

Climate Action Plan for Oxford College of Emory University

Emory University Climate Action Plan Background

As Emory University celebrated its 175th anniversary in December 2011, it joined a growing contingent of its peers to take deliberate action on the critical issue of climate change. As a leading United States research, educational, and public health institution and given its resources, visibility, and commitment to sustainability, Emory recognized an historic opportunity to acknowledge its role as an emitter of greenhouse gas emissions and put forth a comprehensive reduction plan. Per the United Nations Intergovernmental Panel on Climate Change, an 85% reduction in worldwide emissions is needed by 2050 from 2000 levels to stabilize the climate change process at atmospheric CO₂ levels of 350 parts per million (www.ipcc.ch). In accordance with this recommendation, the Emory University Climate Action Plan¹, developed over a year of careful study, outreach, and planning by two presidentially-appointed committees, The Climate Action Plan Committee comprised of faculty, staff, and students, and the Carbon Reduction Task Force comprised of Campus Services staff, established the following goals for greenhouse gas emissions reduction:

By 2020: 20% reduction in total emissions, 35% reduction per square foot

By 2036: 36% reduction in total emissions, 50% reduction per square foot

By 2050: 50% reduction in total emissions, 85% reduction per square foot

Oxford College Task

As one of nine academic units of Emory University, Oxford College has been tasked with identifying specific strategies to reduce its greenhouse gas emissions in the categories of sustainable building and construction, energy, water, transportation, waste management, food, procurement, academic programs, and individual action. As master plan and strategic plan documents are updated for the university in the future, detailed action items for achieving greenhouse gas emission reductions established in the university Climate Action Plan document will be incorporated. A similar level of integration is recommended for the Oxford College Master Plan and Strategic Plan documents.

Significant Dates

A draft of the Oxford College Climate Action Plan is due on Earth Day, April 22nd, 2013. A final plan document is due October 1st, 2013. Progress on the opportunities detailed in the plan must be reported to the Office of the Provost annually thereafter. The Office of Sustainability Initiatives suggests education and outreach events in spring 2013, as the draft plan is developed, and further outreach efforts in fall 2013 to present the final plan to faculty, staff, and students.

¹http://sustainability.emory.edu/uploads/articles/2012/06/2012060716021390/Emory_University_Final_Climate_Action_Plan.pdf

Oxford College Greenhouse Gas Emissions Inventory

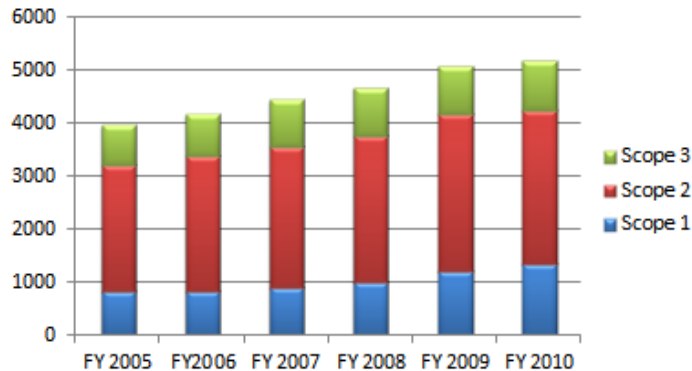
In summer 2011, the Office of Sustainability Initiatives appointed an intern to conduct a greenhouse gas emissions inventory at Oxford College for each fiscal year from 2005 to 2010. The inventories were conducted using the Clean Air-Cool Planet Campus Carbon Calculator, a model that is used widely across the United States and is consistent with international greenhouse gas protocol standards. The emissions inventory methodologies for Oxford were largely based on those utilized for the greenhouse gas emissions inventory on the Druid Hills campus. There were a few instances where Oxford emissions were already counted in the Druid Hills campus figures and these were excluded to avoid double-counting. All such instances are documented in the full report.

