

Washington & Jefferson College Climate Action Plan

Founded in 1781 as one of America's revolutionary colleges, Washington and Jefferson College (W&J) is a private liberal arts institution whose 1,500 students are dedicated to becoming people of "uncommon integrity, competence, and maturity who are effective lifelong learners and responsible citizens, and who are prepared to contribute substantially to the world in which they live" (W&J Mission Statement, signed by all incoming students). Because of the opportunities and challenges presented by global climate change, today responsible citizens must be willing to reevaluate what the "good life" means, to learn new skills, and to consider societal needs over their own. To position the College and its students to fulfill their broadened responsibilities, in May 2008 W&J became a member of the American College and University Presidents Climate Commitment, joining nearly 600 other colleges and universities that are educating their communities about climate change while moving towards zero net greenhouse gas emissions. W&J's Climate Action Plan sets forth the means by which the College is fulfilling this mission.

The College's efforts to reduce its net greenhouse emissions to zero is founded upon the high degree of confidence among the climate science community that global warming is occurring, that it is largely due to human-induced increases in greenhouse gas emissions, and that the welfare of the Earth's inhabitants will be imperiled if global warming continues at the current rate of change.

The College conceives of global warming mitigation as a project that is centered upon the engagement of our students in the pursuit of opportunities rather than in the acceptance of constraints imposed upon them, but that as in the responsible pursuit of all endeavors, limits and costs must be embraced. The College's mitigation activities are centered on (1) Modifications to College operations that will result in reduced greenhouse gas emissions while contributing to the College's pedagogical mission and financial security, and (2) Educating members of the College and of the surrounding community about the need to address global warming and of the actions that they may choose to take.

Our Climate Plan is grounded in the needs and abilities of the College and will therefore evolve as the College and the world that it inhabits changes.

Implementation

The creation and implementation of the Plan is led by the Campus Sustainability Committee, which was formed by President Tori Haring-Smith for this purpose and with the broader mandate to lead the College's efforts to reduce its adverse impacts on the environment. To carry out this mission the President has composed the Committee of faculty, staff, and students from a broad spectrum of the College community, with faculty representation from each of the College's academic divisions, staff from the residence life, finance, maintenance, and food service divisions, and students from an array of constituencies. The Committee's activities are

carried out by working groups with their own chairs and mission statements. The Committee encourages members of the College community to propose and create their own working groups to pursue sustainability-related initiatives.

The Plan is informed by the culture of the College, by the consensus on climate science embodied in the periodic reports issued by the Intergovernmental Panel on Climate Change, and by the best practices of signatory institutions to the American College and University Presidents Climate Commitment that are comparable to W&J.

During the 2009-2010 academic year the President allocated \$10,000 to the Sustainability Committee, increasing the annual allocation to \$15,000 for the 2010-2011 and 2011-2012 academic years.

Mitigation Strategies

W&J has already begun to reduce its greenhouse gas emissions through annual purchases of a wind-power offset, the reduction of refuse by our food service provider, and the creation of a campus-wide recycling program, and we have begun efforts to realize greater emissions reductions through the practices discussed below.

Our maintenance-services provider (GCA) and food service provider (Parkhurst Dining Services) have been inspirations for effective mitigation strategies and models of cooperation.

-- LEED-Certified Swanson Science Center

In January 2010 we opened our first Leadership in Energy and Environmental Design (LEED) building, the Swanson Science Center, whose gold-level LEED certification was awarded in spring 2012. LEED is a nationally recognized certification program for the design, operation and construction of high-performance green buildings, ensuring they are environmentally compatible and provide a healthy work environment. The Swanson Science Center is serving as a model for the renovation of existing buildings. We expect all new W&J buildings to be designed to achieve LEED certification.

-- Emission Reduction from Electricity and Natural Gas Usage

The College has requested bids for the completion of an energy-use audit and the installation of electricity meters on individual campus buildings. The audit and meters will enable the College to maximize the savings we will realize in both carbon emissions and operating expenditures as we improve our procedures, replace equipment, and upgrade our physical plant.

Electricity-usage statistics will be posted to the Internet to facilitate energy-conservation competitions and other initiatives.

