
CLIMATE ACTION PLAN

Climate Neutral by 2025

HOBART
AND
WILLIAM SMITH
COLLEGES

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Executive Summary

The Hobart and William Smith Colleges' Climate Action Plan achieves net-zero greenhouse gas emissions by implementing system changes that give emission reduction projects priority while simultaneously guaranteeing timely and meaningful net emission reduction in the form of an offset strategy. In addition, an essential facet of the Climate Action Plan ties directly into the Colleges' mission, and places a premium on developing a more complete educational experience by fostering a "living laboratory" emission mitigation approach dependent on campus constituent and stakeholder contribution.

Introduction

As written in our mission statement, Hobart and William Smith Colleges are, "...a student-centered learning environment committed to excellence, globally focused, grounded in the values of equity and service and developing citizens who will lead in the twenty-first century."

The HWS education is built around seeing the world from multiple perspectives and exploring it through multiple experiences. Under the mentorship of faculty and guided by a curriculum that values experiential learning and rigor, Hobart and William Smith students are challenged to investigate theories and ideas and then to put those theories and ideas into practice through community-based research, service-learning, independent study, and internships.

When Hobart and William Smith President Mark D. Gearan signed the American College and University Presidents Climate Commitment in 2007, the Colleges cemented both its dedication to a campus-wide effort of environmental sustainability and a more complete education towards its mission. In so doing, President Gearan set in motion an institution-wide initiative that incorporates environmental sustainability in all of campus life and decisions.

The following document, Hobart and William Smith Colleges' Climate Action Plan, is both strategic and long-term in nature. The Climate Action Plan is designed to fulfill the Colleges' obligation to achieve "net zero greenhouse gas emissions" under the American College and University Presidents Climate Commitment by 2025. In addition, and importantly, the Climate Action Plan incorporates the input of students, faculty and staff in an effort to create an inclusive educational atmosphere that offers practical application for theories and ideas learned in the classroom with the result of making a positive difference on the immediate HWS Campus, in the local community, and on a global scale. By fostering the growth of an environmental "living laboratory," this Climate Action Plan offers opportunities for students to become empowered leaders and agents for change.

Brief History

The Colleges' focus on environmental sustainability can be traced to the early 1970s when students created and managed their own recycling and composting projects on campus. Depending on student and faculty interest, grassroots environmental projects emerged and lapsed over the next four decades with various degrees of success and persistence. In the past 10 years, fueled by a greater understanding of global climate change and its implications, the growing number of students interested in environmental issues (leading to rapid enrollment growth in HWS' Environmental Studies major), and the Colleges' deepening focus on research and programs to preserve the unique ecosystem of the local Finger Lakes Region, the momentum behind environmental sustainability

projects on campus has steadily grown. In signing the American College and University Presidents Climate Commitment in 2007, President Gearan formalized the Colleges' dedication to this work and put into place measurable goals by which the institution can evaluate its progress. Hobart and William Smith are now dedicated to educating stakeholders about global climate change and to pursuing campus climate neutrality, defined as net-zero greenhouse gas emissions. To bring greater clarity to these efforts and to maintain consistency of vision over time, in 2008, the Colleges hired its first sustainability coordinator.

In pursuit of climate neutrality and implementation of the Commitment, President Gearan assembled the Climate Task Force, a 14-member body of faculty, staff and students. The Climate Task Force has guided the development of the Climate Action Plan, and recently approved the Climate Action Plan to reach net-zero greenhouse gas emissions by 2025. The Climate Action Plan has been reviewed and approved by President Gearan.

Acknowledgements

A number of individuals contributed to the successful formulation of the Hobart and William Smith Colleges' Climate Action Plan. These individuals include, but are not limited to:

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Section 1: Growth in Emissions



Roof Materials



Bike Racks



Vandervort Room



Local, Indigenous Plants



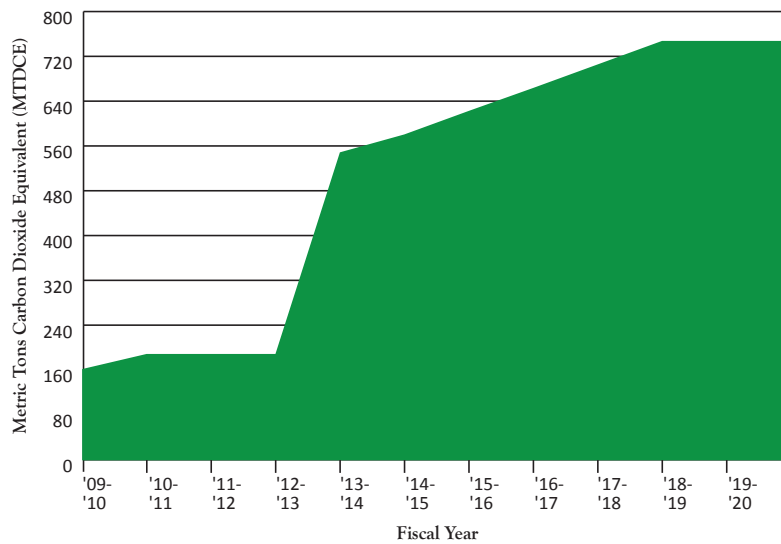
Paving Materials

1.0

Projected Growth in Emissions¹ (capital expansion): addition of 750 MTCDE annually by 2020 and estimated 5% net growth in HWS greenhouse gas emissions.

Emission growth is anticipated from capital expansion. Capital expansion includes new construction, renovations, and increased campus population. Greenhouse gas emission estimates were gathered using models of student enrollment, known projects planned for construction, and projects in the pipeline. The following graph displays the estimated growth in campus emissions from capital expansion. (Note that the leap in emissions between 2012 and 2014 is anticipated due to the planned construction of a new Performing Arts Center.)

Projected Growth in Emissions



1.1

To-date emission growth mitigation efforts

The Colleges, in an effort to reduce environmental impact and cost, implemented sustainable practices to avoid growth of emissions. Avoidance efforts have included:

- Use of reflective site and roof materials to reduce heat island effect
- Use of low energy light fixtures
- Bike racks to encourage alternative transportation
- Building orientation to maximize passive solar lighting and heating
- Multi-use rooms to decrease building footprint
- Reduction and consolidation of systems
- Use of light sensors
- Use of optimal glazing performance and insulation values
- Use of high performance skin systems
- Use of local, indigenous plant and paving materials selected to reduce shipping and maintenance

1.2

Strategy to avoid growth in emissions

Hobart and William Smith Colleges' strategy to avoid emission growth is focused on capping emissions. The cap will be achieved by 1) working to minimize emission growth related to new construction, major renovation, and increase in campus population; 2) reducing emission levels from

¹ Refer to appendix for breakdown of anticipated growth.

existing campus sources to maintain the cap; and 3) educating all campus constituents, including visitors, about the Colleges' greenhouse gas reduction efforts. The Colleges' emission growth avoidance strategy is predicted to be a short-term and minimal commitment that is easily achieved and supplemented by source emission reduction strategies².

1.3 | ***Mechanism One: Cap Emissions***

Goal: The Colleges will work to cap emissions at FY '08-'09 levels.

Purpose: Capping emissions at FY '08-'09 levels will function to stop growth of Hobart and William Smith's greenhouse gas portfolio.

Implementation:

- A. All new construction and major renovations will require a "sustainable source" analysis for heat and electricity (ex. Geothermal, Wood Pellet System, solar, wind, etc.).
- B. All new construction and major renovations will require an evaluation of technologies that minimize emissions.
- C. New construction and major renovations will require a projection of annual emissions
 - i. The report must include associated 'offset' cost
 - ii. The report will be delivered to the Vice President of Finance and President of the Colleges.
 - iii. The report findings will be viewed as part of the annual operating expense of the building and budgets will be adjusted accordingly.
- D. New construction and major renovations will use LEED 3.0 Energy and Atmosphere standards (above the minimum state/regional efficiency code), including the LEED 3.0 Enhanced Commissioning process. The Energy and Climate Committee will review success of efficiency standard after each project with the intent of increasing the efficiency standard in future projects.
- E. Major new construction and renovations must be individually metered, tied into the campus building management system, and incorporate a live reporting system in a prominent location in the building.

Expected Impact: The Climate Task Force expects that capping emissions at FY '08-'09 levels will 1) prioritize emission reduction efforts, particularly related to energy conservation in new construction and major renovation; 2) substantially decrease operating cost; 3) guarantee new construction and major renovations are viewed as "cutting edge," resulting in a positive outcome for alumni relations and admissions; and 4) offer a short-term, achievable, and quantifiable goal that will demonstrate institutional commitment to Climate Neutrality.

1.4 | ***Mechanism Two: New population awareness***

Goal: Educate constituents, upon arrival to campus, about emissions reduction actions and goals.

Purpose: Setting a tone of environmental sustainability will facilitate the Colleges' immediate goal of capping emissions, convey institutional values, and maximize a cumulative and lasting reduction effect that benefits all sectors of the Colleges' reduction strategy.

Implementation:

- A. Design a system to educate new campus constituents about emission reduction.
 - i. Extent of sustainability "orientation" will vary by situation.
- B. Sustainability orientation will include energy conservation, waste diversion and transportation minimization training.

Expected impact: The Climate Task Force expects that educating all constituents contributing to the Hobart and William Smith emission portfolio will 1) curb campus emissions; 2) establish a precedent of environmental sustainability; and 3) develop brand ambassadors for the Colleges' sustainability program.

² Source emission reduction strategies refer to mitigation mechanisms outlined for heat, electricity, transportation, solid waste, and agriculture.

Section 2: Electricity



High Efficiency Light Bulbs



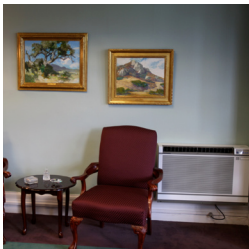
Appliance Monitoring



Monitor Efficiency



Replace Lighting



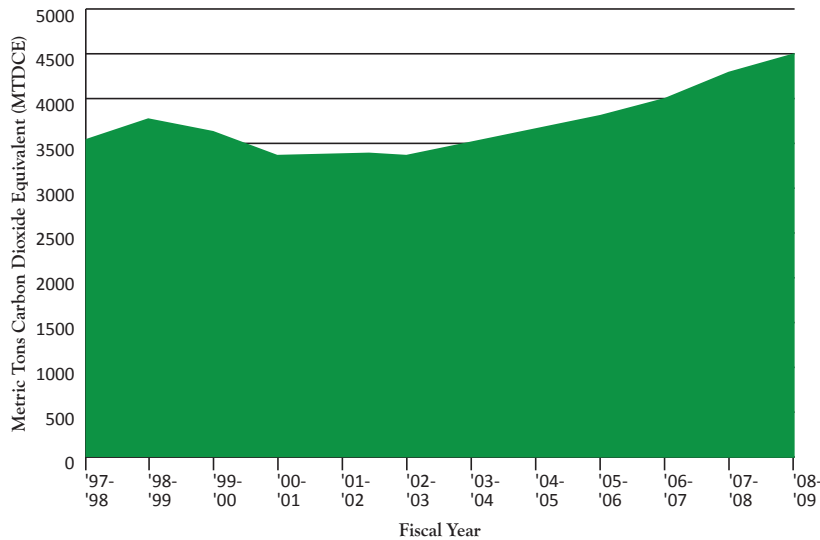
Air Conditioning Policy

2.0

Electricity (emissions from purchased electricity): 4517 MTCDE and 25% of HWS greenhouse gas emissions

Campus electricity is delivered through the New York State Electricity Grid. The emission factor for electricity is derived using the '06-'07 HWS greenhouse gas inventory³. An increasing number of systems draw electricity in the 1.5 million square feet of campus building space. Greenhouse gas emissions resulting from electricity vary from year to year depending on consumption. A number of factors drive consumption. These factors include, but are not limited to, capital expansion, plug load⁴, the severity of the weather, and campus scheduling. The following graph displays the annual variation in emissions from campus electricity.