Below is an excerpt from the “Principal Findings” section of the report that provides an overview of the total eCO₂ emissions generated as well as the trend in rising emissions at Oxford College in the period FY2005-FY2010:

In the baseline year, FY2005, Oxford emitted 3,968.9 metric tonnes of carbon dioxide equivalents (eCO₂), compared to 5,182.9 eCO₂ in FY2010. As can be seen, there was a 1,214 eCO₂ increase in the 6 year period, meaning the college emitted per year more or less an additional 202.3 eCO₂ than the previous year during that period. Between FY2005 and FY2010, there was approximately a 30% increase in eCO₂ emissions from the college. This increase is surely due in part to the 33% growth in full time students during the analyzed period.

The chart below shows the trend in gross eCO₂ emissions at Oxford College by Fiscal Year between years 2005-2010 as well as a breakdown by emissions scope each year:

Oxford's CO₂e Emissions by Scope (FY05-FY10)



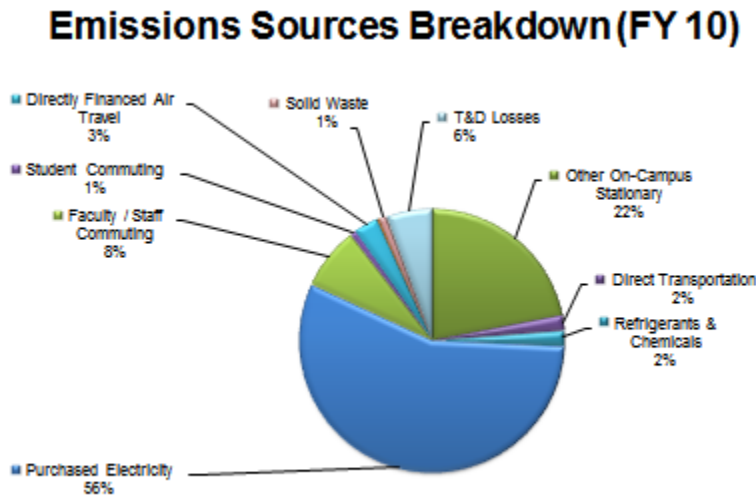
Scope 1: Direct Transportation (Clifton Shuttles, Campus Fleet), Other On-Campus Sources (Boilers, Generators), Refrigerants & Chemicals, Fertilizer

Scope 2: Purchased Electricity

Scope 3: Faculty/Staff Commuting, Student Commuting, Emory Funded Air Travel, Study Abroad Air Travel, Landfill Waste, Power Transmission & Distribution Losses

*Scope definitions and calculations taken from www.clean-air-cool-planet.org University Emissions Model

The chart below is a visual representation of the individual sources of greenhouse gas emissions for Fiscal Year 2010 at Oxford College:



Oxford College Climate Action Plan Process

The Dean of the college appointed an Oxford College Climate Action Plan Committee in October 2012 comprised of members of the Sustainability Subcommittee of the Buildings and Grounds Committee and a faculty member from each academic division: Natural Science and Mathematics, Humanities, and History and Social Science. The Emory Office of Sustainability Initiatives appointed a student intern and Oxford alumnus in support of the project. Of note, the same intern conducted the Oxford College greenhouse gas emissions inventory in summer 2011 and presented his findings at the Emory Climate Action Plan Committee's Carbon Reduction town hall forum at Oxford College in fall 2011. Student involvement in both the Greenhouse Gas Emissions Inventory and the Climate Action Plan projects represented a unique curricular opportunity bridging theory and practice and highlighting the interrelatedness and applicability of concepts.

The Oxford College Climate Action Plan Committee held its kickoff meeting in December 2012 and met again in February and March of 2013. The committee chair reports progress at monthly Emory Office of Sustainability Initiatives meetings for unit Climate Action Plan representatives. To engage faculty, staff, and students regarding the significance of climate change, assess campus perceptions regarding sustainable practices, solicit feedback regarding strategies proposed in the draft plan, and to encourage a continuing conversation about Climate Action planning at Oxford College, the committee hosted several outreach events.

Faculty committee members Mike McQuaide and Phil Segre hosted Lunch and Learns on April 8th and April 10th respectively, and approximately twenty students, faculty, and staff were in attendance at each event. The committee hosted Climate Action Trivia at Staff Bash on June 25th and seventy-four staff were in attendance. Prizes donated by the Office of Sustainability

Initiatives were awarded to the winning teams. Student Sustainability Assistants working with the Sustainability Club of SGA planned a Cookies in Candler event on September 26th that was attended by more than two-hundred student attendees. The event featured a slideshow about the Climate Action Plan, a recycling program display, and a station for students to take the Emory Sustainability Pledge.

The committee is in the process of developing a student survey to help establish behavioral baselines regarding campus sustainability issues and will work closely with the Office of Sustainability Initiatives and Oxford's Institutional Research Associate to further refine the document. The committee will seek support from student sustainability leaders, SGA, and Oxford's Institutional Research associate in disseminating the survey. A similar survey may be developed for faculty and staff.

Climate Action Plan Proposal for Oxford College

The Oxford College Climate Action Plan Committee recommends the following actions, grouped by recommended category, in support of the Emory University 2020, 2036, and 2050 greenhouse gas emissions reduction targets:

Sustainable Building and Construction

1. In light of the correlation between increased square footage and greenhouse gas emissions, conduct space utilization studies and seek space utilization efficiencies across departments to reduce the need for additional built space.
2. For all major renovation projects, evaluate measures to maximize energy efficiency, minimize water use, and pursue a minimum certification of LEED Silver.
3. For all new construction, evaluate measures to maximize energy efficiency, minimize water use, and pursue a minimum certification of LEED Silver.
4. By 2050, per existing replacement schedules, convert all flat roofs to green, cool, and/or solar roof standards.

Energy and Water Use Reduction

1. Move underutilized solar panels from the Haygood Residence Hall solar demonstration project to the Oxford College Organic Farm site. At the new location, the panels will produce renewable energy to back-feed the grid, offsetting a portion of the purchased electricity consumed by irrigation pumps while demonstrating an effective application for renewable energy.

2. Work with university Environmental Engineer to continue to study the viability of renewable energy projects. Implement projects as feasible to diversify the Oxford College energy mix and reduce emissions and dependence on the grid.
3. Implement university Green Office Certification program for offices, meeting rooms, and classrooms and appoint an Oxford College representative to serve on the university Green Office program development team.
4. In partnership with Oxford College IT, and in the context of the Green Office Certification program, explore feasibility of implementing a campus-wide Information Technology software-based power-management approach for servers, faculty and staff workstations, computer labs, classrooms, and meeting spaces. Partner with Oxford College IT on an education campaign and messaging about steps the campus community can take to reduce energy consumed by technology devices and technology spaces.
5. In the context of the Green Office Certification program, and in accordance with university Procurement guidelines, ensure the purchase of energy efficient equipment and appliances and continue the transition to networked printers, copiers, and multi-function devices over stand-alone devices.
6. Implement university Green Labs Certification program in new Science building. Appoint an Oxford College faculty representative to serve on the university Green Labs program development team. Involve students in a study comparing and contrasting the impacts of lab facilities and operations in Pierce Hall vs. the new Science building. Pierce Hall room 118, a teaching Chemistry Lab, has been designated as the pilot space for the new program at Oxford.
7. Conduct campus utilities audit, develop a building sub-metering plan, and establish a process to collect and report utilities data monthly. Campus utilities metering and infrastructure is in dire need of an audit due to inconsistent and incorrect naming data and erroneous rate info. All buildings are not sub-metered individually to be able to accurately understand program utility consumption and to be able to evaluate specific effects of energy and water saving behavior-modification. A process is also needed to accurately and comprehensively collect and report utilities data monthly. This is all foundational to the process of implementing programming that raises awareness of campus utilities consumption and encourages energy and water savings.
8. Apply for grant funding to install a real time energy monitor in one building to communicate electricity, gas, and water consumption data to raise awareness about the issues of energy and water consumption.
9. Oxford College implemented the university model for heating turndowns during the 2012-2013 holiday season on select buildings. Continue this commitment annually and increase the scope of the program to increase the number of buildings participating.

Communicate energy savings data to the college community timely after holiday turn-down periods to raise awareness and increase buy-in.

10. Partner with student sustainability leaders, SGA, and the Institutional Research Associate to distribute a student survey to better understand behavioral patterns regarding energy and water use and waste diversion patterns in residence halls.
11. Partner with RES, student sustainability leaders, and SGA to conduct an education campaign about the energy and water that can be saved through shorter showers. Provide shower timers and coordinate a residence hall competition to determine which hall can save the most water and energy. Provide an incentive for the residence hall and or floor achieving the greatest reductions.
12. Partner with RES, student sustainability leaders, and SGA to promote taking the stairs instead of the elevator campus-wide. Use the existing university marketing campaign to communicate energy savings and health benefits of taking the stairs.
13. Up to 90% of the energy consumed when washing clothes goes to heating the water. Partner with RES, student sustainability leaders, and SGA to conduct laundry education campaign in residence halls to encourage cold water washes and full loads. Utilize the existing university marketing campaign. Record progress on the honor system and provide an incentive for residence halls and floors achieving the most full-wash loads with cold water.
14. Explore creative campaigns through DAR where campus utility savings resulting directly from behavior change can be incentivized and applied toward institutional fundraising.

Transportation Emissions Reduction

1. Inform the campus community about existing university-wide no idling policy. Place decals or hangtags in all fleet vehicles reminding drivers of the policy and develop creative ways to enforce compliance by community (similar to enforcement of the university tobacco-free policy).
2. Grid-based electric vehicle charging systems in Georgia still result in significant carbon emissions due to the power mix being heavily coal-dependent. Explore feasibility of zero emission solar-electric vehicle charging stations in preferred parking locations to incentivize faculty, staff, and student adoption of zero emissions plug-in electric vehicles. Provide preferred parking for hybrid vehicles. A more fuel efficient fleet of faculty and staff daily commute vehicles will reduce emissions significantly in this category and signage and preferred parking will increase their campus visibility.
3. Upgrade fleet vehicles per lifecycle replacement schedule to reduce petroleum dependence. Explore alternative fuel vehicles such as CNG, bio-diesel, hybrid, and

electric. Explore feasibility of zero emission solar-electric charging stations for electric fleet vehicles. The city of Covington is developing a public access alternative fueling station (currently CNG but other alternative fuels are expected in the future) within a few miles of campus and it is expected to open in 2014. The city of Covington has expressed an interest in partnering with Oxford College to pursue clean air initiatives and transportation grant opportunities.

4. Roll out Zimride to the Oxford campus. Zimride is a user-friendly resource to arrange for one-time or regular carpools with other college commuters going the same way to reduce commute costs, the campus carbon footprint, and demands on parking: <http://zimride.parking.emory.edu/>.
5. Install new bike racks and maintain existing bike racks. Improve bicycling infrastructure and safety education on campus to encourage use of personal bikes and promote the Bike Oxford program as a mode of recreation, fitness, and alternative local transportation.
6. Continue to partner on street and path upgrades with the city of Oxford to create a safer and more inviting city infrastructure for pedestrians and bicyclists.

Waste Minimization

1. Implement an interior and exterior campus recycling program beginning fall 2013 to increase waste diversion and to begin instilling a campus culture of waste minimization. The longer term goal is to implement composting and work toward zero-waste buildings, but an effective recycling program is a first step that can be improved upon.
2. University Sustainable Event and Catering guidelines have already been rolled out at Oxford College but have not been widely adopted. Reintroduce this program to get campus event planners onboard. Set a goal for number of sustainable events per year. Start by focusing on large and impactful events such as Orientation, Commencement, and Family Weekend. There is an added benefit in messaging the campus community and visitors regarding Oxford's commitment to and culture of sustainability.
3. Implement university Green Office and Green Labs Certification programs to promote best practices for waste minimization in labs, offices, meeting rooms, and classrooms.
4. Continue installing hydration stations to minimize bottled water waste and emissions associated with bottled water and water jug transport.

Sustainable Food

1. To accurately measure energy and water use by the Oxford Dining food service operation, a critical first step is discrete utilities metering. At present, utilities in the Dining Hall are tied to the Branham Residence Hall and only a rough estimate for each program's utility consumption is possible. It is important to create incentives for energy savings by building and this is not possible under the current utilities arrangement. The Dining Hall renovation will provide an opportunity to sub-meter the food service operation and strive for LEED Silver standards for dramatically improved energy and water efficiency.
2. Implement a recycling program as a first step and phase composting in for all pre-and post-consumer food waste when feasible. Provision for dedicated recycling and composting facilities during the design phase of the building's renovation.
3. Develop an Organic Farm to support college and university food sourcing targets of 75% local or sustainable by 2015.
4. Continue Oxford Dining partnership with Sodexo to expand the portfolio of local and organic food suppliers.
5. Expand sustainable food education programming and re-launch the Culinary Club.
6. Implement Meatless Mondays and host sustainable cooking demonstrations.

Curricular and Co-curricular Education

1. Continue to develop Oxford's sustainability GEP theme, *A Life in Balance*, for the duration of the three-year commitment and identify strategies for sustaining the curricular integration of sustainability beyond this period. *A Life in Balance* "aims to facilitate the discovery and exploration of sustainability by making interdisciplinary connections between the Humanities, Natural Sciences and Mathematics, and Social Sciences that would more fully engage the mind and the body."

Currently, twenty-six courses have been developed under this curriculum, but further development and integration remains an ongoing objective. The table below illustrates existing courses by discipline:

Science, Nature, Technology	History, Society, Cultures	Humanities, Arts, Performance	Physical Education and Dance
BIOL 120Q	DANC 230	CL 202	PE 128 Doherty
BIOL 120Q	ECON 101	IDS 290	PE 139 Doherty
BIOL 141Q	ECON 112Q	IDS 290	PE 140 Doherty
BIOL 141Q	ECON 212	Rel 205Q	DANC 300R
BIOL 141Q	SOC 230	Rel 348Q	
BIOL 235Q	SOC 231RQ		
BIOL 245Q	IDS 290		
CHEM 222L			
ENVS 131Q			
GEOL 250			

The *A Life in Balance* commitment also includes such faculty professional development opportunities as sustainability themed retreats, workshops, and participation in ongoing projects such as the Piedmont Project and IPLA.

2. Foster continued engagement with sustainability topics, readings, films, and discussions in Freshman Seminar, a one-hour credited course offered in the fall term. A high percentage of freshmen enroll in this course, and one to two weeks is fully dedicated to sustainability.
3. Continue Oxford faculty representation on university committees such as the Sustainability Initiative Faculty Advisory Committee and the Committee on the Environment.
4. Develop an Organic Farm to support sustainable food production, research, curricular and co-curricular education, and outreach opportunities to engage the local community.
5. Renew the forest restoration initiative and set a goal to clear invasive plant species from two to five acres of college property annually. Appoint a faculty champion and assign student workers and a Campus Services representative to the task. Organize an invasive plant pull each semester and encourage the community to participate.
6. Continue integration of the campus Educational Garden with the Play Oxford program and the Center for Healthful Living as a prototype of the interdisciplinary approach to sustainability integration within campus programs.
7. Create website to communicate information about the Oxford College sustainability program under the “A Life in Balance” banner. Develop content pages that provide information about the campus Greenhouse Gas Emissions Inventory and Climate Action Plan commitment.