



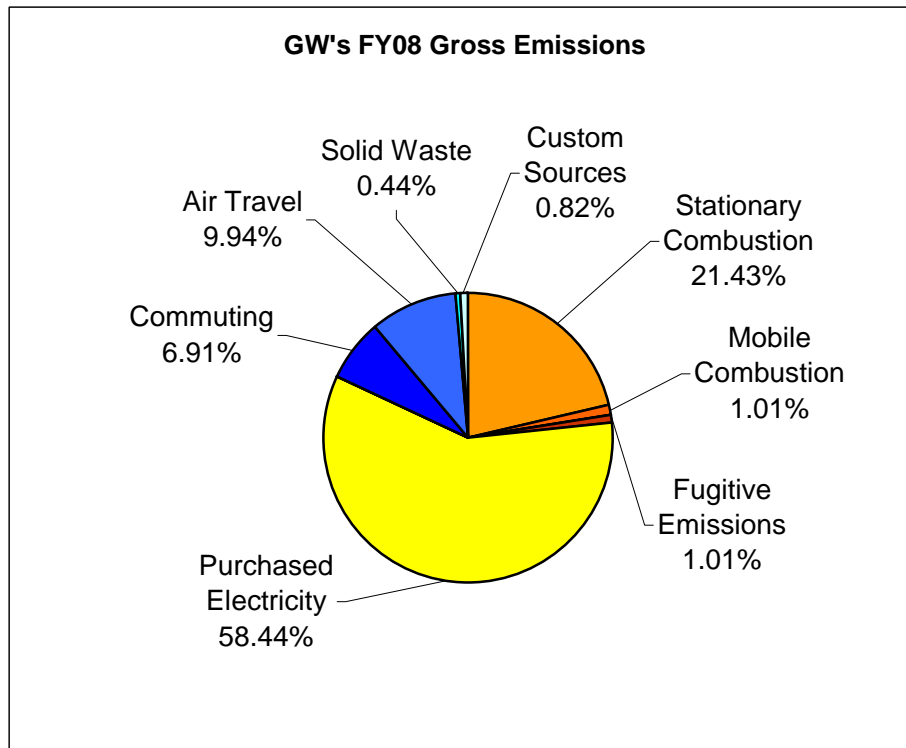
Supporting Documentation for The George Washington University's FY2008 GHG Emissions Inventory

Submitted: May 15, 2009

In April 2008, GW President Knapp and members of the GW community signed the American College and University Presidents Climate Commitment. Within one year of signing this document, GW has completed a comprehensive inventory of all Greenhouse Gas (GHG) emissions.

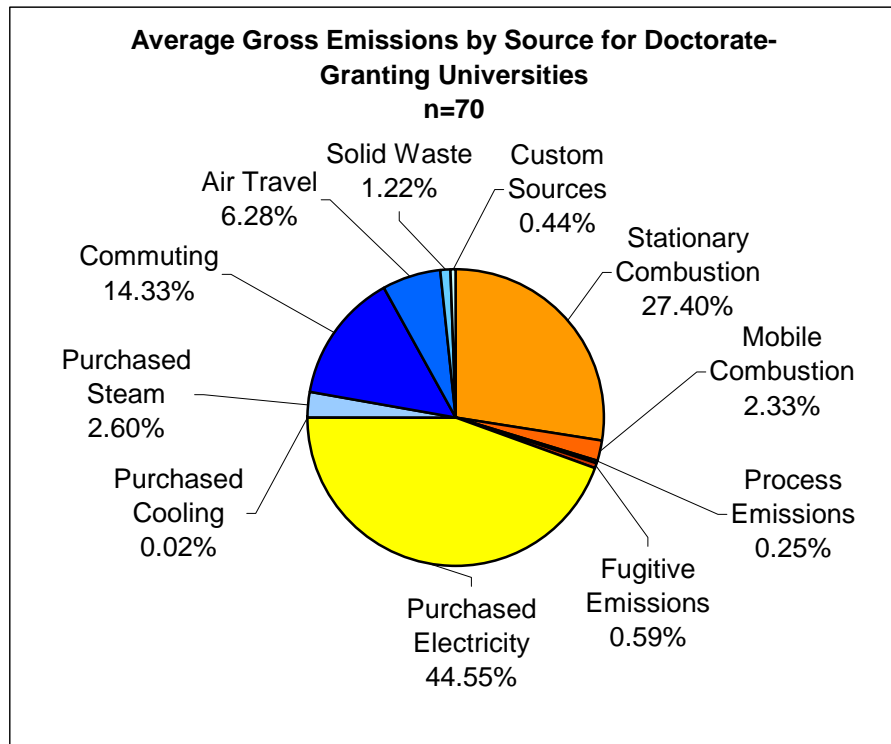
Results

The inventory shows that GW has four major sources of GHGs that constitute approximately 97% of GW's FY2008 GHG emissions: purchased electricity, stationary combustion, commuting, and air travel. In FY2008 GW emitted 128,301 metric tons of carbon dioxide equivalents (eCO₂). This is equal to the annual emissions from approximately 23,498 automobiles¹.



¹ According to the EPA GHG Equivalencies Calculator, GW's GHG gross emissions of 128,301 metric tons of carbon dioxide equivalents (eCO₂) is equal to eCO₂ emitted from the burning of gasoline for 23,498 cars and light trucks (passenger vehicles) using the average US fuel economy (19.7 mpg) and average miles driven per year (11,856).

The American College and University Presidents Climate Commitment Reporting System monitors the GHG emissions inventories submitted by signatories. As of May 2009, the average gross emissions from doctorate-granting universities was 167,385 metric tons of eCO₂. The graph below was created using inventories performed by 70 reporting schools and may change as more schools report on their emissions (see Appendix A). As shown in this graph, GW's gross emissions (in quantity and proportion) are on par with an average of other schools.



Numbers may not sum to 100% due to rounding.

Why Commit?

The commitment reflects the University's concern about and interest in addressing the unprecedented scale and speed of global warming and its potential for large-scale, adverse health, social, economic and ecological effects. As a signatory of the ACUPCC, the University recognizes the urgent need to reduce greenhouse gas emissions and the University's Climate Action Plan will outline how our commitment translates into tangible activities aimed at this goal.

Climate Action Plan

This inventory will be the basis for creating a carbon neutrality plan to be completed by May 2010. This Climate Action Plan will outline the best near term GHG reductions and options for GHG offsets. It will also specify a target date for GW to achieve climate neutrality, along with interim targets for goals and actions with tracking mechanisms. The inventory will be updated annually to monitor progress.

Accounting for GHGs

GW staff conducted the inventory for FY08 using the Clean Air-Cool Planet Campus Carbon Calculator. Over 500 schools in North America use this tool, including many signatories of the ACUPCC. The calculator is based on the World Resources Institute/World Business Council for Sustainable Development's Greenhouse Gas Protocol. It is the most widely used international accounting tool for GHG emissions. More than 1,000 businesses and organizations worldwide have developed their GHG inventories using the GHG Protocol.

Data Sources

There are multiple sources of the GHG emissions, but most of GW's emissions come from four sources: purchased electricity, stationary combustion, commuting, and air travel. Following is more information about the inventory data sources.

Stationary Combustion: Natural gas is used in campus buildings for heating, hot water, cooking, generators, labs, and art studio kilns. No. 2 oil is another fuel source which is used for some heating and generators. The data source was utility bills for natural gas and No. 2 oil for owned/operated buildings while some assumptions were made about energy used in leased spaces.

Mobile Combustion: This includes gasoline and diesel fuel used in all University vehicles. The data source was credit card purchase records, with the exception of Athletics related vehicles, where a conversion to miles was performed by dividing total dollars spent by an average cost-per-gallon for the year. The calculation also included fuel used on two shuttle-bus routes operated by contractors (here as Scope 1 rather than as Scope 3 emissions).

Fugitive Emissions: A small component of GW's GHG emissions comes from fugitive sources such as refrigerants and agriculture. The inventory includes emissions from refrigerants lost from air conditioning and refrigeration equipment on campus. Refrigerants are lost during gas exchanges and equipment failures. Also included are emissions from fertilizers used on campus and from waste produced by animals kept for research purposes.

Purchased Electricity: The inventory includes electricity used by campus buildings for heating, A/C, lighting, other mechanical equipment, plug loads, and some cooking. It also includes electricity that powers Facilities Management's fleet of electric vehicles. The data source was electric utility bills for University owned/operated buildings while some assumptions were made about energy used in leased spaces.

