sources are reported in this report, along with operational boundaries and associated results. The difference between these boundaries was found to be significant. GHG emissions equal 8.3 MT CO₂E/FTE students if only Scope 1 and Scope 2 emissions are included, which is the minimum that can be reported. Instead, if all emission sources found throughout the study were used, this number increases to 11.0 MT CO₂E/FTE student.

When compared to other higher education institutions, UPitt ranks average with respect to GHG emissions per FTE student. This should be seen as an encouraging outcome. First of all, other schools have conducted multiple emission inventories in the past couple of years and therefore have identified their hotspots. Supported by this, most schools that are ranked higher on the list have implemented large-scale emissions reduction policies. Having conducted this benchmark study, it is expected that UPitt will also take measures that will effectively reduce emissions to desired levels in the following years.

Second, high emissions are also a result of where Pittsburgh is located, and the fuel mix used to generate electricity, which is related to UPitt through Scope 2 emissions. Coal is used to generate close to 70% of electricity in this region according to EPA data, unlike other areas where high percentages of renewable resources are used to generate electricity. Under these circumstances, a cost-benefit analysis should be conducted to examine green power purchasing to reduce emissions in the short term.

Acronyms

AASHE – Association for the Advancement of Sustainability in Higher Education

ACUPCC – American College and University Presidents Climate Commitment,
<http://www.presidentsclimatecommitment.org/>

ATA – Air Transport Association

CA-CP – Clean Air-Cool Planet, <http://www.cleanair-coolplanet.org/>

CA-CP calculator – Clean Air-Cool Planet Campus Carbon Calculator

CO₂ – Carbon Dioxide

FTE – Full Time Equivalent

GHG – Greenhouse Gas

GWP – Global Warming Potential

IPCC – Intergovernmental Panel on Climate Change

MMBtu – Million British thermal unit

MT CO₂E – Metric ton of carbon dioxide equivalent

UPitt – University of Pittsburgh, Oakland Campus

WRI – World Resources Institute, <http://www.wri.org/>

Appendix A

Meetings with several UPitt staff were necessary in order to gather necessary data for the CA-CP calculator. Table 6 shows the list of contacts as well as data and information received from them.

Table 6. List of Contacts and Information Received

Contact	Information Received
Laura Zullo	Building list Purchased electricity and steam Solid waste Wastewater Landscaping Refrigerants & chemicals
Keith Duval	Information on emissions reporting
Joe Fink	Introduction to contacts
Kevin Sheehy	Sustainable practices in the Transportation Dept.
Jan Thomas	Parking permits Carpool
Cindy Comer	University fleet
Vince Johns	Directly financed air travel
Kent McGaughey	Other directly financed travel
Art Ramicone	Budget
Maureen Beal	Paper consumption Computer purchases
Jim Earle	Sustainable practices in residence halls
Pat Heffley	Sustainable practices in residence halls

Appendix B

Table 7. List of higher educational institutions that have reported their GHG emissions, ranked according to net emissions [19-27]

Institution	Year	Net emissions, MT CO ₂ E	MT CO ₂ E/ FTE	MT CO ₂ E/ 1000 ft ²
Berea College	2008	-2,374	-1.5	-1.7
College of the Atlantic	2009	0	0.0	0.0
University of Minnesota-Rochester	2009	225	0.6	4.0
Naropa University	2009	509	0.5	3.3
School for International Training	2008	538	2.4	4.3
The National Graduate School of Quality Management	2009	605	2.6	27.3
Bainbridge Graduate Institute	2009	794	4.0	66.2
Antioch University Los Angeles	2008	815	1.2	18.9
Unity College	2008	841	1.6	5.6
University of South Carolina Salkehatchie	2009	918	1.7	8.1
University of South Carolina Union	2008	1,128	4.2	21.0
Antioch University Seattle	2008	1,368	2.3	26.2
Goddard College	2006	1,637	2.4	10.9
College of Menominee Nation	2007	2,060	4.1	19.2
Labette Community College	2009	2,095	2.5	17.9
American Public University System	2008	2,242	0.1	20.8
University of South Carolina Sumter	2009	2,251	2.6	9.6
Wheelock College	2008	2,274	2.6	6.5
Boston Architectural College	2009	2,352	1.6	23.2
University of Houston - Victoria	2008	2,358	3.1	14.9
Durham Technical Community College	2008	2,452	0.5	5.0
New Mexico State University Grants Branch	2009	2,461	3.9	20.5
Carteret Community College	2009	2,615	1.7	12.7
Antioch University New England	2008	2,651	2.7	31.2
Warren Wilson College	2007	2,758	3.3	4.1
Penn State Berks	2008	2,829	1.1	7.6
Vermilion Community College	2007	2,855	4.4	14.4
University of Maine at Augusta	2008	2,917	0.5	8.3
Peninsula College	2009	2,949	1.7	12.1
Prescott College	2008	2,978	3.0	29.5
Washington State University, Vancouver	2008	3,180	2.2	8.3
Monterey Institute of International Studies	2008	3,261	4.1	25.0
Wilson College	2008	3,418	4.5	6.2

Institution	Year	Net emissions, MT CO ₂ E	MT CO ₂ E/ FTE	MT CO ₂ E/ 1000 ft ²
University of Washington Tacoma	2007	3,747	1.6	6.2
Anna Maria College	2009	3,756	3.6	15.5
The New School	2009	3,774	0.4	3.7
Washington State University, Tri-Cities	2008	3,817	5.7	14.7
Pine Manor College	2008	3,861	8.4	4.5
Huston-Tillotson University	2008	3,927	5.8	16.1
Mount Wachusett Community College	2010	3,995	0.8	4.4
Northland College	2009	4,017	7.2	9.3
Marymount Manhattan College	2010	4,093	2.3	12.0
Los Angeles Southwest College	2007	4,195	0.6	9.7
Berkshire Community College	2008	4,234	2.7	16.9
Rosemont College	2007	4,261	6.4	10.7
University of South Carolina Beaufort	2008	4,264	1.8	11.8
The University of Montana - Western	2008	4,265	3.9	11.7
West Los Angeles College	2007	4,302	0.5	9.0
University of Maine at Machias	2008	4,328	7.5	16.4
Pitzer College	2009	4,438	4.3	12.1
Manchester Community College (CT)	2007	4,463	0.6	10.9
New Mexico State University at Alamogordo	2007	4,525	1.6	23.9
Cascadia Community College	2009	4,550	2.3	14.8
State University of New York Empire State College	2009	4,693	0.5	14.7
Los Angeles Harbor College	2007	4,706	0.7	12.2
Green Mountain College	2009	4,826	6.4	11.7
University of Washington Bothell	2007	5,215	3.0	17.6
Wells College	2009	5,436	9.3	8.5
University of Maine at Fort Kent	2008	5,457	6.0	21.5
Los Angeles Mission College	2007	5,519	0.7	18.8
Lasell College	2009	5,680	3.9	12.6
Coastline Community College	2008	5,683	0.9	25.2
Oregon Institute of Technology	2008	5,732	2.4	9.3
New Mexico State University at Carlsbad	2008	5,815	7.6	40.9
Tompkins Cortland Community College	2010	5,933	4.0	15.7
Loras College	2010	5,987	4.0	6.0
Southwestern College - Kansas	2008	6,024	7.5	14.8
Southern Oregon University	2008	6,036	1.6	3.8
Point Loma Nazarene University	2008	6,074	2.6	7.5
Seattle Pacific University	2009	6,219	1.7	5.6
Confederation College	2009	6,366	1.6	9.0
Mills College	2008	6,368	4.5	6.5
Bunker Hill Community College	2007	6,531	4.4	14.9
Harvey Mudd College	2008	6,535	8.9	10.6

Institution	Year	Net emissions, MT CO ₂ E	MT CO ₂ E/ FTE	MT CO ₂ E/ 1000 ft ²
Los Angeles Valley College	2007	6,553	0.5	10.2
Connecticut College	2008	6,612	3.9	4.6
Hampshire College	2007	6,621	4.9	8.3
Keystone College	2007	6,621	4.3	20.9
Los Angeles Trade-Technical College	2007	6,817	0.5	8.6
Franklin Pierce University	2007	6,826	4.0	10.4
Haywood Community College	2008	7,081	3.7	22.1
Golden West College	2008	7,195	0.6	12.6
Wesleyan College	2008	7,224	10.5	13.4
Chatham University	2007	7,246	6.0	10.0
College of Saint Rose	2008	7,264	1.4	8.8
Iowa Lakes Community College	2008	7,396	3.2	0.7
Ursinus College	2008	7,460	4.8	6.4
Greenfield Community College	2007	7,543	4.2	28.1
Linfield College	2007	7,774	4.5	7.9
Colby-Sawyer College	2009	7,804	7.8	13.4
Pacific Lutheran University	2008	7,856	2.2	6.0
Manhattanville College	2009	7,877	3.4	9.7
LaGrange College	2008	7,987	8.0	14.5
Chaffey College	2008	8,031	0.2	19.6
Pasadena City College	2010	8,291	0.4	7.9
Wesley College	2007	8,308	5.4	13.5
Truckee Meadows Community College	2009	8,337	1.2	13.2
Emory & Henry College	2009	8,489	8.7	14.4
New College of Florida	2008	8,489	11.1	14.4
New England Institute of Technology	2008	8,554	2.9	46.3
Castleton State College	2008	8,657	4.5	14.3
Rio Salado College	2010	8,678	0.7	32.9
Franklin College of Indiana	2008	8,691	8.6	17.5
Massachusetts College of Liberal Arts	2007	8,779	4.8	13.1
Goucher College	2009	8,822	4.7	9.9
Georgian Court University	2008	8,849	3.8	16.0
SUNY Rockland Community College	2008	8,958	3.7	12.8
Mount Mercy College	2008	8,988	7.5	21.7
Las Positas College	2009	9,076	1.4	32.4
Emerson College	2008	9,143	2.5	9.5
Cabrillo College	2008	9,332	0.8	19.9
SUNY Orange	2009	9,500	1.8	17.8
Goshen College	2009	9,508	10.7	12.0
Maharishi University of Management	2008	9,551	22.1	9.7
Everett Community College	2009	9,569	0.8	12.8

Institution	Year	Net emissions, MT CO ₂ E	MT CO ₂ E/ FTE	MT CO ₂ E/ 1000 ft ²
Bates College	2007	9,621	5.8	6.3
Aquinas College	2009	9,760	5.5	15.0
McLennan Community College	2009	9,932	0.8	16.6
Washington State University, Spokane	2008	9,942	3.4	17.1
Quinsigamond Community College	2007	10,026	2.7	15.8
Hiram College	2009	10,067	10.3	12.7
California State University-Bakersfield	2009	10,127	1.5	10.1
Massachusetts College of Art & Design	2008	10,226	6.2	12.8
Massachusetts Bay Community College	2008	10,229	2.0	27.3
Randolph College	2008	10,276	15.6	14.7
Central College	2008	10,351	6.7	11.2
Juniata College	2008	10,372	7.1	11.8
Northern Essex Community College	2008	10,441	2.7	22.3
Chandler-Gilbert Community College	2008	10,446	1.9	23.7
University of South Carolina Aiken	2008	10,479	3.2	13.6
Los Angeles Pierce College	2007	10,571	0.7	16.3
North Arkansas College	2009	10,629	4.6	45.2
Metropolitan State University	2008	10,695	2.1	38.2
Black Hills State University	2008	10,698	3.6	14.6
Holyoke Community College	2008	10,733	2.4	11.6
The Evergreen State College	2008	10,858	2.8	6.7
Western State College of Colorado	2008	10,873	5.0	12.4
State University of New York College of Environmental Science and Forestry	2007	10,948	4.9	10.4
Los Angeles City College	2007	10,958	0.7	12.5
Sweet Briar College	2008	11,041	16.5	18.5
Chabot College	2009	11,048	1.0	17.3
Minot State University	2010	11,209	4.0	10.9
St. Clair County Community College	2008	11,271	2.8	25.5
Lake Superior College	2008	11,366	3.3	31.4
Haverford College	2008	11,412	9.8	7.7
Westminster College-Utah	2008	11,443	4.4	15.4
University of Maine at Farmington	2007	11,588	5.9	15.0
University of South Carolina Upstate	2009	11,805	2.6	12.7
Harford Community College	2008	11,851	3.2	24.6
College of Marin	2008	11,860	1.8	29.9
Agnes Scott College	2009	11,864	15.0	14.0
University of Minnesota-Morris	2007	11,910	7.1	12.9
Kent State University Stark Campus	2009	12,038	2.5	35.6
Coe College	2008	12,044	10.4	14.0
Wentworth Institute of Technology	2008	12,048	3.3	10.3

