
The University of Connecticut Climate Action Plan:

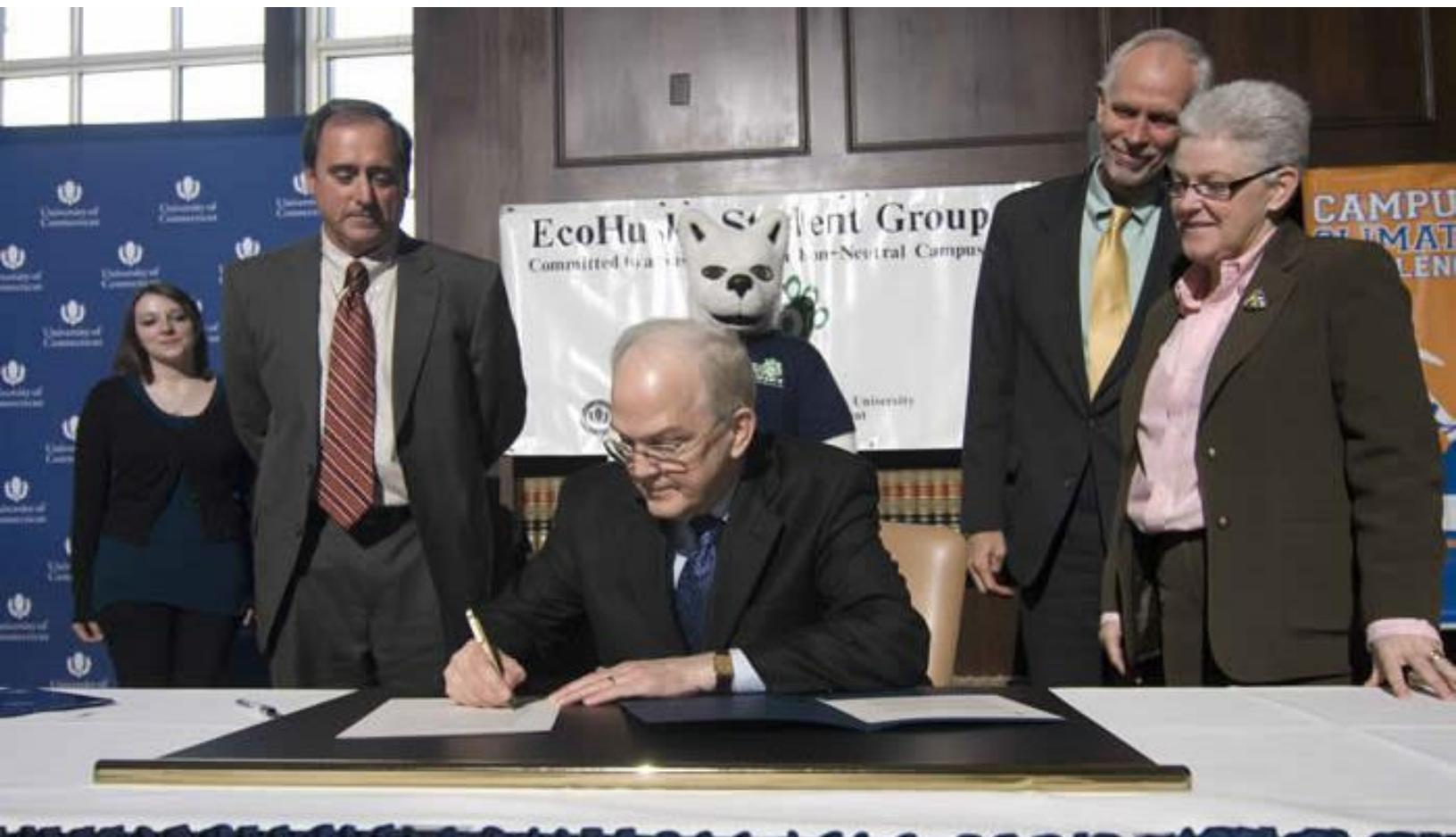
Guiding the Path toward Carbon Neutrality