Emissions from Electricity



2.1

To-date efforts to mitigate emissions from electricity

The Colleges, in an effort to reduce environmental impact and cost, implemented a number of electricity conservation initiatives. Conservation efforts include:

- Creation of a Buildings & Grounds Energy Committee with year by year budget
- Execution of multiple energy audits
- Upgrade to energy management system
- HVAC energy study (economizing and heat recovery)
- Sub-metering of the top two electricity consuming buildings and tracking data to monitor efficiency
- Replacement of 90% of lights with high efficiency light bulbs
- Installation of light sensors⁵ in most classrooms and many offices
- Creation of an air conditioning policy of 74-78 degrees
- Installation of variable speed drives
- Execution of a kitchen inventory and appliance monitoring
- Building scheduling and set-backs
- Purchase of 4.47% of electricity with Renewable Energy Credits
- Quarterly campus energy inspections

⁵ Sensors on campus are motion, ambient light and sonic

2.2 | **Reduction Strategy**

Hobart and William Smith Colleges' current electricity conservation program has proven effective using cost reduction as the primary driver. The Colleges' "Emissions Reduction Strategy for Electricity" builds off of the successful and existing savings driven electricity conservation program, and adds mechanisms to incorporate an emission mitigation strategy for electricity. The mechanisms tie into the immediate goal of capping campus emissions at FY '08-'09 levels and, then, function to continue to drive long-term goals of Climate Neutrality and continued pursuit of net greenhouse gas reduction. Mechanisms to reduce emissions from electricity fall under the following three categories 1) develop the Energy Committee's mission and project scope; 2) set building reduction goals; and 3) establish a Renewable Energy Credit Purchasing Policy.

2.3 | **Mechanism One: Increase the Energy Committee's Focus**

Goal: Actively pursue every available Greenhouse Gas reduction opportunity for campus emissions resulting from electricity.

Purpose: Increasing the Energy Committee's mission, charge and project scope will enable a proven and existing electricity conservation program to take on additional projects that reduce emissions from electricity.

Implementation:

- A. Require all construction and renovation projects⁶ to undergo an emission reduction analysis for electricity and give emission reduction projects priority.
- B. Establish Energy Committee as a permanent and standing committee with a new title, Energy and Climate Committee, and clear mission:
 - i. Recommended Mission: Energy and Climate Committee reduces Hobart and William Smith's greenhouse gas emissions through electric and heat conservation initiatives.
- C. Implement emission reduction projects as quickly as possible-
 - i. Execute emission reduction efforts with a payback of 1 year or less.
 - ii. Seven years or less, prioritize project and execute as soon as possible.
 - iii. Consider all available funding options for emission reduction efforts including those with an extended payback.
 - iv. Track emission reduction efforts, efforts determined to have too long of a payback, and efforts in the pipeline – *inquire about emission reduction efforts that have not been funded as frequently as deemed appropriate by the Energy and Climate Committee.*
- D. Incorporate emission costs in dollars/ton using renewable energy credit cost in electricity conservation payback analysis.
- E. The Energy and Climate Committee has the right to consider all emission reduction opportunities for electricity, including opportunities that "directly impact" campus constituents.
- F. Implement a 5-year campus wide audit verification and 7 to 10 year re-commission of top ten electricity-consuming buildings. Increase scope to include mechanical systems, lighting and envelope.
 - i. Results will be shared with the Sustainability Coordinator.

Expected Impact: The Climate Task Force expects that increasing the Energy Committee's mission to include greenhouse gas emissions from electricity consumption will 1) supply the resources and institutional support to consider every emission reduction opportunity for electricity; 2) maintain a cost effective electricity conservation program, but with a broader scope; and 3) reduce total campus emissions.

⁶ The term all is intended to be comprehensive, no matter the scope and include Project Adaptation and Renewal.

Mechanism Two: Set Building Reduction Goals for Emissions from Electricity

Goal: Establish an annual reduction goal for each building on campus, starting with the highest electricity consumers, to drive a compounding emission reduction from electricity.

Purpose: establish an achievable, measurable and identifiable efficiency goal for each building and its occupants by 1) requiring that HWS benchmark each building's electric efficiency; 2) target an optimal electric efficiency for each building; 3) design an action plan including a timeframe for reduction in pursuit of optimal electric efficiency in each building; 4) develop a system of continuity and accountability in reaching the optimal efficiency goal; 5) create a system conducive to "campus participation" that necessitates electric reduction education/awareness; and 6) anticipate capital investment in each building by prioritizing future electric efficiency projects.

Implementation:

- A. Starting with Energy Star's Portfolio Manager or a similar program, supply an optimal energy performance benchmark for each building on campus, and actively pursue the optimal efficiency goal.
 - i. Using the optimal energy performance benchmark, target and communicate a building-by-building emission reduction.
 - a. Design an action plan and timeframe to achieve optimal efficiency for each building and target a building-by-building emission reduction from electricity.
 - b. Communicate action plan and timeframe to building occupants, establish buy-in, and identify best method to maintain continuity year by year in pursuit of goal.
 - ii. Refine benchmark and breakdown optimal efficiency into shortest timeframes possible to adjust for weather changes and other external variables for each building.
- B. Appropriately meter and monitor top ten energy-consuming buildings with end goal of providing each with an awareness display about the buildings electricity consumption⁷.
 - i. Ascribe logical energy breakdown and metric for non-sub-metered buildings and monitor as frequently as possible.
- C. Launch campus electricity awareness campaign with supplementary electricity conservation competition.
 - i. Tie electricity competition into an inter-Collegiate competition.
- D. Develop a wish list of efficiency upgrades for capital investment in buildings, and establish anticipated target optimal efficiency.
- E. Continue to increase cooling set points and refine and enforce window air-conditioner policy.
- F. Optimize building scheduling and turndowns.

Expected Impact: The Climate Task Force expects that setting building reduction goals for emissions from electricity will 1) offer a cost effective 'occupant based' emission reduction program; 2) employ a metric that leads maximum moderation of electricity consumption; and 3) incorporates cutting edge technology into top ten energy consumers.

Mechanism Three: Renewable Energy Credit Purchasing Strategy

Goal: Use renewable energy credits to eliminate greenhouse gas emissions from the Colleges' electricity consumption.

Purpose: reduce the Colleges greenhouse gas portfolio by 1) purchasing Renewable Energy Credits for electricity; 2) internalizing the cost of emissions to drive electric efficiency projects; and 3) create a learning opportunity in a growing market.

⁷ Preferably display a live feed that communicates the building's current efficiency relative to its normal efficiency.

Implementation:

- A. Consider all Renewable Energy Credit opportunities and prioritize purchase with the primary focus on legitimacy⁸. Also, consider educational value of purchase:
 - i. Local with direct impact on HWS Campus
 - ii. Regional to support local economy
 - iii. National for cost effectiveness
- B. Internalize cost of emissions by incorporating the cost of Renewable Energy Credit in paybacks of electricity projects.
- C. Establish a learning laboratory to identify, in a functional and on campus model, the generation of a renewable energy credit.
- D. Prioritize the number of Renewable Energy Credits purchased based on the HWS Greenhouse Gas reduction model⁹.

Expected Impact: The Climate Task Force expects that purchasing renewable energy credits will 1) eliminate a significant portion of the Colleges' greenhouse gas emissions; 2) demonstrate commitment to Climate Neutrality; 3) increase emission reduction opportunities related to electricity by internalizing costs associated with the environmental impact of electricity generation; and 4) offer a unique educational opportunity for students in a quickly emerging financial and environmental market.

2.6 |

Target Reduction Goals for Emissions from Electricity

Goal: Set a schedule for emission reduction related to electricity.

Purpose: Creating target reduction goals for emissions from electricity will drive progress toward and monitor the achievement of emission reductions from electricity. The information will require that emissions from electricity are tracked and renewable energy credit strategies adjusted to accommodate for over or under reduction scenarios.

Implementation:

- A. Using information supplied by section 2.4 A - i, The Climate Task Force will add the projected greenhouse gas savings from electricity for all campus buildings to derive a cumulative campus emission reduction goal for electricity.
 - i. The emission reduction goal for electricity will act as a one-year cumulative emission reduction target for electricity.
- B. Progress toward the target reduction will be reported and a new¹⁰ target established annually until the emission target for electricity is achieved.
 - i. Following the achievement of the target emission level for electricity, the process outlined in section 2.4 A will restart.
 - ii. A new emission reduction target for electricity will be derived pursuant to subsection A of this section until zero-greenhouse gas emissions are achieved from electricity.

Expected Impact: The Climate Task Force expects that setting emission target reduction goals for electricity will 1) establish achievable targets; 2) monitor performance; and 3) reoccur and push the Colleges to continuously mitigate emissions from electricity driving an effort to achieve zero emissions from campus electric consumption.

⁸ Legitimacy of a Renewable Energy Credit is summarized in the Appendix.

⁹ Refer to the Appendix for additional information regarding the HWS Greenhouse gas reduction modeler.

¹⁰ The term new can be interpreted as reestablishing the target reduction goal until it is achieved and, then, will always refer to decreasing the target level of emissions.