Institution	Year	Net emissions, MT CO ₂ E	MT CO ₂ E/ FTE	MT CO ₂ E/ 1000 ft ²
East Los Angeles College	2007	12,085	0.5	17.6
Worcester State College	2008	12,210	2.7	10.8
Illinois College	2008	12,240	13.6	17.7
School of the Art Institute of Chicago	2009	12,288	4.1	11.1
Manchester Community College (NH)	2009	12,398	7.8	67.0
Dickinson College	2008	12,456	5.3	6.4
Olympic College	2008	12,463	2.7	27.3
University of Maryland Center for Environmental Science	2008	12,480	198.1	33.2
University of Minnesota-Crookston	2009	12,494	10.9	16.1
Kalamazoo College	2008	12,510	9.7	15.5
Kankakee Community College	2008	12,560	6.0	36.5
Lake Michigan College	2009	12,723	5.4	22.7
St. Catherine University	2010	12,744	2.8	10.3
University of Redlands	2008	12,753	3.1	11.4
Butte College	2006	12,812	4.4	31.0
University of La Verne	2010	12,989	3.6	27.1
Mercyhurst College	2007	13,047	4.0	9.6
Middlesex Community College	2008	13,137	2.7	25.2
Orange Coast College	2008	13,138	0.7	16.1
Minnesota State Community and Technical College	2009	13,168	3.1	14.6
North Shore Community College	2008	13,322	1.7	28.1
Southern Polytechnic State University	2008	13,399	3.2	11.6
Cedar Valley College	2007	13,459	4.5	38.6
University of Houston - Downtown	2008	13,524	1.9	9.7
Massasoit Community College	2007	13,687	3.2	24.9
Gainesville State College	2009	13,771	1.1	32.2
South Suburban College	2009	13,783	2.7	24.6
Saint Norbert College	2008	13,849	6.8	11.1
Wofford College	2008	13,899	10.6	15.9
Life University	2008	13,930	7.4	33.1
Austin College	2009	13,965	10.9	18.0
Lakeshore Technical College	2009	14,029	6.3	36.5
Washington & Jefferson College	2008	14,046	9.4	14.0
St. Mary's College of Maryland	2008	14,213	7.7	17.3
University of New England	2009	14,255	3.6	13.8
Shoreline Community College	2008	14,280	0.7	29.4
Bristol Community College	2006	14,372	3.6	39.5
Guilford College	2007	14,524	6.7	18.3
Cape Cod Community College	2008	14,575	6.0	42.0
Bard College	2009	14,715	7.8	13.1
Fort Lewis College	2007	15,329	4.3	14.1

Institution	Year	Net emissions, MT CO ₂ E	MT CO ₂ E/ FTE	MT CO ₂ E/ 1000 ft ²
Drury University	2009	15,359	4.5	13.9
Onondaga Community College	2007	15,446	2.4	15.5
Hobart and William Smith Colleges	2007	15,589	7.8	10.8
Bryn Mawr College	2009	15,658	9.5	11.7
University of California, Merced	2007	15,873	9.9	16.4
Adams State College	2008	15,988	17.8	17.9
Pratt Institute	2008	16,148	3.6	10.9
Washington College	2007	16,153	12.9	21.2
Sewanee: The University of the South	2008	16,161	10.4	12.3
University of Baltimore	2008	16,220	2.8	21.6
Simmons College	2008	16,227	4.6	17.3
Hollins University	2007	16,231	15.3	19.1
Colgate University	2009	16,262	5.8	7.0
Coppin State University	2008	16,268	4.4	16.9
Lee College	2008	16,512	2.8	28.0
Whitworth University	2007	16,560	7.9	22.6
Plymouth State University	2007	16,693	3.6	11.8
Mount Union College	2008	16,883	8.0	15.8
Centre College	2008	17,079	14.4	18.1
Luther College	2009	17,109	7.1	11.6
Lewis & Clark College	2006	17,123	4.4	13.7
Bowdoin College	2008	17,166	10.0	8.8
Springfield College	2008	17,223	4.5	13.4
Inver Hills Community College	2009	17,308	4.7	59.7
Eastern Iowa Community College District	2008	17,590	2.2	32.8
Colby College	2008	17,629	9.5	12.2
Allegheny College	2007	17,709	8.2	14.8
University of Portland	2007	17,772	5.5	14.9
Governors State University	2009	17,850	4.2	32.1
North Lake College	2008	17,867	3.5	33.5
El Centro College	2009	17,927	7.3	26.5
Willamette University	2008	17,934	6.9	12.8
Ocean County College	2009	18,297	2.3	41.3
Lesley University	2007	18,320	3.5	25.0
Western Connecticut State University	2008	18,357	3.5	8.0
Centralia College	2008	18,428	2.7	63.3
The University of South Dakota	2008	18,482	3.2	-
St. Lawrence University	2008	18,715	8.5	8.7
Rhodes College	2008	18,812	11.3	17.7
Gettysburg College	2007	19,088	7.3	12.2
Park University	2008	19,145	15.2	37.1

Institution	Year	Net emissions, MT CO ₂ E	MT CO ₂ E/ FTE	MT CO ₂ E/ 1000 ft ²
Clark University	2007	19,221	6.0	11.6
Wilkes University	2008	19,235	5.3	14.2
Babson College	2008	19,383	5.6	11.4
Drake University	2008	19,665	4.7	10.6
Drew University	2009	19,782	10.0	15.4
Bemidji State University	2009	19,786	4.6	12.0
Claremont McKenna College	2008	19,839	18.2	29.2
Hocking Technical College	2009	19,988	4.9	35.1
Mount St. Mary's University	2007	20,079	12.6	20.3
County College of Morris	2007	20,121	3.1	39.8
Central Washington University	2007	20,133	2.7	6.7
Jackson Community College	2009	20,259	4.3	32.4
Stetson University	2010	20,264	6.5	13.1
Trinity College	2009	20,495	9.2	10.8
Hamilton College	2009	20,617	11.2	11.0
Broome Community College	2007	20,649	3.3	34.9
McDaniel College	2008	20,678	8.5	19.7
Concordia University, Nebraska	2010	20,707	15.4	24.6
Franklin & Marshall College	2007	20,710	10.3	14.7
Roger Williams University	2008	20,791	4.3	15.3
Fitchburg State College	2007	20,985	4.4	15.7
Virginia Wesleyan College	2008	21,172	20.0	38.1
Saint Xavier University	2007	21,175	4.9	26.9
Century College	2009	21,253	3.2	29.8
Union College	2008	21,349	10.0	11.1
Keene State College	2007	21,359	4.4	13.4
Carleton College	2007	21,533	10.8	11.9
Augsburg College	2008	21,669	6.2	20.7
College of Saint Benedict	2008	21,823	10.5	17.8
Winona State University	2007	22,097	2.8	12.2
Montgomery County Community College	2008	22,138	4.0	31.4
Rose-Hulman Institute of Technology	2007	22,213	11.5	20.7
Cincinnati State Technical and Community College	2008	22,324	2.7	17.0
California State University-Monterey Bay	2007	22,348	5.5	16.2
University of Southern Maine	2009	22,428	2.1	9.0
Parkland College	2010	22,471	3.4	25.3
Salem State College	2009	22,511	2.2	17.2
Simpson College	2009	22,680	11.2	28.0
Eckerd College	2008	22,698	7.9	28.0
St. Louis Community College at Florissant Valley	2009	22,856	3.2	64.5
Bentley University	2009	22,963	4.6	13.5

Institution	Year	Net emissions, MT CO ₂ E	MT CO ₂ E/ FTE	MT CO ₂ E/ 1000 ft ²
University of Maryland University College	2008	23,017	1.3	30.1
Western Washington University	2007	23,023	1.8	7.4
College of the Holy Cross	2007	23,211	8.3	11.4
Davidson College	2008	23,387	14.0	14.9
Bergen Community College	2008	23,493	1.9	32.5
Saint Peter's College	2009	23,520	7.6	18.4
State University of New York at New Paltz	2009	23,554	3.7	10.8
Seattle University	2009	23,787	4.3	10.7
Albion College	2008	23,795	12.3	16.0
Richland College	2008	23,973	2.7	37.9
Messiah College	2008	24,133	8.6	18.0
Lewis and Clark Community College	2009	24,155	5.6	50.9
Western Technical College	2008	24,177	6.4	34.8
Southern Connecticut State University	2008	24,516	2.7	9.7
Santa Clara University	2009	24,597	3.2	12.1
Des Moines Area Community College	2008	24,615	2.1	22.3
Catawba College	2008	24,673	19.4	10.4
Foothill College	2008	24,780	1.7	38.4
State University of New York at Fredonia	2009	24,818	5.1	12.2
Bowie State University	2007	24,907	5.4	20.9
Delta College	2008	24,973	3.5	25.8
Edmonds Community College	2007	25,037	3.3	35.7
South Dakota School of Mines and Technology	2008	25,105	14.5	37.2
Minneapolis Community and Technical College	2008	25,166	2.0	16.6
Rider University	2007	25,233	5.3	18.5
Gustavus Adolphus College	2008	25,239	10.1	16.4
Eastern Connecticut State University	2008	25,288	4.9	12.7
Madison Area Technical College	2008	25,473	1.4	19.9
Salisbury University	2008	26,414	3.7	18.3
Washington and Lee University	2007	26,452	12.1	12.8
New Mexico State University Dona Ana Branch	2009	26,572	2.4	61.3
Macalester College	2008	26,672	14.1	21.1
De Anza College	2008	26,761	1.3	18.6
Scottsdale Community College	2008	26,981	4.3	51.4
Fairfield University	2008	27,040	6.1	15.0
University of Massachusetts Lowell	2007	27,094	1.6	10.2
University of Massachusetts Boston	2008	27,173	3.1	11.0
Smith College	2009	27,216	9.2	9.4
Ramapo College of New Jersey	2008	27,609	5.6	16.6
The Richard Stockton College of New Jersey	2008	27,792	4.8	33.1
Washtenaw Community College	2008	27,804	3.5	28.1

Institution	Year	Net emissions, MT CO ₂ E	MT CO ₂ E/ FTE	MT CO ₂ E/ 1000 ft ²
Pomona College	2009	28,083	18.3	18.1
Colorado College	2009	28,441	14.1	15.3
State University of New York College at Geneseo	2008	28,506	5.4	12.4
University of Colorado at Colorado Springs	2007	28,774	3.4	22.9
Santa Monica College	2009	29,068	3.2	27.8
Florida Gulf Coast University	2008	29,691	4.0	14.4
Middlebury College	2007	29,882	12.0	12.0
Frostburg State University	2007	30,088	6.5	21.0
University of Maryland Eastern Shore	2009	30,352	8.5	16.9
Wilson Community College	2008	30,404	2.3	145.2
Framingham State College	2010	30,690	5.1	30.6
University of Missouri - Kansas City	2009	30,820	3.2	12.5
State University of New York College at Oswego	2008	30,869	4.3	9.0
University of Wisconsin-River Falls	2007	30,927	4.9	15.3
Victor Valley College	2008	32,030	3.5	93.7
University of Wisconsin-Green Bay	2008	32,146	6.4	18.8
State University of New York College at Potsdam	2010	32,316	7.3	14.4
San Joaquin Delta College	2008	32,337	1.9	55.5
Trinity University	2007	32,405	13.2	14.1
Wesleyan University	2009	32,411	11.1	11.2
Finger Lakes Community College	2008	32,481	18.1	64.3
Loyola Marymount University	2008	32,624	4.5	11.7
Mesa Community College	2008	32,648	2.7	46.6
Berry College	2008	34,062	20.3	26.3
University of Wisconsin-Stevens Point	2007	34,361	4.1	13.0
Santa Fe Community College (NM)	2007	34,630	2.9	64.3
California State University-Chico	2006	35,803	2.4	14.3
Furman University	2008	35,978	13.4	17.6
Xavier University	2008	36,069	7.2	20.4
Bellevue College	2008	36,153	3.3	47.4
University of Richmond	2008	36,247	10.2	14.8
Ithaca College	2009	36,338	5.3	14.5
Valdosta State University	2008	36,420	3.5	17.4
The City College of New York	2008	37,192	3.6	12.4
Hillsborough Community College	2010	37,287	2.0	23.3
Lorain County Community College	2009	37,300	5.5	37.2
Purchase College, State University of New York	2007	38,011	10.5	15.6
University of Wisconsin-Stout	2009	38,027	4.3	15.4
University of Missouri - Saint Louis	2009	38,188	4.3	17.6
Brandeis University	2008	38,370	7.6	15.1
Jamestown Community College	2008	38,379	9.9	53.3