*Storrs Campus
August 2009*

Section 1:

The UConn Climate Action Planning Process



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Cover Photo: University of Connecticut President, Michael Hogan, signed the American College and University Presidents Climate Commitment on March 25, 2008. From left to right: Kristin Sullivan, UConn Public Interest Research Group; Rich Miller, Director of Environmental Policy; President Hogan; Jonathon the Husky; Gregory Anderson, Then Vice Provost; and Gina McCarthy, then-Commissioner, Connecticut Department of Environmental Protection. (Present but not pictured: Bianca Lopez, Co-President of the EcoHusky student group.)

The University of Connecticut



The University of Connecticut (UConn) is the State of Connecticut's premiere institution of higher learning. Located in rural Storrs-Mansfield, Connecticut, UConn began in 1881 as the Storrs Agricultural School with three faculty members and a student body of 12. Today, UConn is a top-ranked public research university with international impact. To learn more about the University please visit www.uconn.edu.

The American College & University Presidents Climate Commitment

With the support of many students, faculty, and staff members, President Michael Hogan signed the American College and University Presidents Climate Commitment (ACUPCC) on March 25, 2008 (Appendix A). The ACUPCC recognizes that institutions of higher education have a unique responsibility to not only educate the next generation of individuals responsible for developing the social, economic and technological solutions to reverse global warming, but also to serve as role models by embracing sustainability initiatives on campus. By signing the Commitment, President Hogan pledged that the University of Connecticut will eliminate the Storrs campus' greenhouse gas (GHG) emissions over time.

Why Did We Sign the ACUPCC?

UConn was well-positioned to become a signatory to the American College & University President's Climate Commitment (ACUPCC). Prior to signing, the University had already taken several of the steps that are otherwise required within two years after signing the commitment. UConn's Office of Environmental Policy (OEP) had completed GHG inventories for the Storrs Campus for 2005 and 2006, and the 2007 inventory was already underway. Existing GHG emissions reduction activities included a Sustainable Design & Construction Policy setting LEED silver certification as a minimum performance standard, energy-efficient lighting retrofits, converting waste cooking oil into biodiesel fuel for the highly-utilized campus bus system, the construction and operation of an on-campus natural gas fired cogeneration facility, an energy efficient purchasing policy, green cleaning policy, participation in the national RecycleMania contest, and other campus sustainability efforts.

The University strives to continually improve campus environmental sustainability. Becoming an ACUPCC signatory is one of many ways that the University continues to challenge itself to perform better and in a more environmentally responsible manner. The following section details milestones in the University's commitment to environmental sustainability and climate change awareness over the past six years.

A Proven Track Record in Environmental Sustainability

In 2003, the University of Connecticut established an Office of Environmental Policy to address campus environmental sustainability and compliance issues. Since that time, environmental awareness and campus sustainability has increased greatly. The following list is a sample of the many environmental sustainability and climate change awareness activities occurring at the University.

2002-2003

- The University hires a new senior-level position, Director of the Office of Environmental Policy, to focus on improving environmental performance.

2003-2004

- The University forms and convenes a 25-30 member Environmental Policy Advisory Council (EPAC). The EPAC is charged with advising the president and provost on campus environmental issues.
- The University adopts its first overall Environmental Policy Statement, committing to environmental leadership through performance, responsible management and growth, conservation, academics, outreach, and teamwork.
- Former UConn President, Philip Austin, signs the New England Governors'/Eastern Canadian Premiers' and New England Board of Higher Education's Climate Change Action Plan and Pledge, marking the first long-term commitment to quantify and reduce campus GHG emissions.
- The EcoHusky Student Group forms to focus on campus sustainability projects and environmental outreach. The EcoHusky Student Group will eventually grow to become one of the largest, most active student organizations on campus.