Section 3: Campus Heating



Campus Heat Systems



Impact of Weather



Establish Heating Policy



Kitchen Inventory



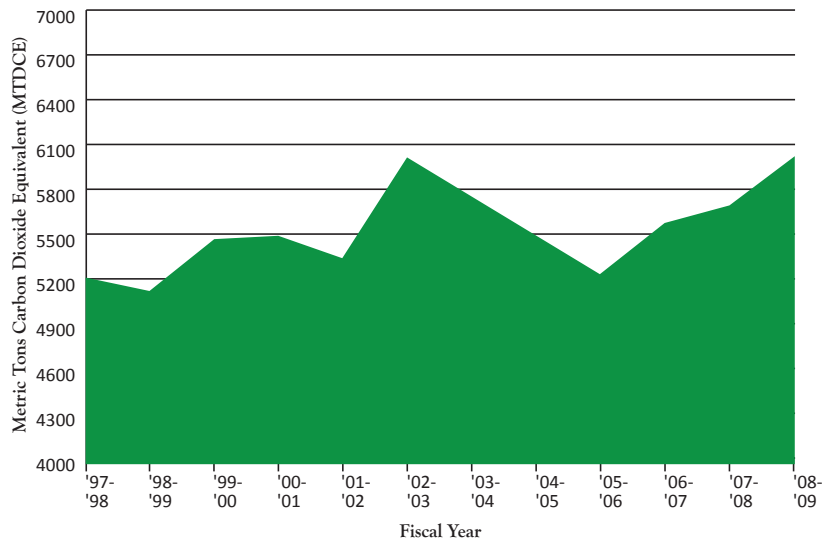
Appliance Monitoring

3.0

On-campus Fuel Combustion (emissions from campus heat): 5990 MTCDE or 35% of HWS greenhouse gas emissions

Campus heat is generated from over 100 separate heat plants and heat systems for approximately 1.5 million square feet of building space. Campus heat systems are predominately fueled with Natural Gas¹¹. Greenhouse gas emissions resulting from heat vary from year to year depending on consumption. A number of factors drive consumption that include, but are not limited to, the severity of the weather, capital expansion, and campus scheduling. The following graph displays the annual variation in emissions from campus heat (referred to later in the section simply as “heat”).

Emissions from Campus Heat Generation



3.1

To-date emission mitigation efforts for heat

The Colleges, in an effort to reduce environmental impact and cost, implemented a number of heat conservation initiatives. Benefits from conservation efforts include a 12% heat reduction (adjusted by degree days and campus expansion) in FY '08-'09 and an estimated \$160,000 savings. Actions include:

- Creating a B&G Energy Committee year by year budget
- Conducting multiple energy audits
- Conducting HVAC energy study (economizing and heat recovery)
- Upgrading energy management system
- Replacing 80% of boilers with high efficiency boilers
- Establishing heating policy with 68-72 degree set-point
- Monitoring hot water temperature settings
- Conducting kitchen inventory and appliance monitoring/setbacks
- Modifying school year schedule and staff holiday schedule

3.2

Reduction Strategy

Hobart and William Smith Colleges current heat conservation program has proven effective by using cost reduction as the primary driver. The Colleges’ “Emission Reduction Strategy for Heat” builds off

¹¹ FLI uses Geo-Thermal to supplement heat.

of the successful and existing savings-driven heat conservation program by adding mechanisms to incorporate emission mitigation for heat. The mechanisms tie into the immediate goal of capping campus emissions at FY '08-'09 levels and, then, function to continue to drive long-term goals of Climate Neutrality and continued pursuit of net greenhouse gas reduction. Mechanisms to reduce emissions from heat fall into the following three categories 1) develop the Energy Committee's mission and project scope¹²; 2) set building reduction goals; and 3) develop a system to target and monitor campus wide emission reductions from heat.

3.3 | ***Mechanism One: Increase the Energy Committee's Focus***

Goal: Actively pursue every available greenhouse gas reduction opportunity for campus emissions from heat.

Purpose: Increasing the Energy Committee's mission, charge and project scope will enable a proven and existing heat conservation program to take on additional emission reduction projects from heat.

Implementation:

- A. Require all construction and renovation projects¹³ to undergo an emission reduction analysis for heat and give emission reduction projects priority.
- B. Implement emission reduction projects as quickly as possible
 - i. Execute emission reduction with a payback of 1 year or less.
 - ii. 7 years or less, prioritize project and execute as soon as possible.
 - iii. Consider all available funding options for emission reduction efforts with extended payback.
 - iv. Track emission reduction efforts, efforts determined to have too long of a payback, and efforts in the pipeline - inquire about emission reduction efforts that have not been funded as deemed appropriate by the Energy and Climate Committee.
- C. Incorporate emission costs in dollars/ton using Campus offset cost in heat conservation payback analysis.
- D. The Energy and Climate Committee has the right to consider all heat emission reduction opportunities, including opportunities that "directly impact" campus constituents.
- E. Implement 5-year campus wide audit verification and 7 to 10 year re-commission of top ten buildings. Increase scope to include mechanical systems, lighting, and envelope.

Expected Impact: The Climate Task Force expects that increasing the Energy Committee's focus will 1) supply the resources and institutional support to consider every emission reduction opportunity from heat; 2) maintain a cost effective heat conservation program, but with a broader scope; and 3) reduce total campus emissions.

3.4 | ***Mechanism Two: Set Building Reduction Goals for Emissions from Heat***

Goal: Establish an annual reduction goal for each building on campus, starting with the highest heat consumers, to drive a compounding emission reduction driven by heat conservation.

Purpose: establish an achievable, measurable, and identifiable efficiency goal for each building and its occupants by 1) requiring that HWS benchmark each building's heat efficiency; 2) target an optimal heat efficiency for each building; 3) design an action plan including a timeframe for reduction in pursuit of optimal heat efficiency in each building; 4) develop a system of continuity and accountability in reaching the optimal efficiency goal; 5) create a system conducive to "campus participation" that necessitates heat reduction education/awareness; and 6) anticipate capital investment in each building by prioritizing future heat efficiency projects.

¹² Energy Committee's Mission refers to section 2.3 - B of this document

¹³ The term all is intended to be comprehensive, no matter the scope, and include Project Adaptation and Renewal.

Implementation:

- A. Starting with Energy Star’s Portfolio Manager or a similar tool, supply an optimal energy performance benchmark for each building on campus, and actively pursue optimal efficiency goal.
 - i. Using the optimal energy performance benchmark, target and communicate a building-by-building emission reduction.
 - a. Design an action plan and timeframe to achieve optimal efficiency for each building and target a building-by-building emission reduction from heat.
 - b. Communicate action plan and timeframe to building occupants, establish buy-in, and identify individual who will maintain continuity year by year toward goal.
 - ii. Refine benchmark and breakdown optimal efficiency into shortest timeframes possible to adjust for weather changes and other external variables for each building.
- B. Appropriately meter and monitor top ten energy-consuming buildings with end goal of providing each with an awareness display about the buildings heat consumption¹⁴.
 - i. Ascribe logical energy breakdown and metric for non-sub-metered buildings and monitor as frequently as possible.
- C. Launch campus energy awareness building campaign with main heat energy conservation competition.
 - i. Tie energy competition effort into an inter-Collegiate competition.
- D. Continue to reduce heat set points and refine and enforce space heater policy.
- E. Optimize building scheduling and turndowns.

Expected Impact: The Climate Task Force expects that setting building reduction goals for emissions from heat will 1) offer a cost effective ‘occupant based’ emission reduction program; 2) employ a metric that leads to maximum moderation of heat consumption; and 3) incorporates a cutting edge technology into top ten energy consumers.

3.5 | ***Emission Target Reduction Goals for Heat***

Goal: Set a schedule for emission reduction for heat.

Purpose: Creating target reduction goals for emissions from heat will drive progress toward and monitor the achievement of emission reductions from heat conservation. The information will require that emissions from heat are tracked and offset strategies adjusted to accommodate for over or under reduction scenarios.

Implementation:

- A. Using information supplied by section 3.4 A - i, The Climate Task Force will add the projected greenhouse gas savings from heat for all campus buildings to derive a cumulative campus emission reduction goal.
 - i. The emission reduction goal for heat will act as a one-year cumulative emission reduction target for heat.
- B. Progress toward the target reduction will be reported and a new¹⁵ target established annually until the emission target for heat is achieved.
 - i. Following the achievement of the target emission level, the process outlined in section 3.4 subsection A will restart.
 - ii. A new emission reduction target for heat will be derived pursuant to subsection A of this section until zero-greenhouse gas emissions are achieved from heat.

Expected Impact: The Climate Task Force expects that setting emission target reduction goals for heat will 1) establish achievable targets; 2) monitor performance; and 3) reoccur and push the Colleges to continuously mitigate emissions from heat driving an effort to achieve zero emissions from heat.

¹⁴ Preferably display a live feed that communicates the building’s current efficiency relative to its normal efficiency.

¹⁵ The term new can be interpreted as reestablishing the target reduction goal until it is achieved and, then, will always refer to decreasing the target level of emissions.

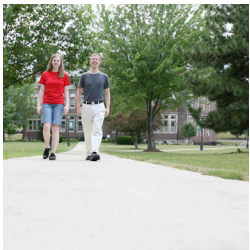
Section 4: Transportation



Encourage Carpooling



Yellow Bike Program



Pedestrian Friendly Campus



Biodiesel Trolley

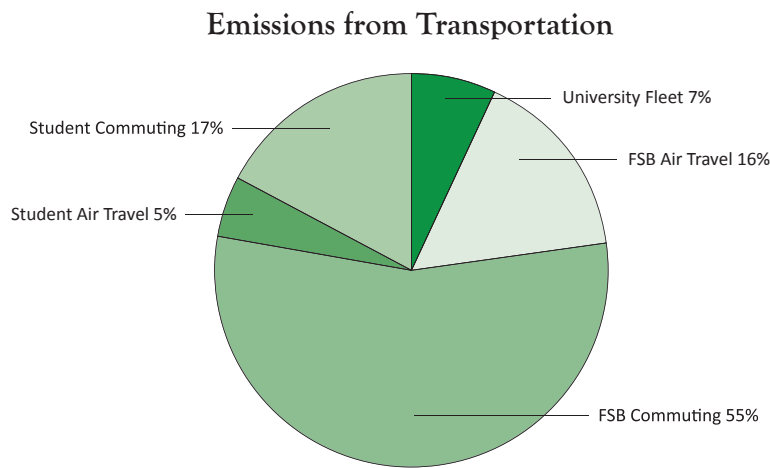


Shuttle Vans

4.0

Transportation (emissions from transportation): 6083 MTCDE and 39% of HWS greenhouse gas emissions.

The Colleges are responsible for emissions from a number of transportation sources. Transportation emission sources fall into two categories; those that are owned or controlled by the institution- the university fleet, and those occurring because of the Colleges but that are not directly owned or controlled by the Colleges- faculty, staff, and student commuting and air travel. Data tracking the emissions from each source varies in accuracy, with information about campus owned and controlled transportation being most accurate, and transportation occurring because of the Colleges but not directly owned or controlled by HWS being less accurate. Following is a chart indicating transportation emission splits by source.



4.1

To-date emission mitigation efforts for transportation

The Colleges, in an effort to reduce environmental impact, implemented a number of transportation initiatives that include:

- Revamping the Colleges' carpooling site, Rideboard
- Implementing a Yellow Bike Program
- Increasing the number of bike racks and planning for a more bike accessible campus
- Planning the campus as pedestrian friendly
- Continuing the Colleges evening bus service with the addition of the Biodiesel Trolley
- Creating a green surcharge on all parking tickets
- Phasing in alternative fuel vehicles as the university fleet is replaced
- Setting up bus services for major travel dates to regions with a high density of HWS Students
- Purchasing IT equipment with "remote" meeting capabilities

4.2

Reduction Strategy

Hobart and William Smith Colleges' strategy to decrease emissions from transportation focus on 1) institutionalizing and centralizing an effective emissions tracking system; 2) creating a transportation working group to develop a long-term transportation plan; 3) immediately revamping current programs to maximize efficiency; and 4) growing the scope of emissions from transportation that

the Colleges elect to cover. The Climate Task Force intends for the emission reduction strategy for transportation to be comprehensive in nature, and to develop over time.