Commuting: This includes student, staff, and faculty commuting to and from campus each day. The emissions data for this category does not include student travel to/from campus at the beginning/end of each semester. The data is based on an analysis of a comprehensive 2005 campus transportation survey of each population (students, faculty, and staff) that allowed us to extrapolate the average method and frequency of commuting to the three primary campuses based on the FY2008 population.

Air Travel: The ideal data to measure GHG emissions from air travel is the number of air miles travelled using University funds for both domestic and international flights. However, as noted,

the University does not currently track mileage data. Therefore, the calculation of air travel miles is based on the separate dollars spent on international and domestic flights during FY2008 divided by the respective factors of dollars-per-air-mile-traveled for 2007 as tabulated by the Air Transport Association of America (ATA). Air mileage not found in these categories was estimated based on origin and destination records.

Solid Waste: Solid Waste figures were tabulated based on existing records of waste generated at all three campuses.

Custom Sources: The inventory also includes emissions associated with paper purchases, wastewater treatment, and other directly financed ground travel (bus and car miles) as included in CACP v6.2.

Your Voice and Actions

The GW Office of Sustainability and Office of Planning and Environmental Management wants your help. Critical to our success as an institution will be the continued participation from members of the GW community. Progress in sustainability is not obtained solely by the leadership of a few groups, but by the commitment of all. Please share with us your ideas about how you as an individual or GW as an institution can reduce our carbon footprint. E-mail: sustaingw@gwu.edu. Visit our website: www.sustainability.gwu.edu. Follow us on Twitter: Sustain_GW. Join the group on Facebook: Sustain GW. View videos on Youtube: sustaingw.

Appendix A: Average Gross Emissions by Source for Doctorate Granting Universities

Updated 5-14-09

This data can be found on the ACUPCC Reporting System website at:

<http://acupcc.aashe.org/ghg-source-statistics.php?class=4>.

Although the website does not list the exact institutions included in the data, the footnote states, “The statistics generated are drawn from the most recent available GHG reports submitted by Doctorate-Granting Universities ($n=70$). Outliers have been removed, defined as reports claiming gross emissions per 1,000 sq ft greater than 75 metric tons CO₂e.” Manually sorting through the Doctorate Granting Universities’ reports, the following is a list of schools included in the pie chart. Those with asterisks (*) are likely the outliers which have been removed.

1. Antioch University of New England
2. Arizona State University
3. Ball State University
4. Brandeis University
5. Clark University
6. Clemson University
7. Cornell University
8. Duke University
9. Florida Atlantic University
10. Florida International University
11. George Mason University
12. Georgia Institute of Technology
13. Indiana State University
14. New Mexico State University Main Campus
15. New York University
16. Northeastern University
17. Northern Arizona University
18. Ohio University*
19. Oregon State University
20. Portland State University
21. State University of New York at Binghamton
22. State University of New York at Buffalo
23. State University of New York at Stony Brook
24. State University of New York College of Environmental Science and Forestry
25. Syracuse University
26. Temple University
27. The University of Memphis
28. The University of Montana – Missoula
29. The University of South Dakota*
30. University of Arkansas Main Campus
31. University of California, Berkeley
32. University of California, Davis
33. University of California, Irvine
34. University of California, Los Angeles
35. University of California, Riverside*
36. University of California, San Diego
37. University of California, Santa Barbara
38. University of California, Santa Cruz
39. University of Central Florida
40. University of Cincinnati
41. University of Colorado at Boulder
42. University of Colorado Denver
43. University of Denver
44. University of Florida
45. University of Hawai’i at Manoa
46. University of Idaho
47. University of Illinois at Chicago
48. University of Maine
49. University of Maryland Baltimore College
50. University of Maryland College Park

51. University of Massachusetts
Amherst
52. University of Massachusetts Boston
53. University of Massachusetts Lowell
54. University of Miami*
55. University of Nevada, Reno
56. University of New Hampshire
57. University of New Mexico Main
Campus
58. University of North Carolina at
Chapel Hill
59. University of North Dakota
60. University of North Texas
61. University of Oklahoma Norman
Campus
62. University of Oregon
63. University of Pennsylvania
64. University of Rhode Island
65. University of Tennessee, Knoxville
66. University of Vermont
67. University of Washington Seattle
68. University of Wyoming
69. Utah State University
70. Virginia Commonwealth University
71. Washington State University
Pullman
72. Yeshiva University