2004-2005

- UConn commits to green building by adopting its own *Campus Sustainable Design Guidelines* (SDGs). These SDGs apply to all construction and renovation projects, including \$1.3 billion worth of capital improvement projects scheduled to occur by 2015.
- The UConn Biofuels Consortium, a faculty team from multiple academic disciplines, forms to research and develop techniques associated with the optimization of biofuel production. The group begins converting Dining Services' waste cooking oil into biodiesel fuel for campus buses.
- A Master Plan is developed for the University's agricultural campus (East Campus). It is the first UConn Master Plan to focus on conservation goals as well as development opportunities.

2005-2006

- UConn's state-of-the-art natural gas fired cogeneration facility begins operation, replacing several oil-fired utility boilers. The facility reduces the University's reliance on off-site power plants for electricity while avoiding approximately 30,000 tons of GHGs annually¹.
- The University partners with Connecticut Light & Power (CL&P) to establish an annual compact fluorescent light bulb (CFL) giveaway program for incoming students. Thousands of free CFLs are distributed to incoming freshmen, reducing lighting-related campus energy demand.

2006-2007

- Seeking to promote energy efficient and environmentally sensitive practices on campus, the UConn Foundation establishes a *Green Campus Fund* to support sustainability initiatives and green building enhancements for new construction and renovation projects.
- The Office of Environmental Policy and Residential Life sponsor "EcoMadness," UConn's first residential hall water and energy conservation contest. The event raises student environmental awareness by providing real-time data from building sub-meters, allowing them to accurately track their progress.

¹Emissions reduction estimates are based upon a 2006 comparison to fossil-fuel powered power plants on the regional grid generating a similar quantity of electricity.

- UConn completes construction of the 165,000 square foot, \$48 million Burton Family Football Complex and Mark R. Shenkman Training Center, the first LEED Silver-certified athletic facilities in the NCAA. Energy conservation features include infrared radiant heating, heat recovery units, energy efficient lighting, occupancy sensors, window glazing, and use of locally-manufactured, recycled and renewable building materials.
- Fleet fuel efficiency is examined and a *Preferred Vehicle Purchasing List* is issued to assist departments in purchasing vehicles with competitive fuel efficiency.
- A “No-idling” statement is endorsed and issued university-wide to reduce emissions from idling vehicles.

2007-2008

- The University adopts its first *Sustainable Design & Construction Policy*, establishing the LEED Silver rating as a minimum performance requirement for all new construction projects exceeding \$5 million in costs, and major renovations.
- Major improvements are made to the University’s recycling program, including the investment of \$100,000 towards new containers, poster and campus-wide outreach and education efforts.
- The School of Engineering, College of Liberal Arts & Sciences, College of Agriculture and Natural Resources, and the UConn Biofuel Consortium host a two day sustainable energy symposium, bringing state and federal policy makers, businesses, and research groups together to discuss alternative energy.
- The Office of Environmental Policy and the Vice-Provost’s office work together to participate in the national Focus the Nation event. More than 3,000 UConn students as well as staff, faculty and community members participate. The event includes a two-day global warming teach-in with classes from a variety of academic disciplines devoted to discussing climate change. Other events include a free showing of the movie, *The 11th Hour*, a webcast of *The 2% Solution*, and a faculty panel discussion.
- UConn students take their concerns to Congress. Students from the EcoHusky student group and ConnPIRG join over 5,000 other youth in Washington D.C. for Power Shift, a conference which empowers youth to take action against climate change. Students attend three days of conferences and events which culminate with a trip to the United States Capitol Building to speak directly with legislators and rally in the front mall.
- The Office of Environmental Policy and the Town of Mansfield partner to host a conference on climate change. The conference features faculty experts, as well as state and town officials, who discussed the science and policy of climate change.
- On March 25, 2008, President Michael Hogan signs the American College & University Presidents Climate Commitment committing the university to establishing an action plan to achieve carbon neutrality by 2050. An eight-member Climate Action Task Force is appointed to oversee the development of a campus Climate Action Plan.
- UConn Dining Services initiates campus-wide “trayless” dining and begins producing local honey from a campus apiary.
- The Office of Environmental Policy and EcoHusky partner with the Dining Services Local Routes Program for the first combined “Spring Fling,” the University’s annual Earth Day celebration. The event draws thousands throughout the day to Fairfield Way in the campus center.

2008-2009

- UConn hires a Climate Action Plan Project Manager to assist in its climate planning efforts. The Climate Action Task Force and associated workgroups meet regularly to develop a campus Climate Action Plan.
- Student interns in the Office of Environmental Policy develop a set of *Sustainable Office Guidelines* to encourage students, faculty and staff to incorporate principles of sustainability into all aspects of their daily work environments. To complement this effort the OEP begins offering an in-person training program for interested offices and departments.
- EcoMadness, the University's annual inter-residence hall energy and water conservation contest, occurs during September and October. First launched in 2006, the contest now includes all freshman-dominated residence halls. As part of the competition, student volunteers hand out free CFL light bulbs and go door-to-door to talk with their peers about their carbon footprint.
- The EcoHusky Student Group organizes a "GreenWeek" during November to raise campus environmental awareness. To complement the Climate Action Plan drafting process, each day is themed to match a particular CATF workgroup's initiatives.
- A Student Climate Action Summit is held to educate students about the University's ACUPCC efforts and to solicit their input. This peer-to-peer event included student-led brainstorming activities and discussions.
- UConn hosts a campus wide Climate Change Teach-In as part of the nationwide climate change awareness event (formerly known as "Focus the Nation"). During the first week of February, faculty members commit to setting aside a class period for a lesson or discussion of climate change within the context of their discipline.
- UConn further integrates sustainability into the curriculum and educational experience through the development and release of the University's 2009-2014 academic plan, *Our World, Our People, Our Future*, which identifies the environment as one of three focus areas of excellence.

Looking Towards the Future

As described, UConn was well positioned to become an ACUPCC signatory. Nevertheless, there were still many opportunities to further increase the University's environmental sustainability and reduce the campus carbon footprint. It was with this understanding in mind that the University signed the American College and University Presidents Climate Commitment and embarked on a climate action planning process.

Organizational Structure

Environmental Policy Advisory Council

In 2003, the President and Board of Trustees appointed a 25-30 member Environmental Policy Advisory Council (EPAC), which is chaired by the Director of Environmental Policy. Members are selected from across the University, including the student body, and serve 1-2 year appointments. This senior advisory group has become a vehicle to engage UConn students, faculty members, administrators, alumni, and staff members in a dialogue about environmental stewardship, sustainability, and leadership.

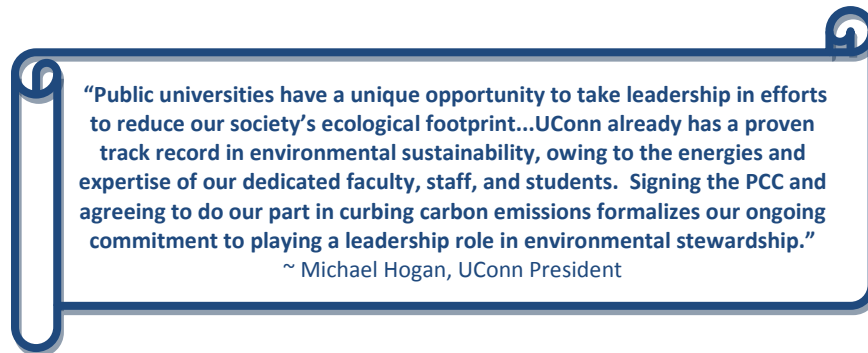
Environmental Policy Statement

The primary purpose of the EPAC is to facilitate the implementation of the University's Environmental Policy Statement, which was drafted by the EPAC and adopted by the University in 2004.

The Statement outlines the University's commitment to environmental sustainability, specifically to the following environmental leadership principles:

- **Performance.** The University will institutionalize best practices, comply with environmental laws, regulations and standards, and continually monitor, report on, and improve its environmental performance.
- **Responsible management and growth.** The University will endeavor to design, construct and maintain its buildings, infrastructure and grounds in a manner that ensures environmental sustainability and protects public health and safety.
- **Outreach.** The University will promote environmental stewardship in Connecticut and embrace environmental initiatives in partnership with its surrounding communities.
- **Academics.** The University will advance understanding of the environment through its curriculum, research and other academic programs, and will employ an ethic of environmental stewardship in all intellectual pursuits.
- **Conservation.** The University will conserve natural resources, increase its use of environmentally sustainable products, materials and services, including renewable resources, and prevent pollution and minimize wastes through reduction, reuse and recycling.
- **Teamwork.** The University will encourage teamwork and provide groups and individuals with support, guidance and recognition for achieving shared environmental goals.

It was with these principles in mind that President Hogan signed the ACUPCC on behalf of the University of Connecticut:



Climate Action Task Force

Given the specific focus of the ACUPCC on carbon neutrality through GHG emission reduction, President Hogan appointed a **Climate Action Task Force** (CATF) to oversee the development of a campus Climate Action Plan. As listed below, the eight-member task force includes representation from University Administration and Operations, the Budget Office, Student Affairs, the Environmental Policy Office, the Provost for Academic Administration's Office, and the UConn Center for Environmental Science and Engineering. In addition, there is a student body representative and a representative from the Town of Mansfield.

CATF Co-Chairs:

- Tom Callahan, Associate Vice President, Administration & Operations
- Rich Miller, Director, Office of Environmental Policy

Additional CATF Members:

- Dr. Nancy Bull, Vice Provost, Academic Administration
- Dr. Julie Bell-Elkins, Assistant to the VP of Student Affairs , Student Affairs
- Nick Frechette, Undergraduate Student, Chemical Engineering
- Matt Hart, Town Manager, Town of Mansfield
- Chuck Morrell, Student Union Associate Director, Student Affairs
- Lysa Teal, Director, Budget Office
- Dr. Michael Willig, Professor , Ecology & Evolutionary Biology;
Director, Center for Environmental Science & Engineering

CATF Workgroups

The CATF was selected to represent the major interests of the University and the community, and to serve as an oversight committee for the broader climate action planning process. To carry out the day-to-day aspects of developing a Climate Action Plan, three workgroups were established:

- The **Energy Workgroup** was charged with identifying strategies to reduce emissions associated with campus energy production, distribution and use. Topics of discussion included energy efficiency retrofits and installations, utility infrastructure improvements, renewable energy use, and conservation.
- The **Transportation Workgroup** focused on neutralizing transportation-related emissions. Proposed strategies dealt with encouraging the use of alternative modes of transportation (*e.g.*, bicycling, walking), improving the campus fleet fuel efficiency through vehicle and fuel selection, and reducing single occupancy vehicle trips to, from and around campus.
- The **Sustainable Development Workgroup** was asked to address GHG emission reduction strategies related to responsible growth and management (*e.g.*, forest and open space preservation, sustainable landscaping, and low impact design) and green building.

The purpose of each CATF workgroup is to outline components of a University Climate Action Plan (for the UConn Storrs campus) related to the workgroup's scope, and to identify specific projects or initiatives that will result in measurable GHG emissions reductions as required by the Presidents Climate Commitment, while continually reflecting the principles of the University's Environmental Policy Statement. Workgroup efforts were expected to not only result in emissions reductions, but to continue to improve overall campus sustainability. For each workgroup, a faculty member and a member of the university staff were identified to serve as co-chairs. By identifying a staff-faculty team for each workgroup, the CATF hoped to encourage the identification of strategies that combined practical implementation (*e.g.*, experience-based) with novel approaches (*e.g.*, research based).

In addition to the three newly formed CATF Workgroups, two existing workgroups of the EPAC were called on to assist with the climate action planning effort:

- The **Recycling and Waste Reduction Workgroup**, led by UConn's Sustainability Coordinator, focused on identifying strategies to reduce campus waste and increase recycling rates.
- The **Environmental Literacy Workgroup**, led by faculty co-chairs in environmental disciplines, assisted with the identification of environmental sustainability and climate change related academic, research, and outreach opportunities for inclusion in the Climate Action Plan.