The College raises thermostats on air-conditioning systems and takes similar electricity-reduction actions during daily peaks in regional electricity demand, thereby reducing our costs while also doing our part to control air pollution and to lessen the need of our regional electricity producer to build additional power plants.

In 2008 we began purchasing annual wind-power offsets for 15% of our electricity purchases. We increased the offset to 20% in 2010 and to 50% in 2011.

All the computers that the College purchases are Energy Star certified, with the latest generation of computers using up to 70% less power than previous generations. All of the servers we purchase are also energy efficient. We enable power-saving features before putting new computers into service, and we shut down all computers in computer labs during long holidays.

In the mid-1990s the College began replacing computer monitors with much more energy-efficient LCD screens, which the College keeps in service for roughly twice as long.

We have reduced the number of file servers the College requires by linking classroom-based computers into networks that share software and media files. We are considering creating similar systems for computers used in offices and computer labs.

We have reduced our electricity consumption by replacing the web servers that had hosted our student e-mail and Sakai course website systems with shared time on much more energy-efficient off-site servers. We are considering doing the same with other web-based applications.

We are in the process of replacing conventional light bulbs with energy-efficient ones, of affixing stickers on all public light switches, of designating a faculty or staff member to serve as the energy monitor for each classroom, service, and office building and a student Resident Assistant to do the same in each residence hall.

We are preparing competitions between student groups to encourage reductions in the use of water and electricity.

The College installs additional insulation, energy-efficient window systems, screens in the windows of unairconditioned residence halls, low-flow toilets, and other environmentally-responsible upgrades as repairs are made to existing buildings.

We are considering installing timers or motion sensors on light fixtures and vending machines, and conducting an audit to determine if the number, type, and operational settings of vending machines can be modified to reduce energy consumption.

We are investigating the installation of lightweight plant beds (green roofs) on flat-topped buildings that would insulate the building from heat and cold while contributing to the health of local flora and fauna and the aesthetic appeal of the buildings.

We intend to pursue funding to enable us to install renewable sources of energy, such as solar panels.

Our Wiki page provides comprehensive instructions on the recycling a wide variety of materials as well as instructions for the electronic submission and grading of student essays.

<http://wiki.washjeff.edu/display/Sustain/Home>

We are developing a Wiki page on which members of the College community will list surplus goods that others are free to take, such as furniture, electronic equipment, and personal items.

-- Photovoltaic Power Generation Project

Under the initiative and with financing provided by College benefactor Dr. John Swanson the College is installing a 5 kilowatt array of photovoltaic cells in 2012. A student team will manage the arrange use it to conduct experiments to determine optimal operating practices as well as the array's cost effectiveness. If the array is cost effective Dr. Swanson intends to finance the installation of a second, larger array in 2014.

-- Recycling and Usage Reduction

The disposal rather than the recycling of glass, metal, and paper entails increased net greenhouse gas emissions in addition to other adverse environmental effects. We have therefore implemented a recycling program that includes the installation of recycling bins throughout the campus and an educational campaign that has begun with signage and e-mail notices sent to faculty, staff, and students. We have also conducted experiments with the collection of discarded computers and other electronic waste, the use of a for-profit paper recycler, and revenue-generating ventures by student organizations.

In spring 2011 the College began participating in Recyclemania, a national program that encourages recycling by pitting W&J students against their peers in other colleges in recycling contests, as well as against their own performance in previous years.

Before students execute print commands on College computers a notice appears on their monitors that tell them the number of sheets of paper that will be consumed and the total number of sheets they have printed thus far during the semester. This system reduced student printing by seven percent during its first year.

We encourage faculty to allow students to submit essays electronically when doing so is consistent with pedagogical objectives, and to use double-sided printing when printed versions are required.

All the paper used in computer labs and by our Information Technology Services offices is from recycled material, and recycling bins are installed near all printers.

We keep in use many computers that would otherwise be discarded by linking them to data and program modules resident on more advanced computers.

In September 2011 we began what we expect will be the annual collection of desk-top computers, laptops, printers, monitors, fax machines, scanners, projectors, desktop-sized copiers, keyboards, cables, mice, CD players, VCRs, DVD players, and TVs for responsible recycling in a program that is provided free of charge by Apple Computer Corporation.

-- Purchasing and Food Services

The College procures goods and services from local producers and has taken a leading position in efforts to revitalize the downtown area that adjoins the College, which will reduce car usage by members of the College and the surrounding community. Ultimately, we hope our ongoing partnership with the City of Washington will lead the City to becoming one of the nation's emerging "Livable Small Cities," which offer environmentally and socially attractive alternatives to residency in dispersed suburbs and commutes to distant places of work and leisure.

We reduced methane emissions by reducing food wastage through the removal of trays from the dining room and by the repositioning of napkin dispensers from buffet lines to dining tables.

Our food service provider, Parkhurst Dining Services, has undertaken a number of environmentally-responsible initiatives, including:

- Powering their delivery vehicles with bio-diesel made from used deep-fryer oil;
- Purchasing at least a quarter of their products from farms and distributors located within 250 miles of the College;
- Providing paper rather than Styrofoam cups and offering paper alternatives to Styrofoam takeout containers;
- Using recycled napkins and other paper products;
- Recycling all cardboard;
- Recycling glass, aluminum, and plastic used at catering events;
- Encouraging the use of reusable mugs at College coffee shops by providing discounts;
- Recycling coffee grounds by giving them to chemistry classes that extract the oils, with the remainder used as fertilizer;
- Cleaning fruits and vegetables with an Ozonator rather than with soap and water; and,
- Installing a new dish rinser that uses two rather than seven gallons of water per minute, saving approximately 700,000 gallons per year.

We encourage students to monitor the vegetarian and vegan meals offered by our dining services so that the College will be able to respond with healthy environmentally-responsible alternatives to standard fare if sufficient student demand warrants it.

We carried out a pilot program using washable rather than single-use takeout containers and are considering biodegradable alternatives to cups and utensils provided to takeout patrons.

In January 2012 we will begin to compost some of the food waste from our dining service operations.

We are considering recommending that water fountain refrigeration systems be turned off.

We encourage the use of water pitchers rather than the provision of water bottles at College events.

-- Landscaping

We have begun to replace annuals with perennials, and to investigate the use of plants that require little or no artificial fertilizer, herbicides, or irrigation.

We are considering replacing some areas of lawn with vegetables, herbs, and berry bushes, and creating plantings designed to serve as food and habitat for birds and other animals.

We will resume our efforts to obtain a zoning rule exception to allow us to convert a large area of lawn into a meadow.

-- Vehicle Use, Transportation, and Travel

A committee of faculty, staff, and students devises and implements programs to promote walking and bicycling and to reduce dependence on motorized vehicles.

The College is encouraging the College community to patronize businesses in downtown Washington, which will have the added benefit of reducing student use of their cars.

Our Information Technology staff has reduced their travel-related carbon emissions by increasing the proportion of web-based as opposed to on-site training classes that they attend.

To encourage faculty and staff to walk or bike to work we are considering incentives such as annual honor badges that those who pledge to do so could affix to their office doors, or small monetary awards, such as ten cents per mile per day, which might be payable directly to the pledgee or to environmentally-related initiatives.

We are investigating the feasibility of inviting an hourly car rental company such as ZipCar to make cars available to faculty, staff, students, and the wider community.

We will consider instituting a policy of purchasing carbon offsets when the adverse economic effects of the recent recession have ended.

Educational and Communications Initiatives

As an educational institution that recognizes our shared responsibility to act as wise stewards of the Earth we consider the most important goal of our climate initiative to be the instilling in members of our College community of an understanding of the causes and potential consequences of global warming and of the constructive actions each one of us should take. We consider every member of our College community to be a potential change agent.

We empower students to take the lead in suggesting and carrying out initiatives.

Our Wiki page provides an annotated list of curricular resources, instructions for the electronic submission and grading of student essays, and copies of our climate change posters.

<http://wiki.washjeff.edu/display/Sustain/Home>

Students in several of our Environmental Studies and affiliated courses regularly engage in research and service projects that support the College's climate effort and other environmental initiatives. Typically, eight to ten of these projects result in poster presentations made available to the College community during our annual student research poster session.

Our initiatives to move away from non-biodegradable food containers and the use of bottled water are part of a broader effort to transform the W&J culture into one that embraces ecologically-responsible behavior, a process that we conceive as being the result of many small steps. Others include breaking students of the habit of walking across lawns and making it second nature to turn off lights, close windows, turn down thermostats, and to report such things as dripping faucets and gaps in window frames.

We are supplementing or replacing our existing ecological mascot, Eco the Squirrel, with one that is more firmly grounded in our existing campus culture, Green Jay, and are devising related marketing campaigns that will lead students to associate W&J with ecologically-responsible behavior. The campaign is expected to include prominent signs that make the College community aware of environmentally-related actions that the College has accomplished, and an electronically-distributed periodical tentatively titled *The Green Jay Newsletter* that will provide updates on those achievements and notices of upcoming activities.

We sponsor student attendance at conferences and other events that are supportive of our environmental and educational initiatives.

On the initiative of first-year student Lauren Horning the College is composting waste from our food preparation operations. Composting is being managed by Lauren and a student team that she assembled.

We are soliciting student interest for the creation of a Sustainable Living Theme House.

We are devising a system that will employ Resident Assistants in informing students about trash disposal, recycling, and environmental programming including Recyclemania, an annual Green Summit, and other regularly-scheduled green events on campus. Green events that are conducted in the fall semester include campus clean up events and information sessions regarding the College's recycling practices.

We have created a campus-wide poster program that presents climate science and responsible actions to the College community.

We are creating site-specific guides on environmentally-responsible actions for display in food-service areas, residence halls, and other locations. When we become confident that sufficient student interest has been reached we will create comprehensive wallet-sized guides to distribute to all members of the College community.

We have created and posted on our Wiki page a curricular materials guide for instructors to use if they choose to incorporate aspects of climate change science, sustainability, and remediative and mitigative actions into their courses.

We are considering proposing that the College institute a sustainability-related summer reading program for all first year students. An example of a text that we would recommend is Spencer Weart's *The Discovery of Global Warming*.

As the College moves forward with the revision of the curriculum we expect to recommend that all students complete a "sustainability" breadth of study requirement which would be fulfilled by taking specially-designated courses within the Environmental Studies Program.

We intend to work with our Office of Alumni Relations to create a program that would partner students with alumni in environmentally-related careers, and to develop a permanent speaker series regarding environmental issues. Alumni and local professionals already speak to our students about sustainability issues in several Environmental Studies and Biology courses.

We extend our educational efforts to the surrounding community by welcoming our neighbors to lectures and other presentations, which we are increasing in number and variety. We expect to create lectures and other presentations specifically designed for our neighbors, to be conducted on campus and at such off campus locations as the public library. For instance, we are planning to host film screenings on issues related to gas drilling in the Marcellus Shale deposit, which underlies the College and the surrounding community. The College's weekly syndicated FM radio program *Earth Talk* already focuses most of its show on the nexus between climate change and sustainable development.

We are investigating means by which we can assist our teacher-training colleagues in equipping our students to prepare effective climate change curricula, and are considering ways that these materials and others might be shared with teachers in our local schools. Currently, the Environmental Studies Program is working with our Education Department to create a series of new major and minor combinations that conform to the Pennsylvania Department of Education's new mandates for environment and ecology education.

Conclusion: Embracing the Future

W&J's Climate Action Plan is an integral part of our College Mission that is guiding our community's contributions to the global effort to ensure a better future. As our College and the world it inhabits evolve, so too will our Climate Action Plan.

Our Plan sets forth actions we are taking and others that we are developing to achieve zero net greenhouse gas emissions while empowering all members of our College community to become constructive agents of change, and to invite our neighbors to join us in this effort

Sustainability is central to the wisdom that we all require as we embrace the opportunities before us to create a better future: We must use resources in ways that do not diminish the ability of future generations to pursue meaningful lives in a healthy natural environment. The concept of sustainability is also directly relevant to the College's climate initiative: We must ensure that the actions we take enhance the ability of the College to fulfill its broader mission to provide future generations of students with the skills, knowledge, and moral reflection they need in order to become responsible, successful citizens. Wisdom requires that we act within the competencies of our institution: We must not exhaust our financial or human strength.

Therefore, we regard our climate initiative to be a permanent feature of the College, not a short-term project to be pursued outside of our other responsibilities. Rather than push ourselves to pursue an unsustainable level of activity, we are celebrating our abilities to work towards a sustainable future through a sustainable commitment of resources.

Appendix: Benchmark Greenhouse Gas Emissions

The College's greenhouse gas emissions in 2008 serve as the benchmark for our mitigation activities. Our emissions were calculated and analyzed by Environmental Studies major Michael Kehr under the direction of Environmental Studies Director Dr. Robert East and Biology Associate Professor Dr. James March using the Clean Air-Cool Planet Campus Carbon Calculator that has been employed by over one thousand post-secondary institutions. The calculator measures all the greenhouse gas emissions specified in the 1992 Kyoto Protocol to the United Nations Framework Convention on Climate Change, dividing the emissions into three categories, based on their causes:

Scope 1 Direct emissions from sources owned or controlled by W&J, such as the exhaust from our furnaces and from College-owned cars and vans.

Scope 2 Indirect emissions caused by activities conducted on campus, which in W&J's case consists entirely of the exhaust from our electric utility that is a consequence of our electricity consumption.

Scope 3 All other emissions caused by W&J's operations, such as the exhaust from the privately-owned cars used by students, faculty, and staff who commute to campus; the exhaust emitted by aircraft when students go abroad to study; and the methane emitted from College refuse that is dumped in landfills.

In 2008 W&J released a known net total of 12,800 metric tons of carbon dioxide equivalents (eCO₂), which amounts to 8.5 metric tons per student.¹

Direct emissions (Scope 1) produced 3,000 metric tons of eCO₂, with most of that – 2,900 metric tons -- being due to natural gas consumption. Exhaust from W&J's cars and vans contributed 37 metric tons. The remaining 63 metric tons was emitted from science laboratories, gasoline-powered lawnmowers and leaf blowers, exhaust from food preparation, fertilizer applications on our grounds, and other sources.

¹ These figures would be 14,100 and 9.4, respectively, if it were not for the wind-power offsets that W&J began purchasing in 2008. Data regarding emissions caused by faculty and staff commuting and travel in 2008 were not collected, so the 12,800 and 14,100 figures understate total emissions. Conversely, the countervailing effects of the recycling of wastewater, paper, plastic, and metal are also not reflected in our emissions figures.

Indirect emissions (Scope 2) – electricity consumption – produced 67% of W&J’s net eCO₂ emissions, at 8,600 metric tons. Electricity production was also our largest contributor of nitrous oxide emissions, at 112 metric tons (34,700 metric tons eCO₂).

All other known emissions (Scope 3) produced 2,500 metric tons of eCO₂. Student commuting caused 900 metric tons of those emissions and study abroad 560 metric tons, for a combined total of 1,460 metric tons being caused by student travel (11% of W&J’s net eCO₂ emissions).² Most of the methane emissions included in Scope 3 (92%) was caused by the decomposition of our refuse, which resulted in the release of 5.9 metric tons of methane, or 124 metric tons eCO₂. The actual amount was lower, since this figure does not reflect methane reductions that our waste hauler, Waste Management, began to realize in late 2008 when it installed electrical generators that consume much of the methane produced in the landfill where they dump our refuse. We expect to be able to quantify this reduction in the future.

The faculty and staff in W&J’s Sustainability Committee and Environmental Studies Program will continue to monitor the College’s greenhouse gas emissions, with the participation of students conducting course-related research and independent-study projects, to enable the College community to assess the progress it is making in its efforts to achieve zero net greenhouse gas emissions.

Fourth-year student Cyrus Western is carrying out the 2010-2011 Greenhouse Gas Emission inventory as his senior capstone project under the guidance of biology professor Jamie March.

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² Emissions figures for student commuting are approximate, as they are based on a survey that had less than a 20% response rate. Emissions caused by faculty and staff commuting and travel are not known.