4.3 | **Mechanism One: Effective Emissions Tracking System**

Goal: institutionalize and centralize an effective emission tracking system for transportation.

Purpose: Account, as best as possible, for all of the Colleges' emissions from transportation and streamline the tracking process.

Implementation:

- A. Create an institutional protocol for reporting travel that includes mileage and vehicle type.
 - i. Specific questions for the protocol and process for centralizing tracking will be developed and implemented by June 2010¹⁶.
- B. Establish a system to better survey students, faculty and staff about commuting habits and related emissions.

Expected Impact: The Climate Task Force expects that effectively tracking emissions will 1) result in a more accurate greenhouse gas inventory; 2) decrease potential flaws in emission tracking; 3) develop a better process flow for recording the emission impact of travel and preempt a difficult work flow for subsequent greenhouse gas inventories; and 4) help prioritize emission reduction efforts for transportation.

4.4 | **Mechanism Two: Creation of a Transportation Working Group**

Goal: design a long-term transportation plan with the intention of refining and evolving the plan to achieve zero total greenhouse gas emissions from transportation.

Purpose: Create a working group to help develop and implement an effective and emissions focused long-term transportation plan that will coordinate a number of otherwise departmentalized and disjointed transportation practices and policies. The working group will have the opportunity to take a holistic approach that maximizes emission reduction, cost savings, and marketing appeal. The Sustainability Coordinator will monitor the success of the transportation program and recommend adjustments, as campus needs change while maintaining the emission reduction focus.

Implementation:

- A. Establish, as a working group, the Transportation and Climate Group. The group will have a broad and collaborative mission that can be implemented on a decentralized basis.
 - i. Recommended Mission: The Transportation and Climate Working Group will reduce Hobart and William Smith's greenhouse gas emissions by coordinating campus constituent transportation needs, identifying mitigation opportunities, and collaborating to implement proposed transportation mitigation strategies.
 - ii. Primary Responsibility: Reduce the College's emissions from transportation:
 - a. Design a long-term transportation plan
 - b. Work with effected parties to implement the plan
 - c. Monitor and report success
 - d. Adjust plan as needed
 - iii. The Sustainability Coordinator will bring together relevant stakeholders as needed.
 - a. It is imperative that representatives to the working group communicate with the heads of their department to ensure support for and understanding of emission reduction projects forom transportation.

¹⁶ Developed in conjunction with the greenhouse gas inventory being completed in Spring 2010.

- b. The Sustainability Coordinator will contact the heads of each department at key junctures to keep them abreast of the scope, purpose and anticipated impact of the long-term transportation plan.
- B. The Transportation and Climate Working Group will take a holistic approach to its long-term transportation plan, and use the carbon mitigation hierarchy when planning reductions for all sectors of the Colleges transportation needs.
 - i. The carbon mitigation hierarchy is to 1st) avoid; 2nd) reduce; 3rd) replace; and 4th) offset:
 - a. The group will immediately investigate the feasibility of 1) incentivizing faculty and staff to live locally to the Colleges; 2) launching a car-share program (zip-car); 3) promoting faculty and staff carpooling; 4) developing a day-time trolley system and explore collaborative shuttle opportunities (CATS and Cornell Experiment Station); 5) better advertising alternative transportation opportunities (business cards with trolley schedule and prevalent marketing location in Scandling Campus Center); and 6) list quick tips for sustainable and less emission intensive travel.

Expected Impact: The Climate Task Force expects that establishing a Transportation and Climate Group will 1) create a comprehensive and integrated approach that capitalizes on all transportation reduction opportunities; 2) develop a long-term document that is flexible and adaptable, but consistently emission reduction driven; 3) dramatically reduce the Colleges' emissions from transportation; and 4) decrease transportation expenses.

4.5 | ***Mechanism Three: Revamp current transportation programs***

Goal: make current transportation system as effective as possible.

Purpose: Having the Climate Task Force expedite easy low-cost no-cost changes to the existing transportation system will build awareness and support surrounding a long-term emission reduction plan for transportation, and act as a first step in refining the campus transportation system to better serve campus constituents.

Implementation:

- A. The Shuttle advisory group will adjust the shuttle service route, determine value of biodiesel trolley and GPS tracking system.
 - i. Proposed Route Change: run trolleys in opposite direction, one from the other
 - ii. Proposed Route Change: Scandling Campus Center, 380 South Main, Geneva Hall, 780 South Main, Carriage House (Houghton Area), St. Clair/Pulteney Corner, the Barn, Wegmans, Sport and Recreation Center
 - a. The proposed adjustments to the trolley schedule eliminate 8 stops, cut trolley routes by 30 minutes, and increase frequency of pick-up at each stop to 15 minutes.
 - iii. Determine value of biodiesel trolley by demanding rider records and comparing a cost and MTCDE per rider against that of the regular college shuttle service.
 - a. Findings will be presented to the Climate Task Force and a decision to keep or eliminate the biodiesel trolley service will follow.
 - iv. Cost and functionality analysis for a GPS tracking system to update campus constituents on trolley arrival to stops.
- B. Create a separate fund for the Green Surcharge Collections.
 - i. Money will be routed to help support alternative transportation initiatives, and will be made accessible to the Climate Task Force Co-Chairs and Sustainability Coordinator.

- a. The first series of collections will be directed toward overhauling the yellow bike program.
- C. The Yellow Bike Program will be overhauled by phasing out old bikes and replacing them with new 3 speed cruiser style bikes that have a front handle brake and rear back peddle brake from the Geneva Bike Shop. Bikes will be phased in at a rate of 10 a year, until the program reaches a 40-bike fleet. New 3 speed bikes will then be replaced as needed.
- D. Send a memo to campus departments that purchase vehicles to prioritize vehicle purchases with alternative vehicles – electric, bio-fuel, and hybrid.

Expected Impact: The Climate Task Force anticipates that immediate changes to the campus’s transportation system will 1) develop a more user-friendly system; 2) reduce on-campus per rider emissions and cost; and 3) function as a practical example of the Climate Action Plan’s functionality.

4.6 |

Mechanism Four: Grow scope of emission coverage for transportation

Goal: Act as a leader and example in environmental sustainability to all constituents.

Purpose: Increase the scope of emissions from transportation for which the Colleges take responsibility to 1) set a standard of sustainability that educates and advertises to populations that don’t consistently interact with the Colleges, the Colleges commitment to sustainability; and 2) acknowledge that the Colleges existence causes travel that otherwise would not have occurred, and which is not currently being addressed.

Implementation:

- A. Design a system to track emissions from transportation resulting from college-sponsored events including admission visits. Include these emissions in the Colleges’ Greenhouse Gas Inventory.
- B. Set-up a voluntary offset service for participants to offset their emissions.

Expected Impact: The Climate Task Force anticipates that including emissions from travel that fall into a high visibility category for the Colleges will 1) result in a more complete experience for visitors and event attendees; and 2) move the Colleges ahead of a sustainability trend.

Section 5: Solid Waste



Reusable Bottles

5.0 | **Solid Waste (emissions from recycling and trash¹⁷): 104 MTCDE and less than 1% of HWS greenhouse gas emissions.**

The Colleges are responsible for emissions from solid waste. Solid waste includes recycling, trash, construction and demolition material, and compost. Emissions from Solid Waste Management occur during transportation of the material between the Colleges and the destination for processing, and during the ‘disposal process.’



Reusable Bags

5.1 | **To-date emission mitigation efforts for solid waste**

The Colleges, in an effort to reduce environmental impact, implemented a number of solid waste initiatives that include:

- Raising campus awareness about waste minimization and diversion
- Minimizing waste through smart front end purchasing and designing incentives for campus constituents to reduce waste:
 - Reusable Mug, bag, bottle, and to-go container programs
- Composting food waste from all dining areas
 - Over 1.2 tons composted weekly
- Boosting recycling rates
 - Raised rate from 16% to 23% between Fall ‘08 and Spring ‘09
- Compacting trash material to reduce hauls to landfill
- Collaborating with the end of year barn sale and e-waste collection
- Coordinating donations of reusable campus furniture



Minimize Waste

5.2 | **Reduction Strategy**

Hobart and William Smith Colleges’ strategy to decrease emissions from solid waste focus on 1) better identifying and communicating the emissions related to waste; 2) minimizing waste; 3) diverting waste from the landfill; and 4) decreasing hauls.



Barn Sale

5.3 | **Mechanism One: Identify and Communicate Emissions from Solid Waste**

Goal: Better benchmark emissions and take advantage of all offset opportunities.

Purpose: Benchmarking and communicating emission reduction benefits from solid waste will help drive diversion efforts and potentially decrease the Colleges greenhouse gas portfolio.

Implementation:

- A. Research emission benefits from solid waste diversion efforts.
 - i. Specifically emission offsets resulting from composting and recycling.
 - ii. Include benefits from solid waste diversion as offsets in the greenhouse gas portfolio and link cost savings with waste management program expenses.
- B. Produce an emission report for campus constituent waste practices and communicate results in both recycling percentages and Metric Tons of Carbon Dioxide Equivalent.

Expected Impact: The Climate Task Force anticipates that connecting waste diversion efforts to greenhouse gas emissions will 1) drive additional diversion and reduction of solid waste; and 2) significantly boost awareness surrounding waste management practices and emission reduction efforts.



Reusing Campus Furniture

¹⁷ Inventory preceded composting, and does not include emissions from hauling.

5.4 | **Mechanism Two: Minimizing Waste**

Goal: Reduce waste at its source.

Purpose: Addressing waste before it enters the campus waste stream will cut emissions by reducing the total weight of waste for which the Colleges take responsibility and emissions related to that weight and volume.

Implementation:

- A. Work with campus departments to make purchasing decisions with waste management in mind.
 - i. The Sustainability Coordinator will monitor and report progress from waste minimization efforts to the Climate Task Force.
 - a. Waste minimization programs include, but are not limited to the reusable mug program, the reusable to-go container program, and printing reduction efforts.
- B. Working off of Building and Grounds sustainable vendors list, expand the list to be comprehensive for all of the Colleges.
 - i. Audit campus purchasing practices and implement a continuous waste minimization education program.
 - ii. Implement, as soon as possible, a campus wide standard for recycled content in printer paper, and encourage a transition to paperless wherever possible.

Expected Impact: The Climate Task Force anticipates that focusing energy on waste minimization at the source will 1) reduce emissions from transportation and disposal, and indirectly impact emissions from delivery and production; 2) reduce cost in terms of solid waste management and original source purchase; and 3) benchmark successes at the Colleges and identify areas for improvement.

5.5 | **Mechanism Three: Divert waste from the landfill and decrease hauls**

Goal: Act as a model of sustainable waste management.