Once the workgroups were established, campus experts (*e.g.*, faculty, staff and students) in the associated topic areas (*e.g.*, energy, transportation, sustainable development) were identified and

invited to participate. The workgroups, however, were open to anyone who wanted to be involved, including residents of the surrounding towns. In all cases, participation in workgroups was voluntary and workgroups operated by consensus. The University's gratitude extends to more than 100 volunteers from across the University, and to the managers and administrators who enabled their participation. A list of the three CATF workgroup co-chairs and participating members is provided in Appendix B.

Climate Action Plan Project Manager

During the 2008-2009 academic year, the University hired a Climate Action Plan Project Manager (CAP-PM) to assist the CATF with organizing the activities of the CATF workgroups. Initially hired through a graduate assistantship, the CAP-PM was later employed as a full-time, temporary employee in the University's Office of Environmental Policy. The CAP-PM reported directly to the CATF Co-Chairs.

The CAP-PM coordinated all meetings and planning activities of the CATF and related workgroups in developing the UConn Climate Action Plan. Serving as the lead staff person in the CAP planning process, the CAP-PM was responsible for preparing for and facilitating discussions at the CATF and workgroup meetings and coalescing all information gathered into a deliverable CAP that met the requirements of the ACUPCC. The CAP-PM worked closely with all parties involved, periodically providing draft components of the CAP to the respective workgroups and CATF for review.

Developing the Climate Action Plan

The complete climate action planning "cycle" at the University of Connecticut is depicted in the figure below:

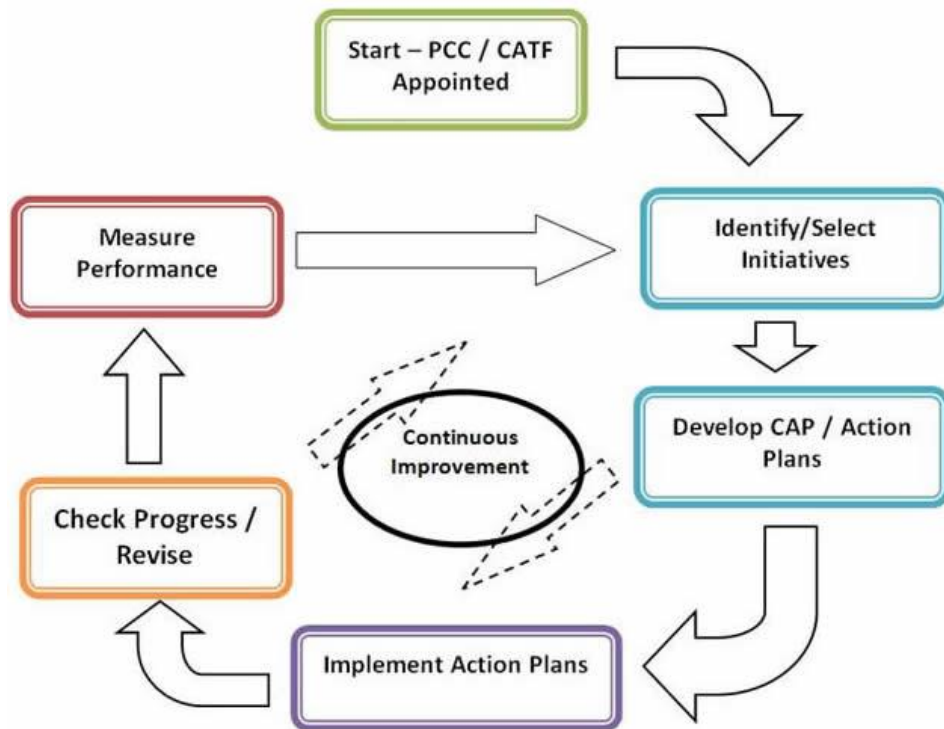


Figure 1.1. Climate Action Planning and Implementation at the University of Connecticut.

Once the CATF was appointed and workgroups were formed, the climate action planning process began. CATF workgroups met bi-monthly between October 2008 and May 2009. Early meetings focused on brainstorming possible solutions to reducing the University's emissions. Later meetings focused on prioritizing efforts and tying proposed strategies into existing University projects and operations. Final meetings focused on evaluating the feasibility and impact of the proposed strategies and combining them into a coherent plan. The following four metrics were used to select strategies for inclusion in the final Climate Action Plan:

1. GHG Reduction Benefit
2. Return on Investment (ROI)
3. First Cost
4. Implementation Timeframe

During the summer of 2009, the CAP-PM organized meetings of specific workgroup volunteers (*i.e.*, experts on a given topic) to refine final drafts. The final draft was presented to the CATF for approval in August 2009. Upon adopting the plan, the EPAC will be charged with implementation, identification of cost savings and funding opportunities, and tracking progress over time.

UConn Climate Action Plan

CAP Overview

The following sections of this document provide an overview of the University's baseline 2007 greenhouse gas emissions and the University's emission reduction strategies. In general, this CAP is intended to be used as a tool to identify ways to achieve those strategies, set timelines, quantify the costs and benefits of proposed projects, and prioritize actions. Specifically, the plan was developed to assist the University in its efforts to:

- Reduce GHG emissions, in particular those emissions associated with the use of fossil fuels for energy and transportation;
- Increase the efficiency of campus operations including energy supply and distribution systems and campus transportation systems;
- Use green technology and practices where possible;
- Increase the proportion of campus energy supplied from renewable sources, including, but not limited to wind, geothermal, solar, and hydroelectric;
- Seek to be an innovator and leader in the environmental sustainability movement by using the Storrs Campus as a demonstration platform for alternative technologies and strategies;
- Plan responsibly for the future, when making campus development and land use management decisions to ensure the conservation of natural resources and the preservation of a vibrant, thriving and biologically diverse campus community.

Emission Reduction Goal & Interim Milestones

As a signatory of the ACUPCC, it is the goal of the University to achieve carbon neutrality over time. However, even with a rigorous greenhouse gas emission reduction plan, large research universities are unlikely to achieve this goal without the purchase of carbon offsets (AASHE 2009). Unfortunately, the economic climate has changed significantly since the University first signed the ACUPCC in 2008. The University remains committed to minimizing greenhouse gas emissions nonetheless, but cannot in good

faith suggest the investment of public funds in carbon offsets during a time of fiscal stress. Any funding acquired to support this effort will instead be focused on maximizing the efficiency of campus infrastructure, minimizing overall energy demand, and ensuring the graduation of environmentally conscious students. After the next review of the Climate Action Plan in 5 to 7 years, the plan will be revised to consider the possibility of investing in carbon offsets or other alternatives, with an ultimate goal of carbon neutrality by 2050.

Initial milestones suggested by the CATF included those set forth by the State of Connecticut Public Act 08-98, *An Act Concerning Connecticut Global Warming Solutions*, which has set a GHG emissions reduction goal for the state of 1990 levels by Jan 2010 and 10% below 1990 levels by Jan 2020. In addition, P.A. 08-98 sets an ultimate regional target of 75-85% below 2001 levels by 2050. However, due to data availability issues, the University has not been able to establish a reliable estimate of 1990 GHG emissions.

The University instead will strive to achieve a ‘2% solution,’ or an average annual target of an additional 2% below 2007 levels (scope 1 and 2 emissions). It is anticipated that during certain years the University will exceed a 2% reduction, while in other years such a reduction will be difficult. Therefore the University will strive for an *average* annual reduction rate of 2% below 2007 levels, or the following interim milestones:

- 2020 – 26% below 2007 levels
- 2032 – 50% below 2007 levels
- 2050 – 86% below 2007 levels

These milestones are goals to help guide implementation and assess progress. The University will, however, periodically assess these goals and changes in University circumstances to determine their feasibility. These milestones therefore may be adjusted as implementation of the CAP progresses.

The 2% solution approach will not result in complete carbon neutrality, but rather an 86% reduction below 2007 levels by 2050. It is recommended that the remaining 14% be offset through a ‘white tag’ program, whereby the University invests in emissions reduction projects at the regional campuses or the surrounding community but retains the resulting emission reduction credits.

CAP Implementation & Timeline

The Environmental Policy Advisory Council (EPAC) will serve as the Steering Committee to oversee CAP implementation. EPAC will be therefore be responsible for ensuring submission of annual greenhouse gas inventories and biannual progress reports to the Association for Advancement of Sustainability in Higher Education (AASHE) in compliance with ACUPCC requirements. Similarly, EPAC will be expected to provide annual progress reports to the President.

Finally, the CAP is meant to be a “working document” that proposes solutions based on existing data, knowledge and circumstances. Therefore, to remain current and practical, the plan will need to be reviewed by the EPAC on an ongoing basis, with anticipated revisions compiled into an updated Plan at 5-7 year intervals, similar to campus master plans.

Table 1.1 outlines the proposed timeline for the initial 5-7 years of CAP implementation.

Table 1.1. CAP Implementation Timeline		
<i>Timeframe</i>	<i>Action</i>	<i>Responsibility</i>
Immediate (within 1 year):	<ul style="list-style-type: none"> • Establish an EPAC CAP Workgroup to begin implementation of the CAP and to track progress. • Convene a campus greenhouse gas inventory metadata workgroup. • Assign a staff member to serve as a temporary, part-time CAP support staff (<i>e.g.</i>, assist with selection of strategies for initial implementation, identification of funding, and tracking progress). • Compile the 2008 and 2009 greenhouse gas inventories. 	<ul style="list-style-type: none"> • EPAC • EPAC CAP Workgroup, Office of Environmental Policy • University Administration • Office of Environmental Policy (student intern)
Short-term (within 2-3 years):	<ul style="list-style-type: none"> • Work with relevant departments to establish a MOA regarding annual data submission requirements and reporting protocol. • Establish a permanent position to assist the EPAC with oversight of CAP implementation, identification and acquisition of funding sources, and tracking progress. 	<ul style="list-style-type: none"> • Inventory Metadata Workgroup, EPAC CAP Workgroup • University Administration
Long-term (within 5-7 years):	<ul style="list-style-type: none"> • Review the CAP and recommend revisions and updates, as appropriate. • Establish a web-based data reporting process for the University's inventory. 	<ul style="list-style-type: none"> • EPAC CAP Workgroup • Inventory metadata workgroup, EPAC CAP Workgroup
Ongoing Actions:	<ul style="list-style-type: none"> • Identify and pursue funding sources, including external sources. • Compile annual greenhouse gas inventories. • Provide annual summary reports of the University's greenhouse gas inventory and CAP implementation progress to the President. • Submit annual inventory reports and biannual progress reports to AASHE. 	<ul style="list-style-type: none"> • EPAC CAP Workgroup • Office of Environmental Policy, Inventory Metadata Workgroup • EPAC • EPAC, Office of Environmental Policy

A Final Note...

Addressing campus waste, energy, transportation, and sustainable development issues can have many environmental, economic and social benefits beyond the reduction of greenhouse gas emissions. In fact, many of the unique strategies initially considered by the CATF workgroups may have little impact on the University's overall emissions profile. Nevertheless, the scope of this report and the CATF's charge was to focus on strategies that directly contributed to a reduction in the campus greenhouse gas emissions. A list of strategies considered by workgroups, which are believed to have potential to improve campus sustainability, but were determined to result in negligible greenhouse gas emissions reductions, are included in Appendix C. It is recommended that these strategies be evaluated for further consideration by the University's Environmental Policy Advisory Council.

References

Association for the Advancement of Sustainability in Higher Education (AASHE). 2009. "Carbon Offsets." Climate Action Planning Wiki. Accessed from <http://www.aashe.org/wiki/climate-planning-guide/carbon-offsets.php> on 24 July 2009.