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# The University of Connecticut Climate Action Plan:

*Guiding the Path toward Carbon Neutrality*



*Storrs Campus*

*September 2009*

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*Section 4:*

## Funding Opportunities



## Section 4:

# Funding Opportunities

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## Executive Summary

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### OVERVIEW:

- The UConn Climate Action Plan outlines various strategies to minimize campus greenhouse gas emissions.
- Implementation of these strategies will require direct funding as well as administrative support.
- Reducing greenhouse gas emissions, however, often directly correlates to saving energy (*i.e.*, electricity, heating, cooling) and other resources, therefore saving money over the long-term.
- There are 3 main types of funding required: administrative, operational and maintenance, and capital.
- Several funding strategies are outlined in this document. However, this is not an exhaustive list and will need to be updated regularly to account for new and emerging funding sources.
- To ensure success and maximize savings, the University should assign a specific individual or team the task of regularly identifying and pursuing CAP-related funding.

The University of Connecticut's Climate Action Plan (CAP) seeks to minimize the University's greenhouse gas emissions toward a carbon-neutral campus by 2050. To do so, various strategies relating to campus energy, transportation and sustainable development are outlined in this document. Many of these strategies are underway with funding already allocated, while others are in development and will require new funding. The good news is that, in the majority of cases, reducing campus emissions translates into a corresponding reduction in energy use (e.g., fuel, electricity) and therefore cost savings over the life of the project. Furthermore, the strategies proposed throughout the CAP are consistent with University's Academic Plan, which stresses the environment as one of three focus areas of excellence and specifically calls for the development of "a university plan to reduce our carbon footprint."

This section of the CAP outlines select funding sources currently available to the University and several proposed new funding sources. This section was developed with two critical assumptions in mind: new funding opportunities are likely to emerge, and mechanisms appropriate today may no longer be relevant several years from now. This section, therefore, is meant to be a 'first screening' of funding opportunities, rather than a comprehensive funding plan for the next forty years.

There are three main costs associated with implementation of the plan: administrative, operational and maintenance, and capital.

- *Administrative Costs.* The successful development of the CAP is the result of the hard work of more than 100 individuals. The coordination of this effort, however, would not have been possible without dedicated staff, particularly the CAP project manager, as well as the part-time sustainability coordinator in the OEP. A similar level of commitment, such as a full-time sustainability coordinator in the Office of Environmental Policy, will be required in the future to ensure successful implementation.
- *Operating and Maintenance Costs.* Day-to-day campus activities require investments in personnel, supplies and equipment to operate, maintain and continuously improve programs and services. In general, the greenhouse gas reduction strategies proposed in the CAP directly correspond to reduced operating expenses. Through energy efficiency and conservation programs that cut the University's carbon emissions, we also lower our fuel and energy costs for electricity, heating, cooling, and operating our water supply

system. However, many strategies have associated first costs for the purchase of more fuel-efficient vehicles or energy-efficient equipment used for retrofits and replacements. Other strategies will necessitate a change in routine maintenance, which might entail re-training custodial staff or hiring experts to operate new systems or oversee new programs. Such costs will likely have a rapid return on investment (ROI) or payback period, which is when the overall energy savings begin to exceed the first cost. However, these first costs must nonetheless become part of annual operating budgets over the next few years, when such budgets have been held to "zero sum" increases at best during these difficult economic times. Even with a dedicated funding source, that will mean resetting institutional priorities and reallocating time and money to better align with the carbon reduction strategies recommended in the CAP.

- *Capital Costs.* Strategies that recommend new construction, major renovations, or the development of master plans will require capital funding. Several of the proposed strategies have funding already allocated through the UConn 2000 and UConn 21<sup>st</sup> Century programs. Additional projects, including several building envelope and utility infrastructure (e.g., steam, water, and sewer) repair and replacement projects, are proposed in capital/deferred maintenance budgets in upcoming fiscal years. Completion of these projects is expected to have a positive impact on the University's carbon footprint.

Many funding mechanisms exist to finance the implementation of the University's Climate Action Plan. It is recommended that the University take a multifaceted approach to funding the CAP since it is unlikely that any one funding source will be large enough or broad enough to finance all proposed activities. Proposed funding mechanisms discussed in this section include:

- Federal and state grants, loans, and rebate programs.
- Private funding through direct grant opportunities, performance contracts, third party financing, or other partnerships.
- Proceeds from the sale of the cogeneration facility Renewable Energy Credits (RECs). The sale of RECs is projected to net hundreds of thousands of dollars annually, most, if not all of which, should be set aside for energy efficiency projects and other GHG mitigation strategies recommended in the CAP.
- Voluntary donations. The Green Campus Fund, part of the UConn Foundation's annual appeal, has generated more than \$20,000 from alumni and other individual donors in a few

short years. It may serve as a source of seed money for equipment expenses and green features in capital improvement projects.

- Proceeds from the sale of excess power generation sold back to the grid during periods of peak demand.
- A campus parking surcharge to encourage carpooling and minimize commuter emissions.
- A student sustainability fee to seed a revolving loan fund for campus energy improvements.
- Campus student activity funding sources for student-led emission reduction projects.
- A self-sustaining forestry program (*i.e.*, timber harvesting) that enables management to maximize carbon sequestration.

Additional research will be needed to determine feasibility and appropriateness of the proposed mechanisms for each cost type. It is therefore recommended that the University assign an individual to the ongoing task of identifying and pursuing CAP-related funding for the campus.

## Introduction

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### KEY POINTS:

1. Implementing the Climate Action Plan will require funding.
2. The majority of the proposed strategies, however, will save the University money in the long-term.
3. Employ lifecycle cost analysis (LCA) to balance initial costs with the savings and secondary benefits accrued over the life of a proposed project.
4. Available funding sources will change over time.
5. Reducing emissions today will avoid future costs.

Implementation of this plan will require upfront investment by the University. Acquisition of funding will at times be a challenge, and innovative funding strategies will be necessary. Nevertheless, topics such as alternative energy production and greenhouse gas emissions reduction are increasingly gaining attention and, therefore, financial support.

Furthermore, the University serves as an example to the students that it teaches. UConn must not fail its students by letting an issue as comparatively trivial as funding thwart the University's efforts to tackle a challenge as great as global climate change. The cost of inaction is far greater than an upfront investment in our students' future. (As the next sections will reiterate, upfront costs are often outweighed by long-term savings and secondary benefits when evaluated over the long-term.)

This section is meant to serve as a starting point, but will undoubtedly need to be updated on a regular, ongoing basis since available funding sources and mechanisms will change over time. Dedicating a particular individual or team to this task will ensure that valuable funding opportunities are not missed or overlooked by the University.

### ***Balancing Long-Term Gains with Short-Term Investments***

It is easy to dismiss proposed projects with high upfront costs as unworkable solutions. However, analysis based on upfront costs alone does not consider annual operations and maintenance costs or the savings that can be accrued through changes in both. Constructing a LEED-Silver certified building, for example, may require additional upfront costs over the construction of a 'traditional' building. However, the energy and water savings, increased employee productivity, and other benefits generated will often pay for these upfront costs several times over during the life of the building. Therefore, before funding any project, the University should require a lifecycle cost analysis (LCA) comparison of all available alternatives.

### ***Don't Forget to Measure Carbon Savings!***

When considering the secondary benefits of project alternatives, the University should strive to specifically quantify the expected emission reduction, or carbon savings. While this remains difficult to do, estimates of the 'cost' of carbon, which range from \$130 to \$300 per ton, are beginning to appear. This will allow for at least a qualitative comparison between proposed solutions (Bookart 2008). In addition, there is evidence to suggest that future state and federal regulations

will drive the cost of carbon even higher. Avoiding these future elevations in carbon cost by acting quickly will, therefore, save the University money in the long run.

## **Ensuring Success: Administrative Costs**

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### **RECOMMENDATION:**

1. Continue to allocate resources to employ one or more students per semester to compile the University's greenhouse gas inventory.
2. Establish a campus position to oversee the implementation, tracking and financing of the University's climate action plan.

Over the course of the 2008-2009 academic year, UConn has invested a substantial amount of resources (i.e., time, finances, and labor) towards the development of this climate action plan. Continued human resources will be required in order for the plan to be successfully implemented and achieve measurable results.

ACUPCC signatories are required to submit annual greenhouse gas inventories as well as biennial progress reports. During the 2008-2009 academic year, a full-time paid project manager as well as two part-time paid student interns were charged with the development of the plan and completion of the campus greenhouse gas inventory. (Over 100 volunteers also contributed their time and expertise.) A similar level of commitment will be required to complete future annual inventories and progress reports.

The CATF recommends that the University continue to hire one or more student interns through the Office of Environmental Policy to compile the annual greenhouse gas inventory. If funding is not immediately available, the Office of Environmental Policy may seek qualified students to perform a for-credit student internship focused on the University's greenhouse gas inventory. Utilizing two or more interns can assist with overcoming continuity issues due to frequent turnover, minimal training requirements, and loss of information.

In addition, the CATF recommends that the University seek to assign a staff person to manage the implementation of the climate action plan, including the identification and acquisition of funding. This individual should be knowledgeable of campus operations, and be able to communicate effectively with campus experts (e.g., utility managers, alternative energy researchers, campus planners, etc.) as well as student populations, and possess experience and skill in identifying and acquiring funding sources for college or university sustainability (i.e., emissions reduction) projects. If funding is not immediately available, this role may temporarily be assigned to a qualified, existing employee or graduate student at the University. A long-term goal, however, should be to establish a permanent position to oversee the University's climate action effort, particularly the financing of emission reduction efforts and the tracking of progress.

## Existing & Allocated Funds

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### UConn Green Campus Fund:

- Approximately \$20,000 presently available for campus 'greening' activities
- Potential funding source for small equipment costs
- Supported by voluntary, private donations.
- Recommended to establish long-term fund raising goals and to develop a plan to achieve goals.

### UConn 2000 & UConn 21st Century:

- A combined \$2.3 billion to be invested over 20 years.
- Funding to build, renew, and enhance the University's physical infrastructure, including utility systems and building envelope upgrades.
- Funding allocated for the campus compost facility, water reuse facility, North Hillside Road extension, metering program, and utility system improvements, among other projects.

### *UConn Green Campus Fund*

In 2006, seeking to promote energy efficient and environmentally sensitive practices on campus, the UConn Foundation launched a Green Campus Fund to support sustainable building enhancements for new construction and renovation projects (UConn Foundation 2006). Donations to the Green Campus Fund, which exceed \$20,000 to date, have supported recycling infrastructure improvements, bicycle racks, campus green roof seating, and other sustainability improvements on campus. The Fund is managed by the UConn Foundation, and projects are selected in consultation with the Director of Environmental Policy. To support future CAP efforts, the University and the UConn Foundation should develop and implement a plan to ensure continued donations to the Green Campus Fund.

### *UConn 2000 & 21st Century UConn*

State of Connecticut Public Act 95-230, or *The University of Connecticut 2000 Act* (i.e., 'UConn 2000'), was passed by the CT General Assembly in 1995. The program represents a \$1 billion, ten-year investment to build, renew and enhance UConn's physical infrastructure through new building construction, major renovations, deferred maintenance, equipment replacements and upgrades, utilities improvements, and public access improvements.

The *21st Century UConn* initiative will extend and expand the unprecedented and extremely successful *UConn 2000* program. It will be an eleven-year program that adds \$1 billion to continue the infrastructure improvements at University of Connecticut's main campus in Storrs (as well as at the five regional campuses and the School of Law). Recently completed projects that will help increase campus energy efficiency include the first phase of a campus metering project and a Residential Life window replacement project.

Several million dollars in funding has been also approved for additional building construction, renovations, and improvements, including numerous projects that will contribute to campus carbon footprint reductions. Funded projects with a greenhouse gas emission reduction benefit include:

- agricultural waste compost facility
- water reuse facility
- water distribution system upgrades and modifications
- steam and condensate distribution system improvements
- improvements to the central utility plant
- completion of the North Hillside Road extension project
- continued meter installations
- window replacements in campus housing units

Unfortunately, in June 2009, the Governor's Office notified the University that the scheduled FY10 bond authorization for the UConn 2000 program would be deferred. Included among the expected impacts are delays to critical building envelope and utility infrastructure (e.g., steam, water, and sewer) renovation and maintenance projects. Delay of these projects will translate into a delay in energy cost savings opportunities. The University, however, will continue to advocate for critical funding to update and maximize the efficiency of campus utility systems and buildings. Investing in these projects will yield annual operational cost savings for the University while contributing to the minimization of campus emissions, making them 'high priority' investments for the University.

## **Potential On-Campus Funding Mechanisms**

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There is no one single funding mechanism that will be appropriate for the University. Just as addressing climate change will require a multifaceted approach, so will funding campus emission reduction efforts. Options potentially appropriate for the University include sale of RECs generated through operation of the cogeneration facility, the establishment of a campus revolving loan fund, implementation of a student fee, and voluntary campus donation programs. These are only a short sample of the many strategies available to the University.

### ***Sale of Renewable Energy Credits***

#### *Background Information*

The State of Connecticut's renewable portfolio standard (RPS) requires that all state electricity providers obtain a minimum of 4% of their total load from combined heat and power systems (i.e., cogeneration facilities) and energy efficiency by 2010. The RPS also requires that these entities obtain a minimum of 23% of their load from renewable energies by January 1, 2020 (CTDPUC 2008). Facilities that are classified as Class I, II, or III renewable energy sources generate Renewable Energy Credits (RECs), which can be sold at auction to electricity providers seeking to achieve the required renewable energy mix.

#### *Implementation at UConn*

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#### **RECOMMENDATION:**

##### **Continue to sell cogeneration facility RECs to generate funding for the University.**

- Reinvest a significant portion of the annual sales towards campus energy projects (i.e. efficiency improvements, conservation, and demand reduction).

In December 2008, the State approved the University's application to generate Class III RECs in association with the efficient operation of the cogeneration facility. Consequently, the University is now able to sell the RECs to those electric companies seeking Class III power sources. In the spring of 2009, the University placed the RECs it had generated during the final weeks of the previous quarter on the market for bid; the sale of the RECs generated an impressive \$90,000. 25% of the revenue from the sale of the RECs is provided to the Connecticut Conservation and Load Management Fund which manages additional programs to incentivize efficient energy use, reduce air pollution and negative environmental impacts while promoting economic development and energy security. There is also additional tax liability associated with the income generated by the sale of the RECs.

Although it is agreed that this was an unusually prosperous sale, sale of the University's RECs are likely to provide a significant source of funding for the University in the near future. It is estimated that future sales of RECs will generate approximately \$1-2.5 million per calendar year. This estimate is based upon current conditions; prices are highly volatile and will respond to fluctuations in market conditions. A significant portion, if not all, of this future REC revenue will be dedicated to financing continuing improvements in the University's energy efficiency and sustainability.

### ***Revolving Loan Fund***

#### *Background Information*

At large universities it is often particularly difficult to bridge capital and operating costs, despite direct connections between the two. Revolving loan funds are a unique way to overcome this barrier in funding campus sustainability projects while maximizing return on investments several times over. An increasing number of schools, both private and public, are developing revolving loan funds to tackle campus sustainability projects. These include:

- Harvard University (Green Campus Loan Fund)
- Iowa State University (Energy Conservation Loan Fund)
- Tufts University (Energy Reserve Fund)
- University of Maine (Green Loan Fund)
- Carleton College (Sustainability Revolving Fund)
- Connecticut College (Energy Conservation & Efficiency Fund)

Universities have taken various approaches to structuring revolving loan funds. Generally, loans are awarded to projects believed to have an (a) demonstrable cost savings and emissions reduction and (b) that will have a payback period of approximately 5 years or less. Several schools allow worthwhile projects with longer payback periods to be coupled with projects that have immediate high returns to create an average payback within the required timeframe. Loan agreements

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#### **RECOMMENDATION:**

##### **Establish a campus revolving loan fund to invest in campus carbon footprint reduction.**

- Redirect a portion of the proceeds from the annual sale of the cogeneration facility RECs towards the fund.
- Ensure proper management of the fund to encourage growth over time.

are structured so that project savings are returned to the fund until the initial loan is paid off. Certain schools require an additional payback percentage to ensure growth of the fund over time. Once the initial loan funds are returned, any further savings generated are retained by the department responsible for implementing the project. Projects commonly funded relate to campus energy efficiency improvements and renewable energy development projects to supplement campus power needs.

Perhaps one of the most well known campus revolving loan funds, Harvard University's Green Campus Fund (GCF) has allowed for the investment of over \$14.5 million in 160 projects since its inception in 2002. Average simple payback is approximately 3.5 years and average return on investment exceeds 30% (AASHE 2005-2009).

#### *Implementation at UConn*

Sale of 2008 and 2009 cogeneration facility RECs may provide an ample source of seed money for a UConn revolving loan fund dedicated to campus energy improvements (*e.g.*, efficiency improvements, demand reduction efforts, renewable energy generation, etc.) and subsequent emission reductions and cost savings.

It is critical to note that proper management of the fund is potentially more important than the initial value. Selection of a careful mix of projects will ensure cost savings and emissions reductions while allowing the fund to grow over time. Carefully selected and implemented initial projects will demonstrate the potential of the fund and encourage additional donations. This, in turn, will ensure ongoing investments in projects that will result in further savings and emission reductions.

Similarly, the management team should be small enough to remain effective, yet broad enough to include representation from major stakeholders and experts among campus administrators, faculty, facilities staff, student leaders, community members and alumni. A carefully executed and managed UConn revolving loan fund will benefit the University for many years to come through development and demonstration of innovative alternative energy sources, reduced greenhouse gas emissions, and the significant cost savings associated with demand reductions and maximization of utility efficiency.

#### ***Sale of Excess Power Generation***

The University of Connecticut's state-of-the-art Cogeneration Facility has an electrical production capacity of 24.9 Megawatts, a steam production capacity of 600 KP per hour, and a chilled water production capacity of 10,300 tons. The facility does not usually operate at maximum capacity; rather, electrical demand averages approximately 18 MW per day.

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#### **RECOMMENDATION:**

##### **Explore opportunities to generate and sell excess power.**

- o Ensure that generation of excess power does not compromise the facility's status as a Class III power source.

The University should investigate and determine the feasibility of securing authority to export excess power to the grid. In return for this export, the University could either seek direct monetary compensation or arrange to be credited towards power purchases at the regional campuses or the UConn Health Center. Any revenue or savings generated could then be reinvested in campus carbon footprint reduction efforts.

Caution should be exerted, however, when pursuing this funding strategy to ensure the positive environmental benefits of cogeneration are not lost. If the facility is operating at or near maximum capacity to produce excess electricity for export, excess steam will also be generated. If this additional steam cannot be utilized, it will result in wasted energy. This, in turn, will reduce the overall efficiency of the plant and compromise the University's potential to earn (and therefore sell) Class III RECs. (State law requires that a minimum efficiency of 50% is maintained to be classified as a Class III power source.)

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**RECOMMENDATION:****Develop an energy incentive program to encourage demand reduction through accountability and conservation.**

- Reward individuals and departments that work to reduce their campus energy use.
- Reinvest funds collected into campus energy improvement projects.

***Campus Energy Incentive Program***

Thousands of individuals contribute to the daily campus energy demand (*i.e.*, heating, cooling, and electricity). A reduction in this overall demand would save the University thousands of dollars, and avoid a significant amount of greenhouse gas emissions annually. Unfortunately, the campus energy system is structured in a way that provides little incentive for campus energy users to reduce consumption. To increase the perceived value of campus energy, and to provide incentives for individuals and groups to conserve energy, the CATF recommends that the University implement a campus energy incentive program.

There is no single 'best' way to structure a campus energy incentive program, and any successful program will need to be flexible. It is important to remember that the primary goal of the program is not to raise funds. Instead, its focus should be to encourage campus energy users to take responsibility for their usage through energy conservation. Any funds generated should be reinvested into campus energy utility systems, or similar efforts, to reduce energy-related costs and emissions.

Potential aspects of a campus program might include:

- Bill back university customers. Develop a system to charge university units (e.g. departments, offices, centers) and on-campus vendors for energy use. Pro-rate building use by department square footage and implement an annual fee based upon department size and function. Reward units for conservation efforts.

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**RECOMMENDATION:****Develop a parking pass surcharge according to vehicle emissions rating.**

- Base surcharge rates upon EPA vehicle greenhouse gas emission ratings.
- Offer a waiver for individuals participating in a carpool program.
- Reinvest funds collected into alternative transportation systems and amenities to further reduce emissions.

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**RECOMMENDATION:****Develop a sustainable on-campus forestry program to fund a campus forest manager position.**

- University forest resources are currently underutilized and, if properly managed, can offer greater economic and environmental benefits.
- A forest manager is required to maximize these benefits.
- Campus forestry operations can be self-sustaining and provide cost savings for the University.
- Proper management of UConn's forest will result in increased carbon sequestration.

- Require a flat fee or the return of a portion of grant monies associated with energy intensive research. To encourage the selection of maximum efficiency equipment and operation protocol, the university should offer a fee waiver to researchers that demonstrate that they are using the most energy efficient equipment and methods available.
- Charge an on-campus student utility fee. Offer a rebate to students in those residence halls that remain below an established energy use standard for that building.

***Campus Parking Surcharge***

Automobile emissions are a significant source of greenhouse gas emissions. Incentives that encourage individuals to forgo a personal vehicle on campus in favor of alternative transportation will directly impact the campus emissions profile. One such incentive is a parking pass surcharge that is price-based according to EPA emissions ratings. This can be developed by working with parking services and UITS.

The funds generated from this charge would then be invested in improving the campus transportation system and promoting alternative modes of transportation (e.g. off-campus public transit options, a car share program), in order to further reduce associated emissions.

Vehicles above a certain emissions threshold (e.g. 'cleaner' vehicles) would be exempt from the surcharge. Individuals who carpool, regardless of vehicle type would also avoid any charges.

***Self-Sustaining Forestry Program***

The University of Connecticut owns approximately 2,130 acres of forest land in association with the Storrs Campus. These resources are presently managed by the Department of Natural Resources and the Environment for education, research, recreation, and forest products (e.g., timber, maple syrup, honey, and fuelwood). Although forest management plans are in place for each of the University-owned parcels, these plans are out-dated. Furthermore, these past management plans do not emphasize the carbon sequestration value of the forests, which is central to the University's greenhouse gas emissions reduction plan. The establishment of a forest manager is necessary to maximize the carbon value of the University's forest holdings.

To fund this position, it is recommended that the University establish an on-campus lifecycle forestry process. For example, the UConn forests can be managed to provide a continuous supply of hardwood lumber to the University facilities carpentry shop, which will result in cost savings to the University. These savings can then be directed toward supporting the forest manager position.

Properly conducted small-scale harvesting and production will result in greater monetary, carbon sequestration, and other silvicultural benefits than are presently realized. Establishment of this program will provide a sustainable example of locally grown products being incorporated into the University's activities, serving as a unique educational opportunity for students, local industry, and forest landowners. Furthermore, the practice of harvesting timber and converting it into long-term durable products (while new trees grow to repeat the process) will increase the carbon sequestration, potential of the University's forest resources and therefore, offset additional greenhouse gas emissions.

### ***Student Utility/Sustainability Fee***

#### *Background Information*

More than fifty colleges and universities nationwide have instituted student sustainability, or 'green', fees, including:

- Appalachian State University
- Chico State University
- Colorado College
- Connecticut College
- Evergreen State College
- Green Mountain University
- Harvard University
- Humboldt State University
- Messiah College
- Northland College
- The University of Illinois
- Tufts University
- UMass Boston
- University of California, Berkley
- University of California, Santa Cruz
- University of California, Santa Barbara
- University of Colorado, Boulder
- University of Idaho
- University of Illinois, Urbana-Champaign
- University of Kansas
- University of Kentucky
- University of North Carolina, Chapel Hill
- University of Oregon
- University of Tennessee
- University of the South, Sewanee
- University of Virginia
- University of Wisconsin, Green Bay
- Western University
- Western Washington University

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#### **RECOMMENDATION:**

##### **Establish a student utility or sustainability fee.**

- Colleges and universities across the country utilize student fees to help fund campus sustainability and, in particular, energy efforts.
- Engage UConn student leaders to develop a student fee appropriate for the Storrs campus (*i.e.*, fee amount and purpose).
- Invest monies raised in expansion of sustainable student services (*e.g.*, expanding sustainable transportation options, greening campus housing, increased production and use of renewable energy).

Fees are generally established by passing a referendum on a student government or student body voting ballot (Campus in Power 2008) and have ranged from less than \$1 to over \$25 per semester per student. Notably, UConn's state peer, Connecticut College, charges a \$25 student fee to fund renewable energy purchases. The majority of the universities achieved tangible results within only a few years of fee implementation. Measured successes include reduced reliance on fossil fuels, increased education, and financial benefits, all in accordance with the intended purposes of the fees. Research conducted on the above universities has indicated that these fees are generally student proposed, student supported, and student run. Their efficacy correlated with student involvement, as well as faculty and staff support.

#### *Implementation at UConn*

Based upon UConn's fall 2008 Storrs campus enrollment, implementing a similar campus fee would generate approximately \$17,500-\$420,000 per semester depending on the established fee level. These funds could then be directed toward expanding student services (e.g., expanding sustainable transportation options and greening campus housing), maximizing campus utility systems, or increasing the production and use of renewable energies on campus. Although student fees have the potential for controversy, a well-designed fee that is collected at the request of students will significantly increase student-driven campus sustainability efforts. The University should, therefore, work with student environmental group leaders to determine interest in pursuing the establishment of a student sustainability fee.

#### ***Student Project & Activity Funding Sources***

Arguably, the true goal of the ACUPCC is to educate this generation by involving them in the identification and pursuit of solutions to climate change. Therefore, students and student groups play a valuable role in assisting the University in achieving emissions reductions. More and more frequently, students are interested in implementing campus projects that will contribute to a reduction in campus emissions or heighten awareness of climate change issues. In fact, UConn became an ACUPCC signatory in direct response to student pressure!

Students bring enthusiasm, determination, creative solutions, and potentially even funding, to the challenge of tackling the campus carbon footprint. They should not be overlooked as an important component of campus sustainability efforts. Directly involving students in the emission reduction process does not only provide access to a valuable source of funding. It also encourages students to gain 'real world' experience by working alongside campus professionals to implement environmental solutions.

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#### **RECOMMENDATION:**

**Establish a plan or system to encourage the development of student-led carbon footprint reduction projects; utilize available student funding sources.**

- Significant campus funding exists to support student activities and projects.
- Student-led projects provide students with valuable hands-on experience while driving reductions in campus emissions.
- The University can better support students interested in driving on-campus carbon reduction projects.

Campus funding for UConn student groups interested in implementing campus sustainability projects is more abundant than many may realize. The following organizations, for example, have funding regularly allocated through the University fee system to support the activities of students and student groups:

- *Undergraduate Student Government (USG)*
- *Student Affairs Committee*
- *Graduate Student Senate (GSS)*

It is important to note that the above organizations are not focused specifically on funding campus sustainability improvements or environmental projects. However, if these efforts are properly presented, they are likely to fall within the broad umbrella of interests that the organizations are able to fund during a given academic year.

This is not an exhaustive list of funding opportunities available to students or student groups on campus. For example, campus and local chapters of regional or national organizations may also be eligible to apply for funding through these ‘parent’ organizations. Similarly, the UConn Chapter of the Public Interest Research Group (PIRG) collects funds through a ‘negative check-off’ system associated with the campus fee bill. All funds collected by PIRG are transferred directly to the state PIRG system rather than being reinvested in campus greening activities. Future efforts should focus on encouraging PIRG to reinvest this student money into the campus.

The University should be proactive about assisting student groups in identifying such opportunities. By working with students to develop and implement campus carbon footprint reduction projects, students can gain valuable hands-on experience including research and leadership skills. The University, in turn, benefits from a potential reduction in greenhouse gas emissions.

### ***Alumni Funding Opportunities***

The UConn alumni network contains thousands of individuals, many of whom possess a passion for environmental sustainability and climate change action. In addition, these individuals represent connections to thousands of private entities that may be positioned to support the University’s climate action efforts through direct financial donations or provision of technical and consulting expertise.

It is suggested that the EPAC arrange to discuss potential opportunities with the UConn Alumni Association.

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#### **RECOMMENDATION:**

##### **Engage alumni in campus climate action planning.**

- Alumni can serve as a source of direct donations for campus greening projects.
- The alumni network represents a relatively untapped network of professional organizations through which campus climate action planning partnerships can be developed.

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**RECOMMENDATION:****Develop a system to encourage voluntary donations through the existing campus HuskyOne card system.**

- All students, faculty, and staff are issued a HuskyOne card, which can be used as a debit card on campus and at nearby businesses.
- A ‘swipe for change’ program would encourage voluntary donations over the course of the academic year.
- Funds will be reinvested in programs and activities that will directly benefit students while reducing campus emissions.

## ***Voluntary Donation Program***

### *Background*

Students, faculty and staff at the University of Connecticut all possess campus ID cards as part of the University’s Husky One Card program. The cards are linked to a personal Husky Bucks debit account, which can be used in lieu of cash throughout campus. Husky Bucks are currently accepted in the dining halls and cafes, the student recreation facility, the laundry rooms of the residence halls, the University Co-Op, campus photocopying centers, and various other private businesses on and near campus. Many individuals prefer to use funds deposited into their Husky Bucks account instead of other payment methods for on-campus purchases.

### *Implementation at UConn*

The Husky One Card program provides an excellent vehicle for the development of a voluntary donation system. The University’s milestones for emission reduction center on a targeted 2% decrease per year. Therefore, it is proposed that the University develop and implement a program that allows individuals to voluntarily sign up for one of the following options. In the first option, students can make a one-time single swipe donation of \$2. In the second option, students can sign up to be a ‘climate change champion’ and donate \$0.02 for every dollar in purchases made during the semester. Students can be approached at various points during the academic year to enroll in the program, including at the time of ID issuance and during scheduled fundraising drives.

Given that donations are expected to be primarily from students, the funds should be directed towards activities and projects that will directly involve and benefit students. Therefore, it is proposed that the funds be transferred to a student loan program for on-campus projects that will either result in a reduction in campus emissions or further student research in climate change or a related field.

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## **External Funding Opportunities**

External funding can serve as an important source of ‘seed’ money for campus emissions reduction projects. Funding sources discussed in this section include state and federal utility rebates, grants, public-private partnerships, and municipal partnerships. Other funding sources are likely to exist as well, and should be evaluated for appropriateness as they are identified.

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**KEY POINTS:**

- Federal and state utility rebates and grant programs offer funding to support climate change planning efforts.
- Available funding sources will emerge and change over time.
- In order to capitalize on these opportunities, the University must be proactive about identifying opportunities.

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**KEY POINTS:**

- Private funding has historically been an important source of campus funding and will continue to serve as an important source of funding for campus carbon footprint reduction efforts.
- Private funding can occur in various forms, including:
  - Direct grant opportunities
  - Performance contracts
  - Third party financing agreements
  - On-campus demonstration partnerships

### ***State & Federal Opportunities***

Many federal and state utility rebates, grant programs, and similar opportunities exist to support emission reduction and related efforts. The University should be proactive about identifying and acquiring these funding sources. For example, the University can engage Department of Administrative Services contractors to perform lighting and HVAC audits when Clean Energy Efficiency Fund monies can be used to finance projects.

As sources constantly change over time with availability and legislation, a list is not included in this section. However, a list of state and federal resources, which may be appropriate for funding the strategies described, is provided at the end of this section.

### ***Private Funding Sources***

The private sector has historically served as a significant source of funding for university initiatives nationwide. Many of the University of Connecticut's present research endeavors are the result of successful partnerships between the University and private parties. In 2007, for example, Pratt & Whitney donated \$10,000 to the University to fund the on-campus biodiesel laboratory, resulting in the successful generation of 2,600 gallons of B100 per year. Similarly, the 21st Century Jobs Act, which became law in 2006, authorized \$4 million in state funding to create a public-private partnership called the Eminent Faculty Program. This enabled the University to hire six national experts of alternative energy technology in 2008.

Private funding sources will continue to be a valuable resource for the University and should be pursued to help implement the recommendations of this plan. Potential funding mechanisms include:

#### ***Direct Grant Opportunities***

Many organizations will offer direct funding for campus projects. As an example, the University can utilize the incentive programs currently available from Connecticut Light & Power (CL&P) and Ameresco to develop a list of the top ten opportunities for energy improvements for building envelopes. This list should then be narrowed to the projects executable within each that will maximize the incentive usage and/or provide the quickest payback per investment. As with state and federal funding opportunities, grant money availability changes on an annual basis and must be constantly pursued to be a successful source of financing.

#### ***Performance Contracts & Energy Service Companies (ESCOs)***

Performance contracts are an increasingly popular way to ensure return on investments while minimizing university responsibility. Rather than pay the up-front cost required to install energy efficient technologies in a facility, the University enters into a performance

contract with an ESCO. The ESCO then finances the initial project costs with a guarantee of future utility savings to the University. In exchange, the University agrees to return a portion of these savings to the ESCO as payment. Generally, the ESCO is responsible for long-term (*i.e.*, 5-20 years) management of the facilities and any losses incurred if the project does not produce the expected savings.

#### ***Third Party Financing Options***

Power purchase agreements with renewable energy companies, for example, are an increasingly popular strategy for decreasing the campus energy footprint. Under the agreement, a third party installs a renewable energy system on campus for free and retains ownership of the system. The University enters into a long-term contract to purchase electricity from the system, often at a reduced rate. The private entity benefits from energy sales and tax breaks. The University benefits through access to an on-campus demonstration system (and the associated research and education opportunities), the ability to purchase electricity at a reduced rate, and the avoidance of the capital investment otherwise necessary to install and operate the system. If the University purchases the associated RECs, it will also be able to retain the carbon benefits of the purchase. The UConn Torrington campus is currently considering implementing a wind energy project through third party financing.

#### ***Other On-Campus Partnerships***

On-campus public-private partnerships can take numerous other forms beyond those listed above. In general, the University provides a location for the project and access to existing resources (*e.g.*, space, personnel, equipment) while the private entity provides the capital investment. Both parties benefit from positive publicity, returns on investment, and research findings.

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**KEY POINTS:**

- Municipalities and universities have access to different funding pools. By partnering, each party can improve access to funding and increase the success of mutually beneficial projects.
- Transportation issues will require coordination with local municipalities.
- University-municipality ‘white tag’ programs, while not a funding source, are a creative and attractive alternative to purchasing carbon offsets.

### ***Municipal Partnerships***

Many of the strategies proposed in this plan will require cooperation between the University and the surrounding towns. This is particularly true for those strategies that seek to minimize transportation-related emissions through improved mass transit and increased local housing. By working together, the University and the local municipalities can expand access to resources and better brainstorm and implement solutions to regional transportation-related greenhouse gas emissions.

#### ***White Tag Programs***

While not a funding source, there are long-term opportunities for the University to achieve greenhouse gas emission reductions through partnership with the local community. ‘White tag’ programs are a creative approach to acquiring carbon offsets: an institution invests in the surrounding community through a greenhouse gas emission reduction effort (*e.g.*, tree plantings, solar panel installations, homeowner energy efficiency education programs, etc.) and, in turn, obtains the credit for any emission reductions realized, including those that occur off-campus. The municipality retains the benefit of the investment (*i.e.*, the aesthetic or environmental benefits of the trees, the power generated by the solar panels, or the energy savings associated with conservation behavioral changes) while the University is able to report an offset or reduction in its annual greenhouse gas inventory. Compared to other offset programs, white tag programs allow the University to not only see the impact of its investment but also to indirectly benefit from the program (*i.e.*, through improved community relationships and research opportunities).

## Related Resources:

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- Database of State Incentives for Renewables & Efficiency (DSIRE): <http://www.dsireusa.org/>
  - DSIRE Federal Incentives/Policies for Renewables & Efficiency:  
<http://www.dsireusa.org/incentives/index.cfm?State=US&ee=1&re=1>
- Grants.gov (federal grants search engine):  
<http://www07.grants.gov/search/basic.do>
- The Environmental Protection Agency (EPA) -  
<http://www.epa.gov/epahome/grants.htm>
- U.S. Department of Agriculture -  
<http://www.csrees.usda.gov/fo/funding.cfm>
- U.S. Department of Energy (DOE), Energy Efficiency & Renewable Energy (EERE) Office -  
<http://www1.eere.energy.gov/financing/>
- The National Science Foundation (NSF) -  
<http://www.nsf.gov/funding/>
  
- State Grant Programs:
  - [CEF - Community Innovations Grant Program](#)
  - [CCEF - On-Site Renewable DG Program](#)
  - [CCEF - Project 150 Initiative](#)
  - [DPUC - Capital Grants for Customer-Side Distributed Resources](#)
- State Loan Programs:
  - [CHIF - Energy Conservation Loan](#)
  - [DPUC - Low-Interest Loans for Customer-Side Distributed Resources](#)
- State Rebate Programs:
  - [CCEF - Affordable Housing Initiative Solar PV Rebate Program](#)
  - [CCEF - Solar PV Rebate Program](#)
  - [Furnace and Boiler Replacement Rebate Program](#)
- Utility Grant Program: [The United Illuminating Company - Energy Conscious Blueprint Grant Program](#)

- Utility Rebate Programs:
  - [Connecticut Light & Power - Commercial Energy Efficiency Rebates](#)
  - [Connecticut Light & Power - Energy Opportunities Efficiency Program](#)
  - [Connecticut Light & Power - Express Rebate Programs](#)
  - [Connecticut Light & Power - Operation and Maintenance Program](#)
- Renewables Portfolio Standard: [Renewable Portfolio Standard](#)
- Industry Recruitment/Support:
  - [CCEF - Operational Demonstration Program](#)
  - [New Energy Technology Program](#)
- Leasing/Lease Purchase: [CCEF - CT Solar Lease Program](#)
- Property Tax Exemptions: [Property Tax Exemption for Renewable Energy Systems](#)
- Appliance/Equipment Efficiency Standards: [Energy Efficiency Standards for Appliances](#)
- Building Energy Code: [Connecticut Building Energy Code with Green Building Provisions](#)
- Contractor Licensing: [Solar and Wind Contractor Licensing](#)
- Energy Standards for Public Buildings: [Green Building Standards for State Facilities](#)
- Generation Disclosure: [Fuel Mix and Emissions Disclosure](#)
- Green Power Purchasing/Aggregation: [Connecticut - Green Power Purchase Plan](#)
- Net Metering: [Connecticut - Net Metering](#)
- Public Benefits Fund:
  - [Connecticut Clean Energy Fund](#)
  - [Connecticut Energy Efficiency Fund](#)

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- Campus In Power. November 2008. Raise the Funds Campus Action Toolkit: A Student and Administrator's Guide to Funding Mechanisms for Campus Sustainability Initiatives. Pp 50. Available for download at [http://www.aashe.org/documents/resources/Raise the Funds Toolkit.pdf](http://www.aashe.org/documents/resources/Raise_the_Funds_Toolkit.pdf).
- State of Connecticut Department of Public Utility Control (CTDPUC). 2008. Connecticut Renewable Portfolio Standards Overview. Accessed on 28 July 2009 at <http://www.ct.gov/dpuc/cwp/view.asp?a=3354&q=415186>.
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