Purpose: It's generally accepted that land-filling waste is an unsustainable practice. Landfills harm the environment, decrease property value, and act as an end of life for finite and reusable resources. The Colleges are located between two mega-landfills, but also have easy access to high tech recycling and composting facilities. As such, the Colleges have the opportunity to act as a leader in developing environmentally and economically viable alternatives to land-filling. The Colleges diversion efforts will act as a model to the broader community.

Implementation:

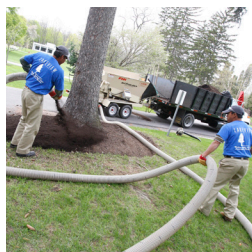
- A. Create a protocol for redistributing reusable items.
 - i. Investigate the freecycle model or a Campus supported "eBay type model" coordinated by Communications.
 - ii. Design a method for advertising reusable items (list serve that you can opt into).
- B. Research local and sustainable food waste processing opportunities.
 - i. Local composting opportunities.
 - ii. Local food waste to energy to soil amendment projects.
 - iii. Technologically based food waste processing opportunities.
- C. Optimize recycling percentage and hauling¹⁸.
 - i. Achieve a __% Recycling Rate by _____
 - a. Set an interim target goal for Spring 2010 of 28% and establish the recycling rate goal based on results from 2010 RecycleMania. Identify interim target recycling rates for fall 2010 based off of RecycleMania 2010 results.

¹⁸ Refer to Appendix for goal rationale

- ii. Standardize current recycling system across campus, monitor program, and hone message
 - iii. Evaluate efficiency of waste management campus hauling locations and determine value of better centralizing receptacles.
 - iv. Investigate compacting opportunities to reduce hauls by decreasing volume and increasing weight.
- D. Include emissions from hauling in the greenhouse gas inventory and work with haulers to reduce emissions.

Expected Impact: The Climate Task Force anticipates that diverting waste from the landfill in a fiscally responsible manner will position the Colleges to lead in a field that simultaneously impacts the Colleges greenhouse gas portfolio and the local quality of life and environment.

Section 6: Agriculture



Fertilizer Application

- 6.0 | ***Agriculture (emissions from fertilizer application and animal agriculture): 6 MTCDE and less than 1% of HWS greenhouse gas emissions.***

The Colleges are responsible for emissions from agriculture. Agriculture includes fertilizer applications and animal agriculture. The Colleges are not currently raising animals and, therefore, must only account for fertilizer application under the agriculture scope of the greenhouse gas inventory.



Campus Flowers and Plants

- 6.1 | ***To-date emission mitigation efforts for agriculture***

The Colleges, in an effort to reduce environmental impact, implemented a number of grounds and landscaping initiatives including:

- Piloting an organic soil amendment project to decrease synthetic fertilizer applications.
- Using an integrated pest management system
- Working to preserve, protect, and/or create habitats on-campus
- Following best management practices for snow and ice removal
- Composting campus landscape waste
- Initiating a two for one tree planting system
- Maximizing the efficiency of campus grounds irrigation
- Landscaping with native plant species
- Inventorying and mapping campus trees
- Creating rain gardens designed to filter storm water runoff



O'Dell's Pond

- 6.2 | ***Reduction Strategy***

Hobart and William Smith Colleges' strategy to decrease emissions from agriculture focuses on 1) reducing the need for synthetic and emission intensive fertilizers; 2) transitioning to low greenhouse gas emitting organic fertilizers; and 3) offsetting emissions with careful grounds planning.

- 6.3 | ***Mechanism One: Reducing the need for emission intensive fertilizers***

Goal: Avoid emission intensive and synthetic fertilizers.

Purpose: Reduce the need for soil additives by using plant species native to the region.

Implementation:

- A. Rethink landscaping and plant choices in the planning stage with the intention of reducing the number of emission intensive treatments.
 - i. Explore all environmental benefits from planting native species and determine the value of landscaping existing campus spaces to achieve these benefits.
 - ii. Include water management and run-off mitigation best practices in campus landscaping decisions.

Expected Impact: The Climate Task Force anticipates that planting with the intension of avoiding emission intensive soil treatments and prioritizing landscape decisions on environmental benefits will 1) curb campus emissions; 2) reduce costs associated with maintenance; 3) develop an environmentally integrated landscaping approach that will benefit, in particular, water quality; and 4) create an educational opportunity to re-imagine campus landscaping and its beauty.



Snow Removal



HWS Rain Garden

6.4 | **Mechanism Two: Transition to organic and low emitting soil treatments**

Goal: Replace synthetic and emission intensive soil treatments with organic and low greenhouse gas emitting treatments.

Purpose: Reduce the Colleges demand for high emitting and controversial synthetic soil treatment products by replacing synthetic soil treatments with organic, locally produced and low emitting treatments.

Implementation:

- A. Replace, whenever possible, high emitting and synthetically based soil treatments with organic and low emitting treatments.
 - i. Purchase organic soil treatments from regional “producers.”

Expected Impact: The Climate Task Force anticipates that 1) emissions from campus agriculture will decrease; and 2) organic soil treatments will be a very marketable initiative.

6.5 | **Mechanism Three: Explore on-campus agriculture offset opportunities’**

Goal: Use campus space to achieve bio-based offsets

Purpose: Reduce the Colleges’ greenhouse gas emissions by investing in campus landscaping and beautification.

Implementation:

- A. Explore the feasibility of on-campus bio-based offsets.
 - i. Design a tree planting policy, built off of the Colleges one for two¹⁹ replacement policy that firms up the existing one for two program and extends to insure all existing trees with the intent of claiming bio-based offsets.
- B. Create structures to properly monitor and report on-campus offsets²⁰ with the intention of substantiating the legitimacy of on-campus offsets and tying them into the Colleges Greenhouse Gas Inventory.

Expected Impact: The Climate Task Force anticipates that legitimizing on-campus offset projects will 1) function to keep resources on-campus; 2) achieve net-emission reduction; and 3) create a unique educational and marketing opportunity.

¹⁹ HWS’s current tree replacement program loosely follows a one for two system where a tree cut on campus is replaced with two new trees. The goal is to replace trees in a twelve month period with a current rate of 1.6 replaced trees per 1 removed tree since 2006.

²⁰ Refer to the ACUPCC Voluntary Offset Protocol



Achieve net-zero greenhouse gas emissions



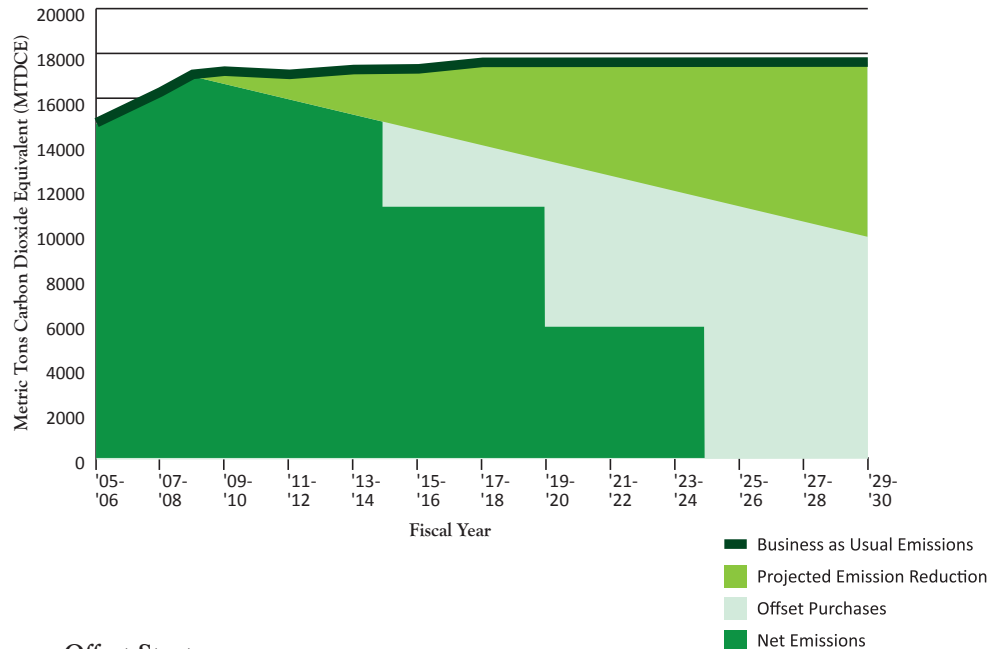
Section 7: Offset Purchasing Strategy

7.0

Offsets (reducing emissions by using offsets): 0 MTCDE and 0% reduction of HWS greenhouse gas emissions as of FY '08-'09.

The Colleges are committed to achieving net-zero greenhouse gas emissions by 2025. The following chart illustrates the Colleges plan for achieving net-zero greenhouse gas emissions.

Path to Climate Neutrality



7.1

Offset Strategy

Hobart and William Smith's strategy to reduce net greenhouse gas emissions using offsets focuses on 1) purchasing legitimate offsets; 2) incrementally offsetting emissions to net-zero Metric Tons Carbon Dioxide Equivalent starting in 2025; and 3) driving on-campus emission reduction projects.

7.2

Mechanism One: Purchase legitimate offsets

Goal: Guarantee that offsets result in a permanent, additional and real greenhouse gas reduction.

Purpose: Avoiding controversial offset purchases will 1) protect the Colleges from claims of participating in questionable emission projects and validate HWS' claims, upon purchasing offsets, of net emission reduction; 2) add educational value to HWS in an environmental and financial sector that is quickly emerging; and 3) position the Colleges to remain in good standing with the American College and University Presidents Climate Commitment.

Implementation:

A. The Colleges will only invest in offsets that meet the highest standards of legitimacy.

- i. The Colleges will, at a minimum employ the standards outlined in the American College and University's "Voluntary Offset Protocol"²¹ as requirements for a legitimate offset purchase.

²¹ See Appendix section to view the ACUPCC "Voluntary Offset Protocol"

- ii. Recognizing that offset standards will change as regulatory structures develop, a review of offset standards will occur in coordination with the Colleges Greenhouse Gas Inventory. Recommendations on modifying HWS' offset purchasing standards will be presented to the Climate Task Force.
- B. Offset purchasing will fall under the responsibility of the Colleges' energy purchasing team in coordination with the Sustainability Coordinator. Purchases will be made pursuant to standards approved by the Climate Task Force and in consideration of A - i-ii of this mechanism.

Expected Impact: The Climate Task Force anticipates that 1) HWS' claim to the environmental benefits from offsets will be legitimate and defensible; 2) purchasing standards will evolve as offset markets develop; and 3) evaluating offset standards will foster a dialogue, educational and practical in nature, that will push students to the forefront of an emerging sector.

7.3 | **Mechanism Two: Incrementally Offset Emissions to Net-Zero by 2025**

Goal: Achieve net-zero greenhouse gas emissions by 2025.

Purpose: Implement a step offset purchase system that will 1) balance environmental and economic concerns; 2) help drive on-campus emission reduction efforts; and 3) use a process that verifies the number of offsets that the Colleges need to purchase based on emission fluctuation.

Implementation:

- A. The Colleges will purchase offsets incrementally²².
 - i. The Colleges will purchase offsets in the amount necessary to decrease net emissions to 11424 MTCDE²³ starting in FY '14-'15.
 - a. The Colleges will maintain the 11424 MTCDE ceiling through FY '18-'19.
 - b. The Colleges will purchase offsets annually, but adjust the number of offsets purchased every other year to reflect change in the Colleges' Greenhouse Gas Inventory and accommodate for fluctuation in emissions.
 - ii. The Colleges will purchase offsets in the amount necessary to decrease net emissions to 5712 MTCDE starting in FY '19-'20.
 - a. The Colleges will maintain the 5712 MTCDE ceiling through FY '23-'24.
 - b. The Colleges will purchase offsets annually, but adjust the number of offsets purchased every two years to reflect change in the Colleges' Greenhouse Gas Inventory and accommodate for fluctuation in emissions.
 - iii. The Colleges will purchase offsets in the amount necessary to decrease net emissions to 0 MTCDE starting in FY '24-'25.
 - a. The Colleges will maintain the 0 MTCDE ceiling.
 - b. The Colleges will purchase offsets annually, but adjust the number of offsets purchased every two years to reflect change in the Colleges' Greenhouse Gas Inventory and accommodate for fluctuation in emissions.
- B. If emission factors change and an update to the FY '08-'09 emission baseline is necessary, then the Colleges may adjust the step system by:
 - i. Reducing the new FY '08-'09 greenhouse gas total by 3rds and in the same time frame as listed in all of Section 7.3 A, but with the new MTCDE ceilings.
- C. The Sustainability Coordinator, working with the academic co-Chair of the Climate Task Force will coordinate the Greenhouse Gas Inventory, validate results, and report, as needed, emission levels and offset purchase amounts to the energy purchasing team.

²² View emission offset purchasing strategy graph in Section 7.0

²³ 11425 MTCDE is a 1/3rd net emission reduction relative to FY '08-'09 levels

- i. The Sustainability Coordinator will work too coordinate all emission reduction efforts and log data into the Climate and Cost Reduction Model.
 - a. The Climate and Cost Reduction Model will be used to 1) help prioritize climate reduction efforts based on cost benefit; 2) track emission reduction efforts; and 3) evaluate performance of emission reduction efforts as compared to the actual emission level identified in the Greenhouse Gas Inventory.

Expected Impact: The Climate Task Force anticipates that the stepped offset purchasing strategy will 1) be an environmentally and financially sound plan for achieving net-zero greenhouse gas emissions by 2025; 2) create a manageable strategy that monitors performance; 3) adjust offset purchases based on the Colleges actual emission levels; and 4) encourage campus emission reductions.

7.4 |

Mechanism Three: Drive on-campus emission avoidance and reduction projects

Goal: Increase value of on-campus emission avoidance and reduction projects.

Purpose: Prioritize on campus emission avoidance and reduction projects by 1) adding an additional incentive to invest in on-campus avoidance and reduction projects; and 2) increasing educational value.

Implementation:

- A. The Colleges, by owning the environmental cost of its emissions will increase the value of on-campus emission avoidance and reduction efforts.
 - i. Groups involved with emission avoidance and reduction efforts will incorporate into the payback of an effort, the emission savings in dollars/ton using the Colleges’ cost for one metric ton of carbon dioxide equivalent.
 - ii. Results for cost analysis that include a MTCDE component will be shared with the Sustainability Coordinator.
- B. The Colleges will incorporate the offset net-emission mitigation system and its correlation to internal emission avoidance and reduction efforts into the classroom as often as possible.
 - i. Students will contribute to a working emission reduction system that ties hard emission ceilings to complex balances of external offsets and internal emission reduction projects. Experience contributing and understanding how the system works in reality and beyond an academic exercise will better prepare students to compete in a field that is increasingly pertinent across all sectors.

Expected Impact: The Climate Task Force expects that connecting offset cost with the savings of on-campus emission avoidance and reduction projects will 1) encourage funding of on-campus emission avoidance and reduction projects; and 2) develop a living laboratory that enhances the student educational experience and results in an environmental and economic benefits for the Colleges.



Section 8: Sustainability Coordinator

8.0

History

The Colleges hired the first Sustainability Coordinator in Fall 2008. The position was created mid-fiscal year and funded out of a discretionary budget. Despite a difficult economic period, the position of Sustainability Coordinator was budgeted into the fiscal year '09-'10 budget.

8.1

Intention

The Colleges will create, as permanent, the position of Sustainability Coordinator.

8.2

Rationale

The decision to sign the American College and University Presidents Climate Commitment in Fall 2007 set Hobart and William Smith on course for addressing environmental sustainability in an institutional capacity. Whereas, prior to becoming a signatory of the ACUPCC students and professors made commendable efforts to reduce the Colleges impact on the environment, these efforts were, however, typically under funded, disjointed and lacking an overarching goal. The new institutional commitment to achieve Climate Neutrality, the comprehensive and multi-faceted plan for delivering the Colleges to net-zero greenhouse gas emissions, and the ambitious mission to “reduce the Colleges impact on the environment and develop a culture of environmental sustainability,” requires that the Colleges hire a fulltime paid employee to coordinate these ambitious efforts and deliver the Climate Task Force’s vision of environmental sustainability at Hobart and William Smith.

8.3

Position Description

A. General Position Information

- i. Title: Sustainability Coordinator
- ii. Department: Office of the Vice President of Finance
- iii. Reports To: The Vice President of Finance

B. Position Summary

- i. The position will provide the leadership, administrative support and coordination to develop, maintain, and enhance environmental sustainability within the Colleges and among its various constituencies.

C. Responsibilities

- i. Work directly with the Climate Task Force to develop, implement, and track programs aimed at meeting obligations under the American College and University Presidents Climate Commitment.
 - a. Direct the Office of Environmental Sustainability
- ii. Act as the implementation liaison for initiatives under the Hobart and William Smith Climate Action Plan.
 - a. Run Climate Task Force meetings and act as the secretary to the Climate Task Force
 - b. Sit on the Energy and Climate Committee
 - c. Chair the Transportation and Climate Working Group
 - d. Attend the Dining Services Student Advisory Board Meetings
- iii. Manage the Climate Task Force Budget
- iv. Oversee and coordinate paid green team members, the Eco-Rep Program, and Climate Action Plan project program.
- v. Act as a resource for students, faculty and staff in matters of sustainability and work collaboratively to develop and refine programs that promote sustainability.

- vi. Investigate outside (i.e. grant) funding for campus sustainability programs.
- vii. Complete third party surveys and reports pertaining to environmental sustainability, and report trends of environmental sustainability in higher education to the Climate Task Force.
- viii. Assess, update, and report Sustainability Coordinator responsibilities and position requirements.
- ix. Keep up to date records that explain programming and program status under the Office of Sustainability, and make these accessible to the Climate Task Force Co-Chairs on a shared drive.
- x. Communicate progress toward implementation of Climate Action Plan and matters surrounding environmental sustainability to all campus stakeholders. Hone HWS' brand of environmental sustainability and use as a marketing tool to non-HWS stakeholders.
- xi. Perform other duties as assigned.

D. Direct Oversight

- i. The Sustainability Coordinator will meet with the Co-Chairs of the Climate Task Force on a regular basis to:
 - a. Deliver updates on the performance of the Office of Sustainability's programming and the progress of the Climate Action Plan.
 - b. Communicate any difficulties and create an agreed upon best course of action to resolve the issue.

E. Monitoring Performance

- i. The Sustainability Coordinator will report to the Climate Task Force at the end of each semester on:
 - a. The status of the Climate Action Plan, progress toward emission reduction from each emission source, and the anticipated emission reduction per source
 - b. Recycling Rates
 - c. Composting weight and cost
 - d. Student worker performance
- ii. Each report will include a target goal for the following semester that clearly states how the target goal compares to the long-term goal for each reporting category.
- iii. The Climate Task Force will adjust the target goal as deemed appropriate.
- iv. The Task Force will evaluate the Sustainability Coordinator and Department of Sustainability's performance based on progress toward the target goals, and adjust accordingly.

Section 9: The Climate Task Force



Climate Task Force

9.0

Overview

President Gearan formed the Climate Task Force in the fall of 2007. Fourteen representatives currently sit on the Climate Task Force including the President of the Colleges, the Vice President of Finance (acting as a co-chair of the Task Force), two faculty members (one is acting as a co-chair for the Task Force), two students, the Director of Buildings and Grounds, The Assistant Director of Buildings and Grounds, the General Manager of Dining Services, the Vice President of Student Affairs, the Director of Communications, the Director of Grants, the President's Chief of Staff, and the Sustainability Coordinator. All members of the Climate Task Force were either appointed by the President of the Colleges or by the co-chairs of the Climate Task Force.



Climate Action Plan

9.1

Intention

Redefine the mission of the Climate Task Force to 1) supervise and be accountable for the Colleges' journey to net-zero greenhouse gas emissions; 2) act as a standing committee; and 3) oversee and counsel the Colleges' Department of Sustainability.

9.2

Mechanism One: Supervise and be accountable for delivering the Colleges to net-zero greenhouse gas emissions

Goal: Oversee the Colleges emission mitigation efforts and make appropriate adjustments to the CAP.

Purpose: Planning to have the Climate Task Force take the lead in overseeing, adjusting, and being accountable for implementing the Climate Action Plan will 1) develop a long-term, yet appropriately flexible document; and 2) maintain the momentum behind and image of emission reduction efforts and environmental sustainability as an institutional priority.

Implementation:

- A. Recognizing that technological and financial circumstances change, the Climate Task Force will adopt the following committee protocol for amending the Climate Action Plan.
- The Climate Task Force will preserve the Climate Action Plan's vision and purpose as enumerated in the Executive Summary and explained by the American College and University Presidents Climate Commitment.
 - A member of the Climate Task Force may table an amendment to the Climate Action Plan.
 - A case for the amendment must be made to the Climate Task Force with an accompanying hard copy of the proposed language change made available to all Task Force Members.
 - The amendment will be approved based on a majority. All Task Force members must be informed of the amendment and impending vote, and need not be present to vote.
 - The Task Force co-chairs will present an approved amendment that commits resources beyond the Task Force's "scope" to the appropriate parties, convey the Task Force's support, and advocate for the amendments approval.
 - Members of the Climate Task Force may appeal an amendment by submitting a written brief to the appropriate authority.
- B. The Climate Task Force will act as a lead proponent for emission reduction and environmental sustainability.
- Members of the Climate Task Force will work with their various constituencies to advocate for and incorporate the Climate Action Plan into their department.



Take the Lead



Student Representation

Expected Impact: The Climate Task Force anticipates that 1) the Climate Action Plan will be adjusted as needed, making it a more long-term document, while still preserving its purpose and vision as originally intended; and 2) identifying and engaging the Task Force as the lead in emission reduction and environmental sustainability will help maintain the Climate Action Plan as a meaningful and relevant document to Hobart and William Smith Colleges.

9.3

Mechanism Two: Act as a standing committee and better define the selection process for student membership

Goal: Make the Climate Task Force a long-term committee and provide students with a better process for representation.

Purpose: Establishing a standing committee and better process for selecting student representation will 1) help guarantee that issues surrounding emission reduction and environmental sustainability be addressed using a consistent and meaningful approach; 2) provide a means for adjusting to unforeseen changes surrounding environmental sustainability; and 3) better represent campus constituents.

Implementation:

- A. The Climate Task Force must meet at least once per semester to receive the Sustainability Coordinator's Climate Action Plan and Department of Sustainability performance reports.
 - i. The Climate Task Force will advise the Sustainability Coordinator, measure performance, and adjust the Department of Sustainability's programmatic focus as deemed appropriate.
- B. Determine if changes in membership to the Climate Task Force are necessary and connect the membership to a faculty, staff or student position at the Colleges as best as possible by May 2010.
 - i. The Climate Task Force co-Chairs and Sustainability Coordinator will appoint one Hobart and one William Smith student to the Climate Task Force. In addition, the President of Campus Greens, or her/his designee will sit on the Climate Task Force.
 - ii. Recommended Climate Task Force Membership
 - a. The President of the Colleges
 - b. The Vice President of Finance (co-Chair)
 - c. Professor leading on-campus sustainability efforts (co-Chair)
 - d. Professor from the Environmental Studies
 - e. President of Campus Greens - or her/his designee
 - f. One Hobart Student
 - g. One William Smith Student
 - h. Vice President of Student Affairs
 - i. Director of Grants
 - j. Director of Communications
 - k. Director of Buildings and Grounds
 - l. Assistant Director of Buildings and Grounds
 - m. General Manager of Dining Services
 - n. President's Chief of Staff
 - o. Sustainability Coordinator

Expected Impact: The Climate Task Force anticipates that creating a standing committee and identifying membership by position rather than person will 1) help keep the Climate Action Plan and Department of Sustainability focused and accountable; 2) support claims of institutional priority surrounding environmental sustainability; and 3) make the Climate Task Force a long-term and meaningful group.

Section 10: Student Roles



Student Participation

10.0

Students and the Climate Action Plan:

Students play an integral role in the Climate Action Plan. Many different emission reduction mechanisms are dependent on student support for effective implementation, and a considerable portion of the success and long-term viability of emission reduction efforts will be shouldered by students.

10.1

Student Projects Listed by Category

A. Long-term and/or continuous projects - listed by priority

- i. Benchmark all buildings optimal electricity performance and actively pursue optimal efficiency goal > Section 2.4 - A i - ii
- ii. Benchmark all buildings optimal heating performance and actively pursue optimal efficiency goal > Section 3.4 - A i - ii
- iii. Complete the Greenhouse Gas inventory > Section 7.3 - C i a
- iv. Derive and track the campus heat and electricity cumulative heat and electricity reduction goals > Section 3.5 - A - B
- v. Monitor building performance and launch electricity competition > Section 2.4 - C - D
- vi. Monitor building performance and launch heat competition > Section 3.4 - C
- vii. Evaluate offset standards > Section 7.2 - A i - ii
- viii. Assist Buildings and Grounds in evaluating new technologies that minimize emissions for on the books new construction and major renovation projects > Section 1.3 - B
- ix. Work with the Energy and Climate Committee to research potential emission reduction projects for electricity emerging from capital investment > Section 2.3 - D iii > Section 2.4 - E
- x. Work with campus departments to minimize waste > Section 5.4 A - B

B. Short-term and/or one time projects - listed by priority

- i. Create an institutional protocol for reporting travel by June 2010 > Section 4.3 - A i - B
- ii. Design a system, working with relevant campus departments to educate new campus constituents about emission reduction > Section 1.4 - A
- iii. Research Renewable Energy Credit's value and recommend what type(s) to purchase > Section 2.5 - A
- iv. Research emission benefits from solid waste diversion > Section 5.3 - A i - ii
- v. Create a waste report for buildings and communicate results to building occupants using diversion rates, volume, weight and emissions Section 5.3 - B
- vi. Immediately investigate the feasibility of emission reduction opportunities for transportation > Section 4.4 - B i - a - 1
- vii. Immediately investigate the feasibility of emission reduction opportunities for transportation > Section 4.4 - B i - a - 2
- viii. Immediately investigate the feasibility of emission reduction opportunities for transportation > Section 4.4 - B i - a - 3
- ix. Immediately investigate the feasibility of emission reduction opportunities for transportation > Section 4.4 - B i - a - 4
- x. Immediately investigate the feasibility of emission reduction opportunities for transportation > Section 4.4 - B i - a - 5
- xi. Immediately investigate the feasibility of emission reduction opportunities for transportation > Section 4.4 - B i - a - 6



Students Planting Flowers

- xii. Design a system to track and reduce emissions from transportation that are beyond the Colleges current scope > Section 4.6 - A - B
- xiii. Establish a functional learning laboratory that models energy purchased from offsite Renewable Energy Credits, on-site > Section 2.5 - C
- xiv. Create a protocol for redistributing reusable items > Section 5.5 A i - ii
- xv. Research local and sustainable food waste processing > Section 5.5 - B i - iii
- xvi. Optimize recycling percentage and hauling > Section 5.5 - C i - iii
- xvii. Rethink landscaping and plant choices > Section 6.3 A i - ii
- xviii. Replace synthetic fertilizers with organic and low emitting varieties > Section 6.4 - A i
- xix. Create structures to explore feasibility of on-campus bio-based offsets > Section 6.5 - A i - B

C. The Sustainability Coordinator will keep updated project lists and communicate Climate Action Plan needs to professors.

10.2 | ***Student Paid Green Team Positions***

The Colleges Sustainability Coordinator will select, at the end of each term students to hire at the beginning of the incoming term. Available positions may change as needs vary.

10.3 | ***Student Volunteer Positions***

Students will have many opportunities to volunteer to help implement the Climate Action Plan and the Office of Sustainability programming. Eco-Reps will become an elite group of environmental volunteers whose primary responsibility is implementing initiatives under the Climate Action Plan and programming through the Department of Environmental Sustainability.

Appendix

The Hobart and William Smith Colleges' Climate Action Plan achieves net-zero greenhouse gas emissions by implementing system changes that give emission reduction projects priority while simultaneously guaranteeing timely and meaningful net emission reduction in the form of an offset strategy. In addition, an essential facet of the Climate Action Plan ties directly into the Colleges' mission, and places a premium on developing a more complete educational experience by fostering a "living laboratory" emission mitigation approach dependent on campus constituent and stakeholder contribution.

APPENDIX 1	Greenhouse Gas Trajectory	Page 34-36
APPENDIX 2	Renewable Energy Credit Brief	Page 37-38
APPENDIX 3	Greenhouse Gas Reduction Model	Page 39
APPENDIX 4	Recycling Rate Goal Selection	Page 40
APPENDIX 5	ACUPCC Voluntary Offset Protocol	Page 41-42
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APPENDIX 7	Supplementary Charts	Page 44

Green House Gas Trajectory Data

Factors and Conversions for electricity consumption from new construction and major renovations:

Square Foot Electricity Factor: 11.7 kwh/sq.ft.

- Assume that new construction and major renovations will include HVAC systems, and anticipate kwh/sq.ft. in new buildings and major construction by deriving a kwh/sq.ft. factor from an existing building that uses an HVAC system – Stern Hall.
 - Calculate kwh/sq.ft. for Stern Hall using FY '07-'08¹ electricity data.

$$\text{Stern kwh/sq.ft.} = 335700 \text{ kwh FY '07-'08 in Stern} / 28500 \text{ sq.ft. in Stern}$$

$$\text{Stern kwh/sq.ft.} = 11.7 \text{ kwh/sq.ft.}$$

KWH to MTCDE Conversion²

- Use electricity emission factors from the FY '06-'07 HWS Green House Gas Inventory and data supplied by the B&G Energy Consumption records³.
 - MTCDE Conversion⁴

Factors and Conversions for heat consumption from new construction and major renovations:

Square Foot Heat Factor: 0.088197112 therms/sq.ft.

- Use FY '08-'09 therm data and cumulative building square footage to derive a therms per square foot analysis.
 - Calculate therms/sq.ft. = 131240 therms '08-'09 / 1498235 sq.ft. '08-'09
 - Average Campus therms/sq.ft. = .088197112 therms/sq.ft.

Therms to MTCDE Conversion⁵

- Use the Clean Air Cool Planet Calculator⁶ natural gas to MTCDE conversion factor and the B&G Energy Consumption records⁷
 - MTCDE Conversion

$$\text{Convert Therms to MMBTU} = \text{therms} * .1$$

$$\text{MTCDE} = \text{MMBTU} * .0529083$$

¹ Stern Hall and FY '07-'08 data was selected because summer '07 was particularly hot leading to intense conditioning. In addition, the building is metered separately allowing for accurate tracking.

² Electricity in kilowatt hours to Metric Tons of Carbon Dioxide Equivalent conversion

³ B&G file - Year to Year consumption.xls

⁴ $((\text{kwh/year} * .381\text{kgCO}_2/\text{kwh})/1000\text{kg/metricton}) + (23\text{CO}_2\text{E}/\text{kgCH}_4(\text{kwh/year} * .00000367 \text{ kgCH}_4/\text{kwh})/1000\text{kg/metricton}) + (296\text{CO}_2\text{E}/\text{kgN}_2)(\text{kwh/year} * .00000403 \text{ kgN}_2\text{O}/\text{kwh})/1000\text{kg/metricton}$

⁵ Heat consumption in therms to, as presented in the monthly and annual energy reports to Metric Tons of Carbon Dioxide Equivalent

⁶ Calculator_v6.4.xls – Module: Emission Factor in MTeCO₃ for all inputs

⁷ B&G file - Year to Year consumption.xls

⁸ Information supplied by Buildings and Grounds Chief Project Manager, Chris Button in Summer '09

⁹ Adjusted to reflect additional AC electric consumption by subtracting total projected electric consumption for airconditioned space subtracted by FY '07-'08 data. The adjustment was made because Lansing, Albright Auditorium and Eaton are have a pre-existing electric draw.

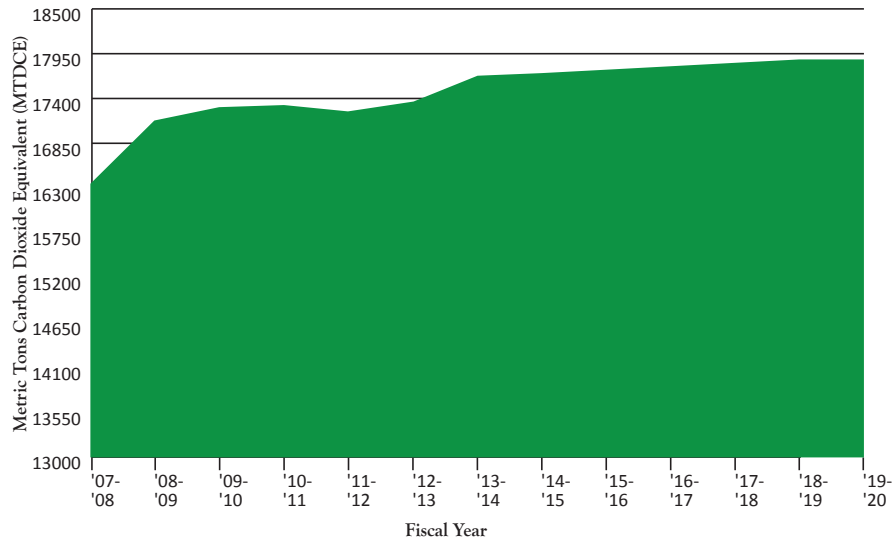
Anticipated campus growth in new construction and major renovations⁸:

1. Athletic addition's new air-conditioned space – 3500 sq.ft. – projected for FY '09-'10
2. New President's Office – 6000 sq.ft. – projected for FY '10-'11
3. New Performing Arts Center – 5000 sq.ft. – projected for FY '13-'14
4. Williams Hall Renovation (performing arts Project) – 7000 sq.ft. – projected for FY '13-'14
5. Coxe Hall Renovation – 28,000 sq.ft. – projected for FY '14-'15
6. Science Building Renovation⁹ – 62,500 sq.ft. – projected for FY '17-'18

Anticipated campus growth in student housing¹⁰

- Calculate the energy consumption for new residential space by dividing the FY '09-'10 total residential area by the Colleges' current on-campus student residential capacity to derive a residential square footage per student factor.
 - o Current HWS Housing Capacity = 1710 students in on-campus residents
 - o Current Residential Sq.Ft. = 626893 Sq.Ft.
 - o Required space per student = (626893 sq.ft. / 1710 students) and 367 Sq.Ft.
 - o Additional Housing Capacity¹¹ = 130 additional on campus residents
 - o Projected Growth in on-campus housing = (130 students* 367 Sq.Ft.) and 42380 sq.ft.
- The projected growth in on campus residential space is evenly distributed over a five year period with an increase of 8476 sq.ft. annually, and establishes a MTCDE by using the aforementioned electricity and heat factors.

Greenhouse Gas Trajectory



¹⁰ Not currently in the plans, but accommodates for emission growth by assuming that all students will be housed on campus by FY '20-'21 with the exception of the average 160 students that study abroad each semester.

¹¹ Derived by anticipating increase in enrollment to 2100 subtracted from 160 students abroad and 1710 currently available residencies.

Greenhouse Gas Trajectory

Fiscal Year	# Stu/Fac/Staff	Stu/Fac/Staff GHG	Additional Sq.Ft. from known future Construction/Renovation	Additional Electric Consumption	GHG from Additional Electric	Projected Campus Electric Total	Projected GHG from Campus Electric	Additional Heat Consumption for new space	GHG from Additional Heat	Projected GHG from Campus Heat	Additional Housing Sq. Ft.	Additional Electric Consumption from Residential Growth	Electric GHG from Housing Growth	Total GHG from Electric	Additional Heat Consumption from Residential Growth	Heat GHG from Housing Growth	Total GHG from Heat	Project Total GHG Emissions
'94-'95	1767	5759																
'95-'96	1769	5766																
'96-'97	1737	5662																
'97-'98	1748	5698												3578			5234	14479
'98-'99	1799	5864												3780			5165	14809
'99-'00	1797	5857												3639			5434	14930
'00-'01	1822	5939												3373			5466	14778
'01-'02	1827	5955												3398			5339	14692
'02-'03	1833	5975												3372			5998	15345
'03-'04	1843	6007																
'04-'05	1799	5864																
'05-'06	1837	5988												3818			5246	15053
'06-'07	1908	6219												4007			5602	15828
'07-'08	1973	6431												4299			5630	16360
'08-'09	2034	6630				1132139	5990	11815642	4517	17137								17137
'09-'10	2079	6776	3500	40950	16	11856592	4533	309	2	5992								17301
'10-'11	2078	6773	6000	70200	27	11926792	4559	529	3	5994								17327
'11-'12	2054	6695				11926792	4559											17249
'12-'13	2091	6816				11926792	4559											17369
'13-'14	2103	6855	57000	666900	255	11926792	4814	4410	23	6018								17687
'14-'15	2100	6845	28500	333450			4814			6018	8476	99169	38	4852	748	4	6022	17719
'15-'16	2100	6845					4814			6018	8476	99169	38	4890	748	4	6026	17761
'16-'17	2100	6845					4814			6018	8476	99169	38	4928	748	4	6030	17802
'17-'18	2100	6845	62500	214650	82	12808342	4896			6018	8476	99169	38	4966	748	4	6034	17844
'18-'19	2100	6845					4814			6018	8476	99169	38	5004	748	4	6038	17886
'19-'20																		17886
'20-'21																		17886
'21-'22																		17886
'22-'23																		17886
'23-'24																		17886
'24-'25																		17886

*figures have been rounded to the nearest whole number

Climate Task Force Brief

Renewable Energy Credits

What are Renewable Energy Credits (RECs)?

- A Renewable Energy Credit is the ‘environmental benefit’ from 1 Megawatt- Hour of renewable electricity production (ex. Bristol Gym used 36 Megawatts hours of electricity in August 2009).
- Renewable Energy Credits are purchased as a premium separate from electricity.
- Renewable Energy Credits can be produced from a variety of ‘generators’ including: wind, solar, geo-thermal, landfill gas, biomass, and hydro.

What are the environmental benefits of RECs?

- The environmental benefits of a REC vary depending on the type of electrical generation, but, in general, it’s legitimate to claim that purchasing RECs equates to zero emissions for the number of Megawatt Hours purchased.
- The claim of ‘zero-emissions’ from RECs is legitimate because the electricity comes from a source that either 1) would have been wasted (using waste methane in the case of landfill/bio-gas) or 2) is entirely renewable (solar/wind/most-hydro/geo-thermal).

How do we guarantee these benefits?

- RECs, as an intangible and sometimes ‘voluntary’ commodity are at risk of being misused. As such, third party governmental and non-governmental regulators have emerged to monitor legitimacy.
- Legitimacy is typically determined by 1) the verification of production (that the electricity in the amount being sold was actually generated); 2) the timing of the production of the REC coordinates with the purchase; and 3) the REC is retired (to prevent double selling of RECs).
- REC legitimacy is monitored by a variety of proven organizations and standards. For example, Green-E, a leading consumer protection program for the sale of RECs and the NY State Public Service Commission monitor the Renewable Energy Credit market guaranteeing the environmental benefit/legitimacy of RECs sold in NY State.

Why do costs differ between Regional and National Wind RECs?

- Cost variance results from differences in regional regulation and property values (NY State has a Renewable Portfolio Standard, participates in the Regional Greenhouse Gas Initiative, and has relatively high property value compared to the plains in Texas- all drive the price of RECs).
- National RECs ‘can be’ cheaper than regional RECs because National RECs open the door to shopping for the lowest priced REC whereas Regional RECs pigeonhole the purchaser; that can be cost effective if your region is in an attractively priced REC location, but can also be a disadvantage (in the case of HWS/NY State).
- The following NY Times article is helpful in understanding the difference between RECs and how a national vs. regional market can differ in price.

http://www.nytimes.com/2009/10/18/weekinreview/18galbraith.html?_r=1

Recommendations regarding RECs:

- 'Mandatory': HWS should consider the purchase of RECs as the equivalent of 'zero-emission' electricity for the amount purchased.
- 'Mandatory': HWS should purchase RECs for 100% of its electricity effectively eliminating 25% of our GHG emissions and demonstrating institutional commitment to sustainability
- Option 1: HWS should diversify its REC portfolio by generator type (solar, wind, methane etc.) giving preferential treatment to RECs that are completely renewable (solar/wind/some-hydro) and/or produced locally whenever possible
- Option 2: *HWS should purchase the majority of RECs from the most cost effective 'third party approved' source (passing our test for legitimacy), but also include a 'set' percentage of Regional RECs to support NY States growing renewable electricity industry.*

Greenhouse Gas Reduction Model

This model enables a college to calculate its economic return on reducing carbon dioxide (CO₂) emissions. The model takes an inventory of a college's current energy usage and calculates the amount of the college's CO₂ emissions. Colleges can calculate a CO₂ reduction program to reach net zero emissions in multiple stages over multiple years. The CO₂ reduction program can be implemented by CO₂ offsetting projects such as tree planting, buying carbon credits or by undertaking CO₂ reducing projects, including energy savings. The program allows colleges to determine the economic value of the various alternatives using net present value analysis and calculated commonly used financial statistics like present value years to payback. This model enables colleges to use current financial techniques to evaluate their options for "going green".

Recycling Rate Comparisons

2008 Rank	School Name	Cumulative Recycling rate (%)
1	Kalamazoo College	58.93%
8	Connecticut College	40.36%
31	Dickinson College	28.73%
50	Hobart and William Smith Colleges	22.03%
57	Hamilton College	19.05%
75	Gettysburg College	13.84%
2009 Rank		
1	California State University-San Marcos	78.09%
5	Kalamazoo College	63.28%
27	Connecticut College	42.44%
65	Dickinson College	32.10%
73	Franklin and Marshall College	30.28%
108	Gettysburg College	25.39%
127	Hobart and William Smith Colleges	22.98%
152	Hamilton College	19.99%
183	Union College	13.35%



ACUPCC Voluntary Carbon Offset Protocol

November 2008

- I. *Whereas*, a carbon offset is a reduction or removal of carbon dioxide equivalent (CO₂e) greenhouse gas (GHG) emissions that is used to counterbalance or compensate for (“offset”) emissions from other activities; offset projects reducing GHG emissions outside of an entity’s boundary generate credits that can be purchased by that entity to meet its own targets for reducing GHG emissions within its boundary; it is in the interest of the American College & University Presidents’ Climate Commitment (ACUPCC) institutions to ensure that investments in carbon offsets result in real GHG reductions; it is in the interest of said institutions to ensure that carbon offset projects add value to their education, research, and service missions by helping to create a healthy, just, and sustainable society...*and*
 1. The higher education sector has the influence, the responsibility, and the diversity of skills needed to develop capabilities for society to re-stabilize the earth’s climate, making its proactive leadership vital for successfully addressing climate disruption...*and*
 2. The ACUPCC is an institutional and collective commitment by presidents and chancellors to achieve GHG neutrality on their campuses and accelerate the research and educational efforts of higher education to equip society to do the same... *and*
 3. Signatories of the ACUPCC have committed to creating a Climate Action Plan within two-years of their institutions implementation start date that will include a target date for GHG neutrality and interim milestone targets... *and*
 4. Signatories agree that the primary responsibility is to act directly to reduce their own GHG emissions by first planning, funding, and initiating programs that avoid GHG emissions (e.g. conservation), reduce GHG emissions (e.g. efficiency), and replace GHG emissions sources (e.g. direct renewable energy programs) ... *and*
 5. The ACUPCC indicates that notwithstanding the primