It Ain't Easy Being Green: An Audit of Wellesley College's Greenhouse Gas Emissions

	SECTOR			
	Transportation	**Waste**	**Energy**	**Wellesley College Overall**
Sector Sources Audited	- Motor pool - G&W buses - Waste transit - Admissions-funded travel - College-registered vehicle use (faculty, staff, and students)	- Recycled material - Solid waste (from all campus buildings) disposed of and incinerated by outside contractors	- Electricity production by co-generation plant - Electricity bought from town - Gas/Oil Boilers	
Significant Changes (1990-2002)	- More motor pool vehicles - More student vehicles - Mall shuttle - Electric truck pilot program discontinued	- Waste transported to more distant facilities	- More computers & other appliances - New air conditioning systems in several academic buildings - Switch from purchased electricity to co-generation plant	
Annual Emissions				
Metric tonnes of GHG emissions/year (2002)	5,681	1,748	36,273	43, 702
% of college total (2002)	13%	4%	83%	100%
% change in emissions (since 1990)	20% increase	9.5% increase	16% increase	16% increase
Largest sector source	G&W buses	Incineration	Co-generation plant	Co-generation plant

THE AUDIT

How much do you contribute to global climate change? Environmental Studies 300 students devoted a semester to investigating the distribution and size of various sources of greenhouse gas emissions (GHGs) that the Wellesley College community has added to the atmosphere annually since 1990. Students worked in focus groups to identify, obtain data for, and quantify contributions from the school's three main emissions-producing sectors: transportation, energy, and waste.

BUILDING A PICTURE OF WELLESLEY COLLEGE

Carbon dioxide and many other GHG emissions are not regulated by law and hence do not tend to be documented by institutions like colleges. In order to find and estimate emissions data at Wellesley, each sector group emailed and met with individuals from almost every department at Wellesley. Students obtained historical records for the fuel types and total annual fuel usage by the motor pool and power plant, the number of registered vehicles on campus, and the types and total amount of waste removed from the campus, among other emissions-related activities. This information was then systematized using the Clean Air-Cool Planet Organization's (CACP) framework, which has been used by many other colleges in their GHG audits. Overall, the study presents a comprehensive view of Wellesley's activities, notwithstanding that the scope is limited to direct emissions only, and that certain assumptions about individual behavior and climate change models were required. Additionally, GHG quantities are referred to throughout the study in terms of their equivalent amount as carbon dioxide, the most prevalent anthropogenic GHG.

Since 1990, annual emissions have increased
...from 16 to 19 metric tonnes of CO2 per student
...which is a total increase of 17% in GHGs per student,
...which is an overall increase of 16%, and,
...25,860 trees would have to be planted to offset the change

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FROM DATA TO DEEDS: POLICY RECOMMENDATIONS

Wellesley College should commit to a GHG emissions reduction target such as one in accordance with the Kyoto Protocol. In order to achieve the 7% reduction of emissions from 1990 levels, Wellesley would have to diminish its annual emissions by the equivalent of 8,765 metric tonnes of carbon dioxide. The College can reach this goal by means of a broad variety of possible policy changes, some of which are listed below. Many of the recommendations are associated with significant cost savings, and bear other benefits as well, like improved local air quality and positive publicity from the demonstration of foresight and institutional citizenship. Overall, it is hoped that Wellesley College will increasingly recognize its role as a significant local and global environmental actor and actively assume responsibility for abating its emissions.

Transportation

- Use a smaller MIT exchange bus Monday through Thursday because these trips have very light student flow.
- Design and commit to purchasing guidelines for the College motor pool based on fuel-efficient and alternative fuels models.
- Reward owners of registered fuel-efficient vehicles with a parking permit fee reduction or preferential parking spots.
- Charge a fee for employee parking permits, (e.g. $20 is nominal in contrast to student permits), and reimburse employees who choose to not buy a parking permit with a public transportation voucher.
- Limit traffic on College Road by establishing a gateway entrance.
- Increase the number of campus police patrolling on bicycles rather than by car, as well as the capacity of bike storage areas.

Waste

- Conduct a campus-wide waste audit in order to inventory how much is recyclable.
- Expand the recycling program to include establishing a central staff position related to recycling and/or the environment, more widespread bin placement, greater departmental commitments, capacity for processing more types of recyclables, and special facilities in the new campus center for collecting recyclables from the rest of campus.
- Institute a trash quota on each of the College's dorms, or per student per week.
- Zero waste policy whereby the College purchases recyclable products that can be re-recycled in the marketplace or at facilities.
- Limit excessive use of paper in public computer clusters by imposing a per student print quota tracked by a software program.
- Ensure that the food services in the new campus center do not imitate Schneider's wasteful reliance on disposable products for serving diners.

Energy

- Replace all incandescent light bulbs with longer-lived and more energy-efficient compact fluorescent light bulbs.
- Put stickers on students' doors with tips about turning off lights, radiators, refrigerators and computers when not in use.
- Encourage incoming students to purchase laptop computers, which use one-fourth the amount of electricity as desktops do.
- Change the natural gas line for the co-generation plant's main boiler from an interruptible to firm line, and use natural gas as much as possible for generating steam.
- Replace old windows in buildings or have sliding windows inside of old panes for greater insulating values.
- Do a one-time audit of the energy efficiency of faculty housing and make retrofits where possible (e.g. insulate the boiler and pipes).

_ *Other*

- When on-campus emission reductions become too expensive, purchase emissions offsets, which cost $6/ton, or $52,590 total, if Wellesley offsets all emissions necessary to come into compliance with the Kyoto Protocol.

TO LEARN MORE ABOUT CLIMATE CHANGE, THE ENVIRONMENT, AND WELLESLEY

- Read the ES 300 Final Report which is available from the WEED website: http://www.wellesley.edu/Activities/homepage/weed/weed.html or http://cs.wellesley.edu/~weed/
- Contact members and attend meetings of the Wellesley Energy and Environmental Defense organization (WEED)
- Contact members and attend meetings of Wellesley Activists Voicing Environmentalism (WAVE)
- Contact Environmental Studies co-director, Professor Elizabeth DeSombre, and learn about the ES major at: http://www.wellesley.edu/Biology/Major/envisci/envisci.html
- Learn GHG audits and similar projects conducted by other universities from the Clean Air Cool Planet organization: http://www.cleanair-coolplanet.org