Institution	Year	Net emissions, MT CO ₂ E	MT CO ₂ E/ FTE	MT CO ₂ E/ 1000 ft ²
DePauw University	2009	38,639	16.8	21.2
Central New Mexico Community College	2008	38,882	3.2	31.0
University of Massachusetts Dartmouth	2008	39,113	5.0	16.8
University of Idaho	2007	39,594	3.6	10.7
The College of New Jersey	2008	39,927	6.6	12.2
University of Central Oklahoma	2007	40,364	3.8	17.4
Oberlin College	2007	40,442	14.7	15.3
Bucknell University	2008	40,554	11.4	15.3
University of Wisconsin-Eau Claire	2008	41,110	3.8	16.7
Bridgewater State College	2008	41,160	5.3	24.5
Drexel University	2008	41,369	3.3	12.5
Austin Community College District	2009	41,710	4.6	30.8
William Paterson University of New Jersey	2008	41,902	5.5	22.2
University of Wisconsin-Oshkosh	2008	42,078	4.1	14.7
Central Connecticut State University	2009	42,313	4.3	12.8
The University of Montana - Missoula	2007	42,687	3.8	11.1
Norfolk State University	2009	42,886	6.1	23.1
University of Oregon	2008	43,762	2.5	6.9
Portland State University	2007	44,190	3.0	9.2
University of Alaska Anchorage	2008	44,228	5.0	26.5
Nassau Community College	2008	46,018	2.5	28.9
Weber State University	2007	47,220	2.6	19.1
Saint John's University	2008	47,376	22.8	25.3
Eastern Washington University	2009	47,611	5.2	18.4
Portland Community College	2008	48,449	2.1	24.0
Community College of Denver	2008	48,481	10.2	23.0
Metropolitan State College of Denver	2008	48,481	3.3	23.0
Boise State University	2008	49,884	3.5	16.1
University of Central Missouri	2008	50,842	3.3	17.7
University of Wisconsin-Whitewater	2009	51,338	5.0	20.2
American University	2009	52,433	5.0	15.7
Rice University	2009	53,084	10.6	14.0
Howard Community College	2009	53,183	0.3	80.3
Morgan State University	2009	53,267	8.9	16.2
Johnson County Community College	2009	53,862	3.9	32.2
University of Tennessee at Chattanooga	2009	54,563	6.5	21.5
San Francisco State University	2008	55,409	1.9	15.2
University of Minnesota-Duluth	2007	56,465	5.0	18.3
Rowan University	2007	58,984	5.8	23.6
Florida Atlantic University	2008	60,918	2.9	14.8
State University of New York at Binghamton	2008	61,062	4.2	11.4

Institution	Year	Net emissions, MT CO ₂ E	MT CO ₂ E/ FTE	MT CO ₂ E/ 1000 ft ²
Lane Community College	2008	61,521	5.6	55.1
Columbus State Community College	2007	62,462	2.7	57.1
Northeastern University	2009	63,822	2.9	10.9
University of Denver	2007	64,190	6.7	13.7
California State Polytechnic University-Pomona	2006	64,203	3.9	17.7
The Community College of Baltimore County	2008	64,309	4.1	45.3
Missouri University of Science & Technology	2009	67,968	11.0	26.8
University of Vermont	2009	68,991	5.7	13.9
Northern Kentucky University	2008	69,272	4.6	22.2
University of Maine	2008	71,134	6.1	16.4
University of Saint Thomas	2009	71,275	5.7	21.8
University of New Hampshire	2007	74,053	5.4	12.4
State University of New York Upstate Medical University	2010	74,199	50.2	38.9
Appalachian State University	2009	74,325	4.7	14.6
Georgia Southern University	2009	75,675	4.0	17.1
University of Memphis	2009	75,821	4.8	12.9
Montana State University - Bozeman	2009	77,377	7.1	18.8
Northern Arizona University	2008	78,858	4.6	15.4
University of California, Santa Cruz	2007	79,838	5.4	14.4
Lansing Community College	2008	82,300	6.9	59.6
University of Maryland Baltimore County	2009	82,346	7.6	25.7
University of Toledo - Main Campus	2010	82,360	3.3	12.1
University of California, Santa Barbara	2009	83,980	3.8	13.1
Grand Valley State University	2009	85,355	3.9	17.9
Rochester Institute of Technology	2009	85,637	7.1	17.2
Towson University	2007	85,769	5.6	19.8
James Madison University	2008	85,835	5.0	17.0
University of Nevada, Las Vegas	2008	85,878	3.9	15.5
University of Nevada, Reno	2007	85,927	5.2	18.7
State University of New York at Albany	2008	86,775	5.6	18.3
Texas Christian University	2009	88,882	10.7	25.4
Gateway Community College	2007	88,884	24.2	295.2
Villanova University	2009	91,235	14.0	27.9
University of Louisville	2008	92,789	5.4	13.3
University of Mississippi	2008	93,827	7.9	21.1
Kennesaw State University	2008	96,097	4.7	78.1
University of California, Riverside	2007	96,548	5.5	-
University of Massachusetts Medical School	2008	97,942	141.9	52.2
Indiana State University	2008	98,066	9.3	22.6
Yeshiva University	2009	98,526	17.1	27.3
Oregon State University	2009	98,853	5.4	14.1

Institution	Year	Net emissions, MT CO ₂ E	MT CO ₂ E/ FTE	MT CO ₂ E/ 1000 ft ²
University of Rhode Island	2009	99,293	7.5	22.2
George Mason University	2007	103,066	4.5	22.0
Syracuse University	2007	112,895	6.4	14.6
Mississippi State University	2009	114,189	6.4	15.3
University of Southern Mississippi	2008	114,677	9.1	25.4
University of Hawai'i at Manoa	2008	116,351	5.7	19.0
Illinois State University	2009	123,768	6.1	19.0
University of North Texas	2009	123,927	5.2	20.2
George Washington University	2009	124,429	6.2	15.7
University of Massachusetts Amherst	2008	128,848	5.0	12.5
Utah State University	2009	128,955	6.8	18.5
Virginia Commonwealth University	2009	131,253	4.6	19.2
University of Wyoming	2008	133,909	10.9	18.6
New York University	2009	136,486	3.3	11.5
University of Central Florida	2008	137,729	2.8	15.5
University of North Dakota	2009	138,633	11.0	26.0
Clemson University	2007	139,080	7.9	20.8
Washington State University Pullman	2009	139,482	8.6	11.1
Tulane University	2008	144,591	14.3	20.5
State University of New York at Buffalo	2007	145,152	5.2	14.2
New Mexico State University Main Campus	2008	152,133	6.1	24.5
University of Delaware	2009	152,542	8.7	29.1
University of Maryland Baltimore	2008	160,783	24.1	27.5
University of California, Irvine	2008	162,082	6.3	29.0
Carnegie Mellon University	2007	163,680	18.2	34.6
University of Colorado at Boulder	2007	164,140	5.5	16.9
University of Colorado Denver	2007	164,408	10.7	29.2
University of South Carolina Columbia	2007	166,872	7.6	15.4
University of Arkansas Main Campus	2009	169,610	11.9	22.4
Medical University of South Carolina	2007	174,184	54.8	30.3
University of New Mexico Main Campus	2006	174,387	8.5	26.3
University of California, San Francisco	2007	180,738	61.2	25.2
University of Washington Seattle	2007	181,615	4.7	8.4
Ball State University	2008	192,873	11.6	28.6
University of Connecticut	2007	201,770	10.8	18.9
University of Pittsburgh – mandatory sources only	2008	204,200	8.3	21.7
University of California, Berkeley	2008	209,989	6.1	13.1
Ohio University	2009	211,266	10.2	27.0
Auburn University	2008	212,259	8.7	28.0
Colorado State University	2009	223,466	8.9	21.5
Temple University	2009	227,993	7.6	24.9

Institution	Year	Net emissions, MT CO ₂ E	MT CO ₂ E/ FTE	MT CO ₂ E/ 1000 ft ²
Florida International University	2008	239,661	6.3	55.1
Yale University	2008	242,500	21.3	20.0
University of Miami	2007	243,065	16.4	23.1
University of Tennessee, Knoxville	2009	243,728	9.4	16.5
University of Pennsylvania	2008	250,555	12.6	21.0
University of Arizona	2009	250,586	7.0	27.5
University of Oklahoma Norman Campus	2008	253,789	9.7	25.7
University of South Florida	2009	257,566	6.5	42.2
Case Western Reserve University	2009	263,217	28.8	34.0
North Carolina State University	2008	269,486	8.2	18.0
University of Illinois at Chicago	2008	270,682	11.0	18.4
University of Pittsburgh – all accountable sources	2008	273,400	11.0	29.1
University of California, San Diego	2007	273,763	9.9	17.3
Arizona State University	2008	293,248	4.6	23.7
Cornell University	2008	308,000	15.6	20.7
Rutgers University	2008	309,060	9.4	16.7
State University of New York at Stony Brook	2008	322,577	14.7	31.5
University of Utah	2007	327,050	13.3	28.5
Georgia Institute of Technology	2009	329,853	16.3	22.8
University of California, Los Angeles	2007	338,718	9.5	12.1
University of Maryland College Park	2007	351,144	10.8	27.7
University of Cincinnati	2008	371,295	14.1	30.9
University of California, Davis	2007	384,306	13.2	25.2
Duke University	2007	425,960	32.8	30.7
University of Florida	2006	432,123	9.2	24.8
Pennsylvania State University	2008	455,069	10.5	22.5
University of Missouri - Columbia	2009	485,931	16.1	29.5
Vanderbilt University	2007	487,000	42.5	35.0
University of Illinois at Urbana-Champaign	2008	522,757	12.4	26.0
University of North Carolina at Chapel Hill	2008	569,169	21.6	30.8
University of Minnesota-Twin Cities	2008	642,735	12.6	29.8
The Ohio State University Main Campus	2009	661,037	12.3	29.3
University of Michigan	2008	687,000	16.8	22.1
Houston Community College	2008	1,176,705	19.2	374.9

Table 8. List of higher educational institutions that have reported their GHG emissions, ranked according to emissions per full time student equivalent [19-27]

Institution	Year	Net emissions, MT CO ₂ E	MT CO ₂ E/ FTE	MT CO ₂ E/ 1000 ft ²
Berea College	2008	-2,374	-1.5	-1.7
College of the Atlantic	2009	0	0.0	0.0
American Public University System	2008	2,242	0.1	20.8
Chaffey College	2008	8,031	0.2	19.6
Howard Community College	2009	53,183	0.3	80.3
Pasadena City College	2010	8,291	0.4	7.9
The New School	2009	3,774	0.4	3.7
Durham Technical Community College	2008	2,452	0.5	5.0
East Los Angeles College	2007	12,085	0.5	17.6
Los Angeles Trade-Technical College	2007	6,817	0.5	8.6
Los Angeles Valley College	2007	6,553	0.5	10.2
Naropa University	2009	509	0.5	3.3
State University of New York Empire State College	2009	4,693	0.5	14.7
University of Maine at Augusta	2008	2,917	0.5	8.3
West Los Angeles College	2007	4,302	0.5	9.0
Golden West College	2008	7,195	0.6	12.6
Los Angeles Southwest College	2007	4,195	0.6	9.7
Manchester Community College (CT)	2007	4,463	0.6	10.9
University of Minnesota-Rochester	2009	225	0.6	4.0
Los Angeles City College	2007	10,958	0.7	12.5
Los Angeles Harbor College	2007	4,706	0.7	12.2
Los Angeles Mission College	2007	5,519	0.7	18.8
Los Angeles Pierce College	2007	10,571	0.7	16.3
Orange Coast College	2008	13,138	0.7	16.1
Rio Salado College	2010	8,678	0.7	32.9
Shoreline Community College	2008	14,280	0.7	29.4
Cabrillo College	2008	9,332	0.8	19.9
Everett Community College	2009	9,569	0.8	12.8
McLennan Community College	2009	9,932	0.8	16.6
Mount Wachusett Community College	2010	3,995	0.8	4.4
Coastline Community College	2008	5,683	0.9	25.2
Chabot College	2009	11,048	1.0	17.3
Gainesville State College	2009	13,771	1.1	32.2
Penn State Berks	2008	2,829	1.1	7.6
Antioch University Los Angeles	2008	815	1.2	18.9
Truckee Meadows Community College	2009	8,337	1.2	13.2
De Anza College	2008	26,761	1.3	18.6

Institution	Year	Net emissions, MT CO ₂ E	MT CO ₂ E/ FTE	MT CO ₂ E/ 1000 ft ²
University of Maryland University College	2008	23,017	1.3	30.1
College of Saint Rose	2008	7,264	1.4	8.8
Las Positas College	2009	9,076	1.4	32.4
Madison Area Technical College	2008	25,473	1.4	19.9
California State University-Bakersfield	2009	10,127	1.5	10.1
Boston Architectural College	2009	2,352	1.6	23.2
Confederation College	2009	6,366	1.6	9.0
New Mexico State University at Alamogordo	2007	4,525	1.6	23.9
Southern Oregon University	2008	6,036	1.6	3.8
Unity College	2008	841	1.6	5.6
University of Massachusetts Lowell	2007	27,094	1.6	10.2
University of Washington Tacoma	2007	3,747	1.6	6.2
Carteret Community College	2009	2,615	1.7	12.7
Foothill College	2008	24,780	1.7	38.4
North Shore Community College	2008	13,322	1.7	28.1
Peninsula College	2009	2,949	1.7	12.1
Seattle Pacific University	2009	6,219	1.7	5.6
University of South Carolina Salkehatchie	2009	918	1.7	8.1
College of Marin	2008	11,860	1.8	29.9
SUNY Orange	2009	9,500	1.8	17.8
University of South Carolina Beaufort	2008	4,264	1.8	11.8
Western Washington University	2007	23,023	1.8	7.4
Bergen Community College	2008	23,493	1.9	32.5
Chandler-Gilbert Community College	2008	10,446	1.9	23.7
San Francisco State University	2008	55,409	1.9	15.2
San Joaquin Delta College	2008	32,337	1.9	55.5
University of Houston - Downtown	2008	13,524	1.9	9.7
Hillsborough Community College	2010	37,287	2.0	23.3
Massachusetts Bay Community College	2008	10,229	2.0	27.3
Minneapolis Community and Technical College	2008	25,166	2.0	16.6
Des Moines Area Community College	2008	24,615	2.1	22.3
Metropolitan State University	2008	10,695	2.1	38.2
Portland Community College	2008	48,449	2.1	24.0
University of Southern Maine	2009	22,428	2.1	9.0
Eastern Iowa Community College District	2008	17,590	2.2	32.8
Pacific Lutheran University	2008	7,856	2.2	6.0
Salem State College	2009	22,511	2.2	17.2
Washington State University, Vancouver	2008	3,180	2.2	8.3
Antioch University Seattle	2008	1,368	2.3	26.2
Cascadia Community College	2009	4,550	2.3	14.8
Marymount Manhattan College	2010	4,093	2.3	12.0

Institution	Year	Net emissions, MT CO ₂ E	MT CO ₂ E/ FTE	MT CO ₂ E/ 1000 ft ²
Ocean County College	2009	18,297	2.3	41.3
Wilson Community College	2008	30,404	2.3	145.2
California State University-Chico	2006	35,803	2.4	14.3
Goddard College	2006	1,637	2.4	10.9
Holyoke Community College	2008	10,733	2.4	11.6
New Mexico State University Dona Ana Branch	2009	26,572	2.4	61.3
Onondaga Community College	2007	15,446	2.4	15.5
Oregon Institute of Technology	2008	5,732	2.4	9.3
School for International Training	2008	538	2.4	4.3
Emerson College	2008	9,143	2.5	9.5
Kent State University Stark Campus	2009	12,038	2.5	35.6
Labette Community College	2009	2,095	2.5	17.9
Nassau Community College	2008	46,018	2.5	28.9
University of Oregon	2008	43,762	2.5	6.9
Point Loma Nazarene University	2008	6,074	2.6	7.5
The National Graduate School of Quality Management	2009	605	2.6	27.3
University of South Carolina Sumter	2009	2,251	2.6	9.6
University of South Carolina Upstate	2009	11,805	2.6	12.7
Weber State University	2007	47,220	2.6	19.1
Wheelock College	2008	2,274	2.6	6.5
Antioch University New England	2008	2,651	2.7	31.2
Berkshire Community College	2008	4,234	2.7	16.9
Central Washington University	2007	20,133	2.7	6.7
Centralia College	2008	18,428	2.7	63.3
Cincinnati State Technical and Community College	2008	22,324	2.7	17.0
Columbus State Community College	2007	62,462	2.7	57.1
Mesa Community College	2008	32,648	2.7	46.6
Middlesex Community College	2008	13,137	2.7	25.2
Northern Essex Community College	2008	10,441	2.7	22.3
Olympic College	2008	12,463	2.7	27.3
Quinsigamond Community College	2007	10,026	2.7	15.8
Richland College	2008	23,973	2.7	37.9
South Suburban College	2009	13,783	2.7	24.6
Southern Connecticut State University	2008	24,516	2.7	9.7
Worcester State College	2008	12,210	2.7	10.8
Lee College	2008	16,512	2.8	28.0
St. Catherine University	2010	12,744	2.8	10.3
St. Clair County Community College	2008	11,271	2.8	25.5
The Evergreen State College	2008	10,858	2.8	6.7
University of Baltimore	2008	16,220	2.8	21.6
University of Central Florida	2008	137,729	2.8	15.5

Institution	Year	Net emissions, MT CO ₂ E	MT CO ₂ E/ FTE	MT CO ₂ E/ 1000 ft ²
Winona State University	2007	22,097	2.8	12.2
Florida Atlantic University	2008	60,918	2.9	14.8
New England Institute of Technology	2008	8,554	2.9	46.3
Northeastern University	2009	63,822	2.9	10.9
Santa Fe Community College (NM)	2007	34,630	2.9	64.3
Portland State University	2007	44,190	3.0	9.2
Prescott College	2008	2,978	3.0	29.5
University of Washington Bothell	2007	5,215	3.0	17.6
County College of Morris	2007	20,121	3.1	39.8
Minnesota State Community and Technical College	2009	13,168	3.1	14.6
University of Houston - Victoria	2008	2,358	3.1	14.9
University of Massachusetts Boston	2008	27,173	3.1	11.0
University of Redlands	2008	12,753	3.1	11.4
Central New Mexico Community College	2008	38,882	3.2	31.0
Century College	2009	21,253	3.2	29.8
Harford Community College	2008	11,851	3.2	24.6
Iowa Lakes Community College	2008	7,396	3.2	0.7
Massasoit Community College	2007	13,687	3.2	24.9
Santa Clara University	2009	24,597	3.2	12.1
Santa Monica College	2009	29,068	3.2	27.8
Southern Polytechnic State University	2008	13,399	3.2	11.6
St. Louis Community College at Florissant Valley	2009	22,856	3.2	64.5
The University of South Dakota	2008	18,482	3.2	-
University of Missouri - Kansas City	2009	30,820	3.2	12.5
University of South Carolina Aiken	2008	10,479	3.2	13.6
Bellevue College	2008	36,153	3.3	47.4
Broome Community College	2007	20,649	3.3	34.9
Drexel University	2008	41,369	3.3	12.5
Edmonds Community College	2007	25,037	3.3	35.7
Lake Superior College	2008	11,366	3.3	31.4
Metropolitan State College of Denver	2008	48,481	3.3	23.0
New York University	2009	136,486	3.3	11.5
University of Central Missouri	2008	50,842	3.3	17.7
University of Toledo - Main Campus	2010	82,360	3.3	12.1
Warren Wilson College	2007	2,758	3.3	4.1
Wentworth Institute of Technology	2008	12,048	3.3	10.3
Manhattanville College	2009	7,877	3.4	9.7
Parkland College	2010	22,471	3.4	25.3
University of Colorado at Colorado Springs	2007	28,774	3.4	22.9
Washington State University, Spokane	2008	9,942	3.4	17.1
Boise State University	2008	49,884	3.5	16.1

Institution	Year	Net emissions, MT CO ₂ E	MT CO ₂ E/ FTE	MT CO ₂ E/ 1000 ft ²
Delta College	2008	24,973	3.5	25.8
Lesley University	2007	18,320	3.5	25.0
North Lake College	2008	17,867	3.5	33.5
Valdosta State University	2008	36,420	3.5	17.4
Victor Valley College	2008	32,030	3.5	93.7
Washtenaw Community College	2008	27,804	3.5	28.1
Western Connecticut State University	2008	18,357	3.5	8.0
Anna Maria College	2009	3,756	3.6	15.5
Black Hills State University	2008	10,698	3.6	14.6
Bristol Community College	2006	14,372	3.6	39.5
Plymouth State University	2007	16,693	3.6	11.8
Pratt Institute	2008	16,148	3.6	10.9
The City College of New York	2008	37,192	3.6	12.4
University of Idaho	2007	39,594	3.6	10.7
University of La Verne	2010	12,989	3.6	27.1
University of New England	2009	14,255	3.6	13.8
Haywood Community College	2008	7,081	3.7	22.1
Salisbury University	2008	26,414	3.7	18.3
State University of New York at New Paltz	2009	23,554	3.7	10.8
SUNY Rockland Community College	2008	8,958	3.7	12.8
Georgian Court University	2008	8,849	3.8	16.0
The University of Montana - Missoula	2007	42,687	3.8	11.1
University of California, Santa Barbara	2009	83,980	3.8	13.1
University of Central Oklahoma	2007	40,364	3.8	17.4
University of Wisconsin-Eau Claire	2008	41,110	3.8	16.7
California State Polytechnic University-Pomona	2006	64,203	3.9	17.7
Connecticut College	2008	6,612	3.9	4.6
Grand Valley State University	2009	85,355	3.9	17.9
Johnson County Community College	2009	53,862	3.9	32.2
Lasell College	2009	5,680	3.9	12.6
New Mexico State University Grants Branch	2009	2,461	3.9	20.5
The University of Montana - Western	2008	4,265	3.9	11.7
University of Nevada, Las Vegas	2008	85,878	3.9	15.5
Bainbridge Graduate Institute	2009	794	4.0	66.2
Florida Gulf Coast University	2008	29,691	4.0	14.4
Franklin Pierce University	2007	6,826	4.0	10.4
Georgia Southern University	2009	75,675	4.0	17.1
Loras College	2010	5,987	4.0	6.0
Mercyhurst College	2007	13,047	4.0	9.6
Minot State University	2010	11,209	4.0	10.9
Montgomery County Community College	2008	22,138	4.0	31.4

Institution	Year	Net emissions, MT CO ₂ E	MT CO ₂ E/ FTE	MT CO ₂ E/ 1000 ft ²
Tompkins Cortland Community College	2010	5,933	4.0	15.7
College of Menominee Nation	2007	2,060	4.1	19.2
Monterey Institute of International Studies	2008	3,261	4.1	25.0
School of the Art Institute of Chicago	2009	12,288	4.1	11.1
The Community College of Baltimore County	2008	64,309	4.1	45.3
University of Wisconsin-Oshkosh	2008	42,078	4.1	14.7
University of Wisconsin-Stevens Point	2007	34,361	4.1	13.0
Governors State University	2009	17,850	4.2	32.1
Greenfield Community College	2007	7,543	4.2	28.1
State University of New York at Binghamton	2008	61,062	4.2	11.4
University of South Carolina Union	2008	1,128	4.2	21.0
Central Connecticut State University	2009	42,313	4.3	12.8
Fort Lewis College	2007	15,329	4.3	14.1
Jackson Community College	2009	20,259	4.3	32.4
Keystone College	2007	6,621	4.3	20.9
Pitzer College	2009	4,438	4.3	12.1
Roger Williams University	2008	20,791	4.3	15.3
Scottsdale Community College	2008	26,981	4.3	51.4
Seattle University	2009	23,787	4.3	10.7
State University of New York College at Oswego	2008	30,869	4.3	9.0
University of Missouri - Saint Louis	2009	38,188	4.3	17.6
University of Wisconsin-Stout	2009	38,027	4.3	15.4
Bunker Hill Community College	2007	6,531	4.4	14.9
Butte College	2006	12,812	4.4	31.0
Coppin State University	2008	16,268	4.4	16.9
Fitchburg State College	2007	20,985	4.4	15.7
Keene State College	2007	21,359	4.4	13.4
Lewis & Clark College	2006	17,123	4.4	13.7
Vermilion Community College	2007	2,855	4.4	14.4
Westminster College-Utah	2008	11,443	4.4	15.4
Castleton State College	2008	8,657	4.5	14.3
Cedar Valley College	2007	13,459	4.5	38.6
Drury University	2009	15,359	4.5	13.9
George Mason University	2007	103,066	4.5	22.0
Linfield College	2007	7,774	4.5	7.9
Loyola Marymount University	2008	32,624	4.5	11.7
Mills College	2008	6,368	4.5	6.5
Springfield College	2008	17,223	4.5	13.4
Wilson College	2008	3,418	4.5	6.2
Arizona State University	2008	293,248	4.6	23.7
Austin Community College District	2009	41,710	4.6	30.8

Institution	Year	Net emissions, MT CO ₂ E	MT CO ₂ E/ FTE	MT CO ₂ E/ 1000 ft ²
Bemidji State University	2009	19,786	4.6	12.0
Bentley University	2009	22,963	4.6	13.5
North Arkansas College	2009	10,629	4.6	45.2
Northern Arizona University	2008	78,858	4.6	15.4
Northern Kentucky University	2008	69,272	4.6	22.2
Simmons College	2008	16,227	4.6	17.3
Virginia Commonwealth University	2009	131,253	4.6	19.2
Appalachian State University	2009	74,325	4.7	14.6
Drake University	2008	19,665	4.7	10.6
Goucher College	2009	8,822	4.7	9.9
Inver Hills Community College	2009	17,308	4.7	59.7
Kennesaw State University	2008	96,097	4.7	78.1
University of Washington Seattle	2007	181,615	4.7	8.4
Massachusetts College of Liberal Arts	2007	8,779	4.8	13.1
The Richard Stockton College of New Jersey	2008	27,792	4.8	33.1
University of Memphis	2009	75,821	4.8	12.9
Ursinus College	2008	7,460	4.8	6.4
Eastern Connecticut State University	2008	25,288	4.9	12.7
Hampshire College	2007	6,621	4.9	8.3
Hocking Technical College	2009	19,988	4.9	35.1
Saint Xavier University	2007	21,175	4.9	26.9
State University of New York College of Environmental Science and Forestry	2007	10,948	4.9	10.4
University of Wisconsin-River Falls	2007	30,927	4.9	15.3
American University	2009	52,433	5.0	15.7
James Madison University	2008	85,835	5.0	17.0
University of Alaska Anchorage	2008	44,228	5.0	26.5
University of Massachusetts Amherst	2008	128,848	5.0	12.5
University of Massachusetts Dartmouth	2008	39,113	5.0	16.8
University of Minnesota-Duluth	2007	56,465	5.0	18.3
University of Wisconsin-Whitewater	2009	51,338	5.0	20.2
Western State College of Colorado	2008	10,873	5.0	12.4
Framingham State College	2010	30,690	5.1	30.6
State University of New York at Fredonia	2009	24,818	5.1	12.2
Eastern Washington University	2009	47,611	5.2	18.4
State University of New York at Buffalo	2007	145,152	5.2	14.2
University of Nevada, Reno	2007	85,927	5.2	18.7
University of North Texas	2009	123,927	5.2	20.2
Bridgewater State College	2008	41,160	5.3	24.5
Dickinson College	2008	12,456	5.3	6.4
Ithaca College	2009	36,338	5.3	14.5

Institution	Year	Net emissions, MT CO ₂ E	MT CO ₂ E/ FTE	MT CO ₂ E/ 1000 ft ²
Rider University	2007	25,233	5.3	18.5
Wilkes University	2008	19,235	5.3	14.2
Bowie State University	2007	24,907	5.4	20.9
Lake Michigan College	2009	12,723	5.4	22.7
Oregon State University	2009	98,853	5.4	14.1
State University of New York College at Geneseo	2008	28,506	5.4	12.4
University of California, Santa Cruz	2007	79,838	5.4	14.4
University of Louisville	2008	92,789	5.4	13.3
University of New Hampshire	2007	74,053	5.4	12.4
Wesley College	2007	8,308	5.4	13.5
Aquinas College	2009	9,760	5.5	15.0
California State University-Monterey Bay	2007	22,348	5.5	16.2
Lorain County Community College	2009	37,300	5.5	37.2
University of California, Riverside	2007	96,548	5.5	-
University of Colorado at Boulder	2007	164,140	5.5	16.9
University of Portland	2007	17,772	5.5	14.9
William Paterson University of New Jersey	2008	41,902	5.5	22.2
Babson College	2008	19,383	5.6	11.4
Lane Community College	2008	61,521	5.6	55.1
Lewis and Clark Community College	2009	24,155	5.6	50.9
Ramapo College of New Jersey	2008	27,609	5.6	16.6
State University of New York at Albany	2008	86,775	5.6	18.3
Towson University	2007	85,769	5.6	19.8
University of Hawai'i at Manoa	2008	116,351	5.7	19.0
University of Saint Thomas	2009	71,275	5.7	21.8
University of Vermont	2009	68,991	5.7	13.9
Washington State University, Tri-Cities	2008	3,817	5.7	14.7
Bates College	2007	9,621	5.8	6.3
Colgate University	2009	16,262	5.8	7.0
Huston-Tillotson University	2008	3,927	5.8	16.1
Rowan University	2007	58,984	5.8	23.6
University of Maine at Farmington	2007	11,588	5.9	15.0
Cape Cod Community College	2008	14,575	6.0	42.0
Chatham University	2007	7,246	6.0	10.0
Clark University	2007	19,221	6.0	11.6
Kankakee Community College	2008	12,560	6.0	36.5
University of Maine at Fort Kent	2008	5,457	6.0	21.5
Fairfield University	2008	27,040	6.1	15.0
Illinois State University	2009	123,768	6.1	19.0
New Mexico State University Main Campus	2008	152,133	6.1	24.5
Norfolk State University	2009	42,886	6.1	23.1

Institution	Year	Net emissions, MT CO ₂ E	MT CO ₂ E/ FTE	MT CO ₂ E/ 1000 ft ²
University of California, Berkeley	2008	209,989	6.1	13.1
University of Maine	2008	71,134	6.1	16.4
Augsburg College	2008	21,669	6.2	20.7
George Washington University	2009	124,429	6.2	15.7
Massachusetts College of Art & Design	2008	10,226	6.2	12.8
Florida International University	2008	239,661	6.3	55.1
Lakeshore Technical College	2009	14,029	6.3	36.5
University of California, Irvine	2008	162,082	6.3	29.0
Green Mountain College	2009	4,826	6.4	11.7
Mississippi State University	2009	114,189	6.4	15.3
Rosemont College	2007	4,261	6.4	10.7
Syracuse University	2007	112,895	6.4	14.6
University of Wisconsin-Green Bay	2008	32,146	6.4	18.8
Western Technical College	2008	24,177	6.4	34.8
Frostburg State University	2007	30,088	6.5	21.0
Stetson University	2010	20,264	6.5	13.1
University of South Florida	2009	257,566	6.5	42.2
University of Tennessee at Chattanooga	2009	54,563	6.5	21.5
The College of New Jersey	2008	39,927	6.6	12.2
Central College	2008	10,351	6.7	11.2
Guilford College	2007	14,524	6.7	18.3
University of Denver	2007	64,190	6.7	13.7
Saint Norbert College	2008	13,849	6.8	11.1
Utah State University	2009	128,955	6.8	18.5
Lansing Community College	2008	82,300	6.9	59.6
Willamette University	2008	17,934	6.9	12.8
University of Arizona	2009	250,586	7.0	27.5
Juniata College	2008	10,372	7.1	11.8
Luther College	2009	17,109	7.1	11.6
Montana State University - Bozeman	2009	77,377	7.1	18.8
Rochester Institute of Technology	2009	85,637	7.1	17.2
University of Minnesota-Morris	2007	11,910	7.1	12.9
Northland College	2009	4,017	7.2	9.3
Xavier University	2008	36,069	7.2	20.4
El Centro College	2009	17,927	7.3	26.5
Gettysburg College	2007	19,088	7.3	12.2
State University of New York College at Potsdam	2010	32,316	7.3	14.4
Life University	2008	13,930	7.4	33.1
Mount Mercy College	2008	8,988	7.5	21.7
Southwestern College - Kansas	2008	6,024	7.5	14.8
University of Maine at Machias	2008	4,328	7.5	16.4

Institution	Year	Net emissions, MT CO ₂ E	MT CO ₂ E/ FTE	MT CO ₂ E/ 1000 ft ²
University of Rhode Island	2009	99,293	7.5	22.2
Brandeis University	2008	38,370	7.6	15.1
New Mexico State University at Carlsbad	2008	5,815	7.6	40.9
Saint Peter's College	2009	23,520	7.6	18.4
Temple University	2009	227,993	7.6	24.9
University of Maryland Baltimore County	2009	82,346	7.6	25.7
University of South Carolina Columbia	2007	166,872	7.6	15.4
St. Mary's College of Maryland	2008	14,213	7.7	17.3
Bard College	2009	14,715	7.8	13.1
Colby-Sawyer College	2009	7,804	7.8	13.4
Hobart and William Smith Colleges	2007	15,589	7.8	10.8
Manchester Community College (NH)	2009	12,398	7.8	67.0
Clemson University	2007	139,080	7.9	20.8
Eckerd College	2008	22,698	7.9	28.0
University of Mississippi	2008	93,827	7.9	21.1
Whitworth University	2007	16,560	7.9	22.6
LaGrange College	2008	7,987	8.0	14.5
Mount Union College	2008	16,883	8.0	15.8
Allegheny College	2007	17,709	8.2	14.8
North Carolina State University	2008	269,486	8.2	18.0
College of the Holy Cross	2007	23,211	8.3	11.4
University of Pittsburgh – mandatory sources only	2008	204,200	8.3	21.7
Pine Manor College	2008	3,861	8.4	4.5
McDaniel College	2008	20,678	8.5	19.7
St. Lawrence University	2008	18,715	8.5	8.7
University of Maryland Eastern Shore	2009	30,352	8.5	16.9
University of New Mexico Main Campus	2006	174,387	8.5	26.3
Franklin College of Indiana	2008	8,691	8.6	17.5
Messiah College	2008	24,133	8.6	18.0
Washington State University Pullman	2009	139,482	8.6	11.1
Auburn University	2008	212,259	8.7	28.0
Emory & Henry College	2009	8,489	8.7	14.4
University of Delaware	2009	152,542	8.7	29.1
Colorado State University	2009	223,466	8.9	21.5
Harvey Mudd College	2008	6,535	8.9	10.6
Morgan State University	2009	53,267	8.9	16.2
University of Southern Mississippi	2008	114,677	9.1	25.4
Smith College	2009	27,216	9.2	9.4
Trinity College	2009	20,495	9.2	10.8
University of Florida	2006	432,123	9.2	24.8
Indiana State University	2008	98,066	9.3	22.6

Institution	Year	Net emissions, MT CO ₂ E	MT CO ₂ E/ FTE	MT CO ₂ E/ 1000 ft ²
Wells College	2009	5,436	9.3	8.5
Rutgers University	2008	309,060	9.4	16.7
University of Tennessee, Knoxville	2009	243,728	9.4	16.5
Washington & Jefferson College	2008	14,046	9.4	14.0
Bryn Mawr College	2009	15,658	9.5	11.7
Colby College	2008	17,629	9.5	12.2
University of California, Los Angeles	2007	338,718	9.5	12.1
Kalamazoo College	2008	12,510	9.7	15.5
University of Oklahoma Norman Campus	2008	253,789	9.7	25.7
Haverford College	2008	11,412	9.8	7.7
Jamestown Community College	2008	38,379	9.9	53.3
University of California, Merced	2007	15,873	9.9	16.4
University of California, San Diego	2007	273,763	9.9	17.3
Bowdoin College	2008	17,166	10.0	8.8
Drew University	2009	19,782	10.0	15.4
Union College	2008	21,349	10.0	11.1
Gustavus Adolphus College	2008	25,239	10.1	16.4
Community College of Denver	2008	48,481	10.2	23.0
Ohio University	2009	211,266	10.2	27.0
University of Richmond	2008	36,247	10.2	14.8
Franklin & Marshall College	2007	20,710	10.3	14.7
Hiram College	2009	10,067	10.3	12.7
Coe College	2008	12,044	10.4	14.0
Sewanee: The University of the South	2008	16,161	10.4	12.3
College of Saint Benedict	2008	21,823	10.5	17.8
Pennsylvania State University	2008	455,069	10.5	22.5
Purchase College, State University of New York	2007	38,011	10.5	15.6
Wesleyan College	2008	7,224	10.5	13.4
Rice University	2009	53,084	10.6	14.0
Wofford College	2008	13,899	10.6	15.9
Goshen College	2009	9,508	10.7	12.0
Texas Christian University	2009	88,882	10.7	25.4
University of Colorado Denver	2007	164,408	10.7	29.2
Carleton College	2007	21,533	10.8	11.9
University of Connecticut	2007	201,770	10.8	18.9
University of Maryland College Park	2007	351,144	10.8	27.7
Austin College	2009	13,965	10.9	18.0
University of Minnesota-Crookston	2009	12,494	10.9	16.1
University of Wyoming	2008	133,909	10.9	18.6
Missouri University of Science & Technology	2009	67,968	11.0	26.8
University of Illinois at Chicago	2008	270,682	11.0	18.4

Institution	Year	Net emissions, MT CO ₂ E	MT CO ₂ E/ FTE	MT CO ₂ E/ 1000 ft ²
University of North Dakota	2009	138,633	11.0	26.0
University of Pittsburgh – all accountable sources	2008	273,400	11.0	29.1
New College of Florida	2008	8,489	11.1	14.4
Wesleyan University	2009	32,411	11.1	11.2
Hamilton College	2009	20,617	11.2	11.0
Simpson College	2009	22,680	11.2	28.0
Rhodes College	2008	18,812	11.3	17.7
Bucknell University	2008	40,554	11.4	15.3
Rose-Hulman Institute of Technology	2007	22,213	11.5	20.7
Ball State University	2008	192,873	11.6	28.6
University of Arkansas Main Campus	2009	169,610	11.9	22.4
Middlebury College	2007	29,882	12.0	12.0
Washington and Lee University	2007	26,452	12.1	12.8
Albion College	2008	23,795	12.3	16.0
The Ohio State University Main Campus	2009	661,037	12.3	29.3
University of Illinois at Urbana-Champaign	2008	522,757	12.4	26.0
Mount St. Mary's University	2007	20,079	12.6	20.3
University of Minnesota-Twin Cities	2008	642,735	12.6	29.8
University of Pennsylvania	2008	250,555	12.6	21.0
Washington College	2007	16,153	12.9	21.2
Trinity University	2007	32,405	13.2	14.1
University of California, Davis	2007	384,306	13.2	25.2
University of Utah	2007	327,050	13.3	28.5
Furman University	2008	35,978	13.4	17.6
Illinois College	2008	12,240	13.6	17.7
Davidson College	2008	23,387	14.0	14.9
Villanova University	2009	91,235	14.0	27.9
Colorado College	2009	28,441	14.1	15.3
Macalester College	2008	26,672	14.1	21.1
University of Cincinnati	2008	371,295	14.1	30.9
Tulane University	2008	144,591	14.3	20.5
Centre College	2008	17,079	14.4	18.1
South Dakota School of Mines and Technology	2008	25,105	14.5	37.2
Oberlin College	2007	40,442	14.7	15.3
State University of New York at Stony Brook	2008	322,577	14.7	31.5
Agnes Scott College	2009	11,864	15.0	14.0
Park University	2008	19,145	15.2	37.1
Hollins University	2007	16,231	15.3	19.1
Concordia University, Nebraska	2010	20,707	15.4	24.6
Cornell University	2008	308,000	15.6	20.7
Randolph College	2008	10,276	15.6	14.7

Institution	Year	Net emissions, MT CO ₂ E	MT CO ₂ E/ FTE	MT CO ₂ E/ 1000 ft ²
University of Missouri - Columbia	2009	485,931	16.1	29.5
Georgia Institute of Technology	2009	329,853	16.3	22.8
University of Miami	2007	243,065	16.4	23.1
Sweet Briar College	2008	11,041	16.5	18.5
DePauw University	2009	38,639	16.8	21.2
University of Michigan	2008	687,000	16.8	22.1
Yeshiva University	2009	98,526	17.1	27.3
Adams State College	2008	15,988	17.8	17.9
Finger Lakes Community College	2008	32,481	18.1	64.3
Carnegie Mellon University	2007	163,680	18.2	34.6
Claremont McKenna College	2008	19,839	18.2	29.2
Pomona College	2009	28,083	18.3	18.1
Houston Community College	2008	1,176,705	19.2	374.9
Catawba College	2008	24,673	19.4	10.4
Virginia Wesleyan College	2008	21,172	20.0	38.1
Berry College	2008	34,062	20.3	26.3
Yale University	2008	242,500	21.3	20.0
University of North Carolina at Chapel Hill	2008	569,169	21.6	30.8
Maharishi University of Management	2008	9,551	22.1	9.7
Saint John's University	2008	47,376	22.8	25.3
University of Maryland Baltimore	2008	160,783	24.1	27.5
Gateway Community College	2007	88,884	24.2	295.2
Case Western Reserve University	2009	263,217	28.8	34.0
Duke University	2007	425,960	32.8	30.7
Vanderbilt University	2007	487,000	42.5	35.0
State University of New York Upstate Medical University	2010	74,199	50.2	38.9
Medical University of South Carolina	2007	174,184	54.8	30.3
University of California, San Francisco	2007	180,738	61.2	25.2
University of Massachusetts Medical School	2008	97,942	141.9	52.2
University of Maryland Center for Environmental Science	2008	12,480	198.1	33.2

Table 9. List of higher educational institutions that have reported their GHG emissions, ranked according to emissions per gross building space [19-27]

Institution	Year	Net emissions, MT CO ₂ E	MT CO ₂ E/ FTE	MT CO ₂ E/ 1000 ft ²
Berea College	2008	-2,374	-1.5	-1.7
College of the Atlantic	2009	0	0.0	0.0
Iowa Lakes Community College	2008	7,396	3.2	0.7
Naropa University	2009	509	0.5	3.3
The New School	2009	3,774	0.4	3.7
Southern Oregon University	2008	6,036	1.6	3.8
University of Minnesota-Rochester	2009	225	0.6	4.0
Warren Wilson College	2007	2,758	3.3	4.1
School for International Training	2008	538	2.4	4.3
Mount Wachusett Community College	2010	3,995	0.8	4.4
Pine Manor College	2008	3,861	8.4	4.5
Connecticut College	2008	6,612	3.9	4.6
Durham Technical Community College	2008	2,452	0.5	5.0
Seattle Pacific University	2009	6,219	1.7	5.6
Unity College	2008	841	1.6	5.6
Loras College	2010	5,987	4.0	6.0
Pacific Lutheran University	2008	7,856	2.2	6.0
University of Washington Tacoma	2007	3,747	1.6	6.2
Wilson College	2008	3,418	4.5	6.2
Bates College	2007	9,621	5.8	6.3
Dickinson College	2008	12,456	5.3	6.4
Ursinus College	2008	7,460	4.8	6.4
Mills College	2008	6,368	4.5	6.5
Wheelock College	2008	2,274	2.6	6.5
Central Washington University	2007	20,133	2.7	6.7
The Evergreen State College	2008	10,858	2.8	6.7
University of Oregon	2008	43,762	2.5	6.9
Colgate University	2009	16,262	5.8	7.0
Western Washington University	2007	23,023	1.8	7.4
Point Loma Nazarene University	2008	6,074	2.6	7.5
Penn State Berks	2008	2,829	1.1	7.6
Haverford College	2008	11,412	9.8	7.7
Linfield College	2007	7,774	4.5	7.9
Pasadena City College	2010	8,291	0.4	7.9
Western Connecticut State University	2008	18,357	3.5	8.0
University of South Carolina Salkehatchie	2009	918	1.7	8.1
Hampshire College	2007	6,621	4.9	8.3

Institution	Year	Net emissions, MT CO ₂ E	MT CO ₂ E/ FTE	MT CO ₂ E/ 1000 ft ²
University of Maine at Augusta	2008	2,917	0.5	8.3
Washington State University, Vancouver	2008	3,180	2.2	8.3
University of Washington Seattle	2007	181,615	4.7	8.4
Wells College	2009	5,436	9.3	8.5
Los Angeles Trade-Technical College	2007	6,817	0.5	8.6
St. Lawrence University	2008	18,715	8.5	8.7
Bowdoin College	2008	17,166	10.0	8.8
College of Saint Rose	2008	7,264	1.4	8.8
Confederation College	2009	6,366	1.6	9.0
State University of New York College at Oswego	2008	30,869	4.3	9.0
University of Southern Maine	2009	22,428	2.1	9.0
West Los Angeles College	2007	4,302	0.5	9.0
Portland State University	2007	44,190	3.0	9.2
Northland College	2009	4,017	7.2	9.3
Oregon Institute of Technology	2008	5,732	2.4	9.3
Smith College	2009	27,216	9.2	9.4
Emerson College	2008	9,143	2.5	9.5
Mercyhurst College	2007	13,047	4.0	9.6
University of South Carolina Sumter	2009	2,251	2.6	9.6
Los Angeles Southwest College	2007	4,195	0.6	9.7
Maharishi University of Management	2008	9,551	22.1	9.7
Manhattanville College	2009	7,877	3.4	9.7
Southern Connecticut State University	2008	24,516	2.7	9.7
University of Houston - Downtown	2008	13,524	1.9	9.7
Goucher College	2009	8,822	4.7	9.9
Chatham University	2007	7,246	6.0	10.0
California State University-Bakersfield	2009	10,127	1.5	10.1
Los Angeles Valley College	2007	6,553	0.5	10.2
University of Massachusetts Lowell	2007	27,094	1.6	10.2
St. Catherine University	2010	12,744	2.8	10.3
Wentworth Institute of Technology	2008	12,048	3.3	10.3
Catawba College	2008	24,673	19.4	10.4
Franklin Pierce University	2007	6,826	4.0	10.4
State University of New York College of Environmental Science and Forestry	2007	10,948	4.9	10.4
Drake University	2008	19,665	4.7	10.6
Harvey Mudd College	2008	6,535	8.9	10.6
Rosemont College	2007	4,261	6.4	10.7
Seattle University	2009	23,787	4.3	10.7
University of Idaho	2007	39,594	3.6	10.7
Hobart and William Smith Colleges	2007	15,589	7.8	10.8

Institution	Year	Net emissions, MT CO ₂ E	MT CO ₂ E/ FTE	MT CO ₂ E/ 1000 ft ²
State University of New York at New Paltz	2009	23,554	3.7	10.8
Trinity College	2009	20,495	9.2	10.8
Worcester State College	2008	12,210	2.7	10.8
Goddard College	2006	1,637	2.4	10.9
Manchester Community College (CT)	2007	4,463	0.6	10.9
Minot State University	2010	11,209	4.0	10.9
Northeastern University	2009	63,822	2.9	10.9
Pratt Institute	2008	16,148	3.6	10.9
Hamilton College	2009	20,617	11.2	11.0
University of Massachusetts Boston	2008	27,173	3.1	11.0
Saint Norbert College	2008	13,849	6.8	11.1
School of the Art Institute of Chicago	2009	12,288	4.1	11.1
The University of Montana - Missoula	2007	42,687	3.8	11.1
Union College	2008	21,349	10.0	11.1
Washington State University Pullman	2009	139,482	8.6	11.1
Central College	2008	10,351	6.7	11.2
Wesleyan University	2009	32,411	11.1	11.2
Babson College	2008	19,383	5.6	11.4
College of the Holy Cross	2007	23,211	8.3	11.4
State University of New York at Binghamton	2008	61,062	4.2	11.4
University of Redlands	2008	12,753	3.1	11.4
New York University	2009	136,486	3.3	11.5
Clark University	2007	19,221	6.0	11.6
Holyoke Community College	2008	10,733	2.4	11.6
Luther College	2009	17,109	7.1	11.6
Southern Polytechnic State University	2008	13,399	3.2	11.6
Bryn Mawr College	2009	15,658	9.5	11.7
Green Mountain College	2009	4,826	6.4	11.7
Loyola Marymount University	2008	32,624	4.5	11.7
The University of Montana - Western	2008	4,265	3.9	11.7
Juniata College	2008	10,372	7.1	11.8
Plymouth State University	2007	16,693	3.6	11.8
University of South Carolina Beaufort	2008	4,264	1.8	11.8
Carleton College	2007	21,533	10.8	11.9
Bemidji State University	2009	19,786	4.6	12.0
Goshen College	2009	9,508	10.7	12.0
Marymount Manhattan College	2010	4,093	2.3	12.0
Middlebury College	2007	29,882	12.0	12.0
Peninsula College	2009	2,949	1.7	12.1
Pitzer College	2009	4,438	4.3	12.1
Santa Clara University	2009	24,597	3.2	12.1

Institution	Year	Net emissions, MT CO ₂ E	MT CO ₂ E/ FTE	MT CO ₂ E/ 1000 ft ²
University of California, Los Angeles	2007	338,718	9.5	12.1
University of Toledo - Main Campus	2010	82,360	3.3	12.1
Colby College	2008	17,629	9.5	12.2
Gettysburg College	2007	19,088	7.3	12.2
Los Angeles Harbor College	2007	4,706	0.7	12.2
State University of New York at Fredonia	2009	24,818	5.1	12.2
The College of New Jersey	2008	39,927	6.6	12.2
Winona State University	2007	22,097	2.8	12.2
Sewanee: The University of the South	2008	16,161	10.4	12.3
State University of New York College at Geneseo	2008	28,506	5.4	12.4
The City College of New York	2008	37,192	3.6	12.4
University of New Hampshire	2007	74,053	5.4	12.4
Western State College of Colorado	2008	10,873	5.0	12.4
Drexel University	2008	41,369	3.3	12.5
Los Angeles City College	2007	10,958	0.7	12.5
University of Massachusetts Amherst	2008	128,848	5.0	12.5
University of Missouri - Kansas City	2009	30,820	3.2	12.5
Golden West College	2008	7,195	0.6	12.6
Lasell College	2009	5,680	3.9	12.6
Carteret Community College	2009	2,615	1.7	12.7
Eastern Connecticut State University	2008	25,288	4.9	12.7
Hiram College	2009	10,067	10.3	12.7
University of South Carolina Upstate	2009	11,805	2.6	12.7
Central Connecticut State University	2009	42,313	4.3	12.8
Everett Community College	2009	9,569	0.8	12.8
Massachusetts College of Art & Design	2008	10,226	6.2	12.8
SUNY Rockland Community College	2008	8,958	3.7	12.8
Washington and Lee University	2007	26,452	12.1	12.8
Willamette University	2008	17,934	6.9	12.8
University of Memphis	2009	75,821	4.8	12.9
University of Minnesota-Morris	2007	11,910	7.1	12.9
University of Wisconsin-Stevens Point	2007	34,361	4.1	13.0
Bard College	2009	14,715	7.8	13.1
Massachusetts College of Liberal Arts	2007	8,779	4.8	13.1
Stetson University	2010	20,264	6.5	13.1
University of California, Berkeley	2008	209,989	6.1	13.1
University of California, Santa Barbara	2009	83,980	3.8	13.1
Truckee Meadows Community College	2009	8,337	1.2	13.2
University of Louisville	2008	92,789	5.4	13.3
Colby-Sawyer College	2009	7,804	7.8	13.4
Keene State College	2007	21,359	4.4	13.4

Institution	Year	Net emissions, MT CO ₂ E	MT CO ₂ E/ FTE	MT CO ₂ E/ 1000 ft ²
Springfield College	2008	17,223	4.5	13.4
Wesleyan College	2008	7,224	10.5	13.4
Bentley University	2009	22,963	4.6	13.5
Wesley College	2007	8,308	5.4	13.5
University of South Carolina Aiken	2008	10,479	3.2	13.6
Lewis & Clark College	2006	17,123	4.4	13.7
University of Denver	2007	64,190	6.7	13.7
University of New England	2009	14,255	3.6	13.8
Drury University	2009	15,359	4.5	13.9
University of Vermont	2009	68,991	5.7	13.9
Agnes Scott College	2009	11,864	15.0	14.0
Coe College	2008	12,044	10.4	14.0
Rice University	2009	53,084	10.6	14.0
Washington & Jefferson College	2008	14,046	9.4	14.0
Fort Lewis College	2007	15,329	4.3	14.1
Oregon State University	2009	98,853	5.4	14.1
Trinity University	2007	32,405	13.2	14.1
State University of New York at Buffalo	2007	145,152	5.2	14.2
Wilkes University	2008	19,235	5.3	14.2
California State University-Chico	2006	35,803	2.4	14.3
Castleton State College	2008	8,657	4.5	14.3
Emory & Henry College	2009	8,489	8.7	14.4
Florida Gulf Coast University	2008	29,691	4.0	14.4
New College of Florida	2008	8,489	11.1	14.4
State University of New York College at Potsdam	2010	32,316	7.3	14.4
University of California, Santa Cruz	2007	79,838	5.4	14.4
Vermilion Community College	2007	2,855	4.4	14.4
Ithaca College	2009	36,338	5.3	14.5
LaGrange College	2008	7,987	8.0	14.5
Appalachian State University	2009	74,325	4.7	14.6
Black Hills State University	2008	10,698	3.6	14.6
Minnesota State Community and Technical College	2009	13,168	3.1	14.6
Syracuse University	2007	112,895	6.4	14.6
Franklin & Marshall College	2007	20,710	10.3	14.7
Randolph College	2008	10,276	15.6	14.7
State University of New York Empire State College	2009	4,693	0.5	14.7
University of Wisconsin-Oshkosh	2008	42,078	4.1	14.7
Washington State University, Tri-Cities	2008	3,817	5.7	14.7
Allegheny College	2007	17,709	8.2	14.8
Cascadia Community College	2009	4,550	2.3	14.8
Florida Atlantic University	2008	60,918	2.9	14.8

Institution	Year	Net emissions, MT CO ₂ E	MT CO ₂ E/ FTE	MT CO ₂ E/ 1000 ft ²
Southwestern College - Kansas	2008	6,024	7.5	14.8
University of Richmond	2008	36,247	10.2	14.8
Bunker Hill Community College	2007	6,531	4.4	14.9
Davidson College	2008	23,387	14.0	14.9
University of Houston - Victoria	2008	2,358	3.1	14.9
University of Portland	2007	17,772	5.5	14.9
Aquinas College	2009	9,760	5.5	15.0
Fairfield University	2008	27,040	6.1	15.0
University of Maine at Farmington	2007	11,588	5.9	15.0
Brandeis University	2008	38,370	7.6	15.1
San Francisco State University	2008	55,409	1.9	15.2
Bucknell University	2008	40,554	11.4	15.3
Colorado College	2009	28,441	14.1	15.3
Mississippi State University	2009	114,189	6.4	15.3
Oberlin College	2007	40,442	14.7	15.3
Roger Williams University	2008	20,791	4.3	15.3
University of Wisconsin-River Falls	2007	30,927	4.9	15.3
Drew University	2009	19,782	10.0	15.4
Northern Arizona University	2008	78,858	4.6	15.4
University of South Carolina Columbia	2007	166,872	7.6	15.4
University of Wisconsin-Stout	2009	38,027	4.3	15.4
Westminster College-Utah	2008	11,443	4.4	15.4
Anna Maria College	2009	3,756	3.6	15.5
Kalamazoo College	2008	12,510	9.7	15.5
Onondaga Community College	2007	15,446	2.4	15.5
University of Central Florida	2008	137,729	2.8	15.5
University of Nevada, Las Vegas	2008	85,878	3.9	15.5
Purchase College, State University of New York	2007	38,011	10.5	15.6
American University	2009	52,433	5.0	15.7
Fitchburg State College	2007	20,985	4.4	15.7
George Washington University	2009	124,429	6.2	15.7
Tompkins Cortland Community College	2010	5,933	4.0	15.7
Mount Union College	2008	16,883	8.0	15.8
Quinsigamond Community College	2007	10,026	2.7	15.8
Wofford College	2008	13,899	10.6	15.9
Albion College	2008	23,795	12.3	16.0
Georgian Court University	2008	8,849	3.8	16.0
Boise State University	2008	49,884	3.5	16.1
Huston-Tillotson University	2008	3,927	5.8	16.1
Orange Coast College	2008	13,138	0.7	16.1
University of Minnesota-Crookston	2009	12,494	10.9	16.1

Institution	Year	Net emissions, MT CO ₂ E	MT CO ₂ E/ FTE	MT CO ₂ E/ 1000 ft ²
California State University-Monterey Bay	2007	22,348	5.5	16.2
Morgan State University	2009	53,267	8.9	16.2
Los Angeles Pierce College	2007	10,571	0.7	16.3
Gustavus Adolphus College	2008	25,239	10.1	16.4
University of California, Merced	2007	15,873	9.9	16.4
University of Maine	2008	71,134	6.1	16.4
University of Maine at Machias	2008	4,328	7.5	16.4
University of Tennessee, Knoxville	2009	243,728	9.4	16.5
McLennan Community College	2009	9,932	0.8	16.6
Minneapolis Community and Technical College	2008	25,166	2.0	16.6
Ramapo College of New Jersey	2008	27,609	5.6	16.6
Rutgers University	2008	309,060	9.4	16.7
University of Wisconsin-Eau Claire	2008	41,110	3.8	16.7
University of Massachusetts Dartmouth	2008	39,113	5.0	16.8
Berkshire Community College	2008	4,234	2.7	16.9
Coppin State University	2008	16,268	4.4	16.9
University of Colorado at Boulder	2007	164,140	5.5	16.9
University of Maryland Eastern Shore	2009	30,352	8.5	16.9
Cincinnati State Technical and Community College	2008	22,324	2.7	17.0
James Madison University	2008	85,835	5.0	17.0
Georgia Southern University	2009	75,675	4.0	17.1
Washington State University, Spokane	2008	9,942	3.4	17.1
Rochester Institute of Technology	2009	85,637	7.1	17.2
Salem State College	2009	22,511	2.2	17.2
Chabot College	2009	11,048	1.0	17.3
Simmons College	2008	16,227	4.6	17.3
St. Mary's College of Maryland	2008	14,213	7.7	17.3
University of California, San Diego	2007	273,763	9.9	17.3
University of Central Oklahoma	2007	40,364	3.8	17.4
Valdosta State University	2008	36,420	3.5	17.4
Franklin College of Indiana	2008	8,691	8.6	17.5
East Los Angeles College	2007	12,085	0.5	17.6
Furman University	2008	35,978	13.4	17.6
University of Missouri - Saint Louis	2009	38,188	4.3	17.6
University of Washington Bothell	2007	5,215	3.0	17.6
California State Polytechnic University-Pomona	2006	64,203	3.9	17.7
Illinois College	2008	12,240	13.6	17.7
Rhodes College	2008	18,812	11.3	17.7
University of Central Missouri	2008	50,842	3.3	17.7
College of Saint Benedict	2008	21,823	10.5	17.8
SUNY Orange	2009	9,500	1.8	17.8

Institution	Year	Net emissions, MT CO ₂ E	MT CO ₂ E/ FTE	MT CO ₂ E/ 1000 ft ²
Adams State College	2008	15,988	17.8	17.9
Grand Valley State University	2009	85,355	3.9	17.9
Labette Community College	2009	2,095	2.5	17.9
Austin College	2009	13,965	10.9	18.0
Messiah College	2008	24,133	8.6	18.0
North Carolina State University	2008	269,486	8.2	18.0
Centre College	2008	17,079	14.4	18.1
Pomona College	2009	28,083	18.3	18.1
Guilford College	2007	14,524	6.7	18.3
Salisbury University	2008	26,414	3.7	18.3
State University of New York at Albany	2008	86,775	5.6	18.3
University of Minnesota-Duluth	2007	56,465	5.0	18.3
Eastern Washington University	2009	47,611	5.2	18.4
Saint Peter's College	2009	23,520	7.6	18.4
University of Illinois at Chicago	2008	270,682	11.0	18.4
Rider University	2007	25,233	5.3	18.5
Sweet Briar College	2008	11,041	16.5	18.5
Utah State University	2009	128,955	6.8	18.5
De Anza College	2008	26,761	1.3	18.6
University of Wyoming	2008	133,909	10.9	18.6
University of Nevada, Reno	2007	85,927	5.2	18.7
Los Angeles Mission College	2007	5,519	0.7	18.8
Montana State University - Bozeman	2009	77,377	7.1	18.8
University of Wisconsin-Green Bay	2008	32,146	6.4	18.8
Antioch University Los Angeles	2008	815	1.2	18.9
University of Connecticut	2007	201,770	10.8	18.9
Illinois State University	2009	123,768	6.1	19.0
University of Hawai'i at Manoa	2008	116,351	5.7	19.0
Hollins University	2007	16,231	15.3	19.1
Weber State University	2007	47,220	2.6	19.1
College of Menominee Nation	2007	2,060	4.1	19.2
Virginia Commonwealth University	2009	131,253	4.6	19.2
Chaffey College	2008	8,031	0.2	19.6
McDaniel College	2008	20,678	8.5	19.7
Towson University	2007	85,769	5.6	19.8
Cabrillo College	2008	9,332	0.8	19.9
Madison Area Technical College	2008	25,473	1.4	19.9
Yale University	2008	242,500	21.3	20.0
University of North Texas	2009	123,927	5.2	20.2
University of Wisconsin-Whitewater	2009	51,338	5.0	20.2
Mount St. Mary's University	2007	20,079	12.6	20.3

Institution	Year	Net emissions, MT CO ₂ E	MT CO ₂ E/ FTE	MT CO ₂ E/ 1000 ft ²
Xavier University	2008	36,069	7.2	20.4
New Mexico State University Grants Branch	2009	2,461	3.9	20.5
Tulane University	2008	144,591	14.3	20.5
Augsburg College	2008	21,669	6.2	20.7
Cornell University	2008	308,000	15.6	20.7
Rose-Hulman Institute of Technology	2007	22,213	11.5	20.7
American Public University System	2008	2,242	0.1	20.8
Clemson University	2007	139,080	7.9	20.8
Bowie State University	2007	24,907	5.4	20.9
Keystone College	2007	6,621	4.3	20.9
Frostburg State University	2007	30,088	6.5	21.0
University of Pennsylvania	2008	250,555	12.6	21.0
University of South Carolina Union	2008	1,128	4.2	21.0
Macalester College	2008	26,672	14.1	21.1
University of Mississippi	2008	93,827	7.9	21.1
DePauw University	2009	38,639	16.8	21.2
Washington College	2007	16,153	12.9	21.2
Colorado State University	2009	223,466	8.9	21.5
University of Maine at Fort Kent	2008	5,457	6.0	21.5
University of Tennessee at Chattanooga	2009	54,563	6.5	21.5
University of Baltimore	2008	16,220	2.8	21.6
Mount Mercy College	2008	8,988	7.5	21.7
University of Pittsburgh – mandatory sources only	2008	204,200	8.3	21.7
University of Saint Thomas	2009	71,275	5.7	21.8
George Mason University	2007	103,066	4.5	22.0
Haywood Community College	2008	7,081	3.7	22.1
University of Michigan	2008	687,000	16.8	22.1
Northern Kentucky University	2008	69,272	4.6	22.2
University of Rhode Island	2009	99,293	7.5	22.2
William Paterson University of New Jersey	2008	41,902	5.5	22.2
Des Moines Area Community College	2008	24,615	2.1	22.3
Northern Essex Community College	2008	10,441	2.7	22.3
University of Arkansas Main Campus	2009	169,610	11.9	22.4
Pennsylvania State University	2008	455,069	10.5	22.5
Indiana State University	2008	98,066	9.3	22.6
Whitworth University	2007	16,560	7.9	22.6
Lake Michigan College	2009	12,723	5.4	22.7
Georgia Institute of Technology	2009	329,853	16.3	22.8
University of Colorado at Colorado Springs	2007	28,774	3.4	22.9
Community College of Denver	2008	48,481	10.2	23.0
Metropolitan State College of Denver	2008	48,481	3.3	23.0

Institution	Year	Net emissions, MT CO ₂ E	MT CO ₂ E/ FTE	MT CO ₂ E/ 1000 ft ²
Norfolk State University	2009	42,886	6.1	23.1
University of Miami	2007	243,065	16.4	23.1
Boston Architectural College	2009	2,352	1.6	23.2
Hillsborough Community College	2010	37,287	2.0	23.3
Rowan University	2007	58,984	5.8	23.6
Arizona State University	2008	293,248	4.6	23.7
Chandler-Gilbert Community College	2008	10,446	1.9	23.7
New Mexico State University at Alamogordo	2007	4,525	1.6	23.9
Portland Community College	2008	48,449	2.1	24.0
Bridgewater State College	2008	41,160	5.3	24.5
New Mexico State University Main Campus	2008	152,133	6.1	24.5
Concordia University, Nebraska	2010	20,707	15.4	24.6
Harford Community College	2008	11,851	3.2	24.6
South Suburban College	2009	13,783	2.7	24.6
University of Florida	2006	432,123	9.2	24.8
Massasoit Community College	2007	13,687	3.2	24.9
Temple University	2009	227,993	7.6	24.9
Lesley University	2007	18,320	3.5	25.0
Monterey Institute of International Studies	2008	3,261	4.1	25.0
Coastline Community College	2008	5,683	0.9	25.2
Middlesex Community College	2008	13,137	2.7	25.2
University of California, Davis	2007	384,306	13.2	25.2
University of California, San Francisco	2007	180,738	61.2	25.2
Parkland College	2010	22,471	3.4	25.3
Saint John's University	2008	47,376	22.8	25.3
Texas Christian University	2009	88,882	10.7	25.4
University of Southern Mississippi	2008	114,677	9.1	25.4
St. Clair County Community College	2008	11,271	2.8	25.5
University of Maryland Baltimore County	2009	82,346	7.6	25.7
University of Oklahoma Norman Campus	2008	253,789	9.7	25.7
Delta College	2008	24,973	3.5	25.8
University of Illinois at Urbana-Champaign	2008	522,757	12.4	26.0
University of North Dakota	2009	138,633	11.0	26.0
Antioch University Seattle	2008	1,368	2.3	26.2
Berry College	2008	34,062	20.3	26.3
University of New Mexico Main Campus	2006	174,387	8.5	26.3
El Centro College	2009	17,927	7.3	26.5
University of Alaska Anchorage	2008	44,228	5.0	26.5
Missouri University of Science & Technology	2009	67,968	11.0	26.8
Saint Xavier University	2007	21,175	4.9	26.9
Ohio University	2009	211,266	10.2	27.0

Institution	Year	Net emissions, MT CO ₂ E	MT CO ₂ E/ FTE	MT CO ₂ E/ 1000 ft ²
University of La Verne	2010	12,989	3.6	27.1
Massachusetts Bay Community College	2008	10,229	2.0	27.3
Olympic College	2008	12,463	2.7	27.3
The National Graduate School of Quality Management	2009	605	2.6	27.3
Yeshiva University	2009	98,526	17.1	27.3
University of Arizona	2009	250,586	7.0	27.5
University of Maryland Baltimore	2008	160,783	24.1	27.5
University of Maryland College Park	2007	351,144	10.8	27.7
Santa Monica College	2009	29,068	3.2	27.8
Villanova University	2009	91,235	14.0	27.9
Auburn University	2008	212,259	8.7	28.0
Eckerd College	2008	22,698	7.9	28.0
Lee College	2008	16,512	2.8	28.0
Simpson College	2009	22,680	11.2	28.0
Greenfield Community College	2007	7,543	4.2	28.1
North Shore Community College	2008	13,322	1.7	28.1
Washtenaw Community College	2008	27,804	3.5	28.1
University of Utah	2007	327,050	13.3	28.5
Ball State University	2008	192,873	11.6	28.6
Nassau Community College	2008	46,018	2.5	28.9
University of California, Irvine	2008	162,082	6.3	29.0
University of Delaware	2009	152,542	8.7	29.1
University of Pittsburgh – all accountable sources	2008	273,400	11.0	29.1
Claremont McKenna College	2008	19,839	18.2	29.2
University of Colorado Denver	2007	164,408	10.7	29.2
The Ohio State University Main Campus	2009	661,037	12.3	29.3
Shoreline Community College	2008	14,280	0.7	29.4
Prescott College	2008	2,978	3.0	29.5
University of Missouri - Columbia	2009	485,931	16.1	29.5
Century College	2009	21,253	3.2	29.8
University of Minnesota-Twin Cities	2008	642,735	12.6	29.8
College of Marin	2008	11,860	1.8	29.9
University of Maryland University College	2008	23,017	1.3	30.1
Medical University of South Carolina	2007	174,184	54.8	30.3
Framingham State College	2010	30,690	5.1	30.6
Duke University	2007	425,960	32.8	30.7
Austin Community College District	2009	41,710	4.6	30.8
University of North Carolina at Chapel Hill	2008	569,169	21.6	30.8
University of Cincinnati	2008	371,295	14.1	30.9
Butte College	2006	12,812	4.4	31.0
Central New Mexico Community College	2008	38,882	3.2	31.0

Institution	Year	Net emissions, MT CO ₂ E	MT CO ₂ E/ FTE	MT CO ₂ E/ 1000 ft ²
Antioch University New England	2008	2,651	2.7	31.2
Lake Superior College	2008	11,366	3.3	31.4
Montgomery County Community College	2008	22,138	4.0	31.4
State University of New York at Stony Brook	2008	322,577	14.7	31.5
Governors State University	2009	17,850	4.2	32.1
Gainesville State College	2009	13,771	1.1	32.2
Johnson County Community College	2009	53,862	3.9	32.2
Jackson Community College	2009	20,259	4.3	32.4
Las Positas College	2009	9,076	1.4	32.4
Bergen Community College	2008	23,493	1.9	32.5
Eastern Iowa Community College District	2008	17,590	2.2	32.8
Rio Salado College	2010	8,678	0.7	32.9
Life University	2008	13,930	7.4	33.1
The Richard Stockton College of New Jersey	2008	27,792	4.8	33.1
University of Maryland Center for Environmental Science	2008	12,480	198.1	33.2
North Lake College	2008	17,867	3.5	33.5
Case Western Reserve University	2009	263,217	28.8	34.0
Carnegie Mellon University	2007	163,680	18.2	34.6
Western Technical College	2008	24,177	6.4	34.8
Broome Community College	2007	20,649	3.3	34.9
Vanderbilt University	2007	487,000	42.5	35.0
Hocking Technical College	2009	19,988	4.9	35.1
Kent State University Stark Campus	2009	12,038	2.5	35.6
Edmonds Community College	2007	25,037	3.3	35.7
Kankakee Community College	2008	12,560	6.0	36.5
Lakeshore Technical College	2009	14,029	6.3	36.5
Park University	2008	19,145	15.2	37.1
Lorain County Community College	2009	37,300	5.5	37.2
South Dakota School of Mines and Technology	2008	25,105	14.5	37.2
Richland College	2008	23,973	2.7	37.9
Virginia Wesleyan College	2008	21,172	20.0	38.1
Metropolitan State University	2008	10,695	2.1	38.2
Foothill College	2008	24,780	1.7	38.4
Cedar Valley College	2007	13,459	4.5	38.6
State University of New York Upstate Medical University	2010	74,199	50.2	38.9
Bristol Community College	2006	14,372	3.6	39.5
County College of Morris	2007	20,121	3.1	39.8
New Mexico State University at Carlsbad	2008	5,815	7.6	40.9
Ocean County College	2009	18,297	2.3	41.3
Cape Cod Community College	2008	14,575	6.0	42.0
University of South Florida	2009	257,566	6.5	42.2

Institution	Year	Net emissions, MT CO ₂ E	MT CO ₂ E/ FTE	MT CO ₂ E/ 1000 ft ²
North Arkansas College	2009	10,629	4.6	45.2
The Community College of Baltimore County	2008	64,309	4.1	45.3
New England Institute of Technology	2008	8,554	2.9	46.3
Mesa Community College	2008	32,648	2.7	46.6
Bellevue College	2008	36,153	3.3	47.4
Lewis and Clark Community College	2009	24,155	5.6	50.9
Scottsdale Community College	2008	26,981	4.3	51.4
University of Massachusetts Medical School	2008	97,942	141.9	52.2
Jamestown Community College	2008	38,379	9.9	53.3
Florida International University	2008	239,661	6.3	55.1
Lane Community College	2008	61,521	5.6	55.1
San Joaquin Delta College	2008	32,337	1.9	55.5
Columbus State Community College	2007	62,462	2.7	57.1
Lansing Community College	2008	82,300	6.9	59.6
Inver Hills Community College	2009	17,308	4.7	59.7
New Mexico State University Dona Ana Branch	2009	26,572	2.4	61.3
Centralia College	2008	18,428	2.7	63.3
Finger Lakes Community College	2008	32,481	18.1	64.3
Santa Fe Community College (NM)	2007	34,630	2.9	64.3
St. Louis Community College at Florissant Valley	2009	22,856	3.2	64.5
Bainbridge Graduate Institute	2009	794	4.0	66.2
Manchester Community College (NH)	2009	12,398	7.8	67.0
Kennesaw State University	2008	96,097	4.7	78.1
Howard Community College	2009	53,183	0.3	80.3
Victor Valley College	2008	32,030	3.5	93.7
Wilson Community College	2008	30,404	2.3	145.2
Gateway Community College	2007	88,884	24.2	295.2
Houston Community College	2008	1,176,705	19.2	374.9
The University of South Dakota	2008	18,482	3.2	-
University of California, Riverside	2007	96,548	5.5	-

References

1. *Sustainability and Green Initiatives, Facilities Management Division*. 2009, University of Pittsburgh: Pittsburgh.
2. *ACUPCC Greenhouse Gas Inventory Brief*. 2009, American College & University Presidents' Climate Commitment. p. 8.
3. Dautremont-Smith, J., Cortese, A.D., Dyer, G., Walton, J., *Implementation Guide, Information and Resources for Participating Institutions*. 2009, American College & University Presidents' Climate Commitment. p. 41.
4. Andrews, J., *Clean Air-Cool Planet Campus Carbon Calculator User's Guide*. 2008, Clean Air-Cool Planet: Portsmouth, NH.
5. *The Greenhouse Gas Protocol Initiative*. 2010; Available from: <http://www.ghgprotocol.org/>.
6. *Energy Units Conversion Table*. Available from: http://www.energystar.gov/ia/business/tools_resources/target_finder/help/Energy_Units_Conversion_Table.htm.
7. O'Connell, J.K., *Carbon Neutrality at Colby College*, in *Environmental Studies Program*. 2008, Colby College: Waterville, ME. p. 98.
8. Clark, N. *Find Biodiesel Stations*. 2010; Available from: <http://findbiodiesel.org/US/PA/Pittsburgh>.
9. *Class I Ozone-depleting Substances*. Ozone Layer Depletion 2010; Available from: <http://www.epa.gov/ozone/science/ods/classone.html>.
10. *Direct Global Warming Potential*. IPCC Fourth Assessment Report: Climate Change 2007 2007; Available from: http://www.ipcc.ch/publications_and_data/ar4/wg1/en/ch2s2-10-2.html.
11. *Global Warming Potentials of ODS Substitutes*. Ozone Layer Depletion 2010; Available from: <http://www.epa.gov/ozone/geninfo/gwps.html>.
12. *Class II Ozone-depleting Substances* Ozone Layer Depletion 2010; Available from: <http://www.epa.gov/ozone/science/ods/classtwo.html>.
13. Calm, J.M., Hourahan, G.C., *Refrigerant Data Update*. Heating/Piping/Air Conditioning Engineering, 2007. **79**(1): p. 50-64.
14. *Greenhouse Gas Inventory Report*. 2010, Montana State University.
15. *eGRID2007 Version 1.1 Year 2005 Summary Tables*, in *Clean Energy*. 2008, U.S. Environmental Protection Agency.
16. Dautremont-Smith, J. *Guidance on Scope 3 Emissions, pt 2: Air Travel*. 2008; Available from: <http://www.aashe.org/blog/guidance-scope-3-emissions-pt-2-air-travel>.
17. *Annual Passenger Yields: U.S. Airlines*. 2010; Available from: <http://www.airlines.org/economics/finance/PaPricesYield.htm>.
18. *Solid Waste Management And Greenhouse Gases, A Life-Cycle Assessment of Emissions and Sinks*. 2002, U.S. Environmental Protection Agency.
19. *ACUPCC Reporting System*. American College & University Presidents Climate Commitment 2010; Available from: <http://acupcc.aashe.org/>.
20. *Carnegie Mellon University*. The College Sustainability Report Card 2009; Available from: <http://www.greenreportcard.org/report-card-2010/schools/carnegie-mellon-university/surveys/campus-survey>.

21. Kornitas, M. *Rutgers University - New Brunswick*. The College Sustainability Report Card 2009; Available from: <http://www.greenreportcard.org/report-card-2010/schools/rutgers-universitynew-brunswick/surveys/campus-survey>.
22. Vandenberg, L. *Pennsylvania State University*. The College Sustainability Report Card 2009; Available from: <http://www.greenreportcard.org/report-card-2010/schools/pennsylvania-state-university/surveys/campus-survey>.
23. Mital, S. *University of Oregon - Eugene*. The College Sustainability Report Card 2009; Available from: <http://www.greenreportcard.org/report-card-2010/schools/university-of-oregon-eugene/surveys/campus-survey>.
24. *Drexel University*. The College Sustainability Report Card 2009; Available from: <http://www.greenreportcard.org/report-card-2010/schools/drexel-university/surveys/campus-survey>.
25. Berki, A. *University of Michigan—Ann Arbor*. The College Sustainability Report Card 2009; Available from: <http://www.greenreportcard.org/report-card-2010/schools/university-of-michigan-ann-arbor/surveys/campus-survey>.
26. George, A. *Vanderbilt University*. The College Sustainability Report Card 2009; Available from: <http://www.greenreportcard.org/report-card-2010/schools/vanderbilt-university/surveys/campus-survey>.
27. Newman, J. *Yale University*. The College Sustainability Report Card 2009; Available from: <http://www.greenreportcard.org/report-card-2010/schools/yale-university/surveys/campus-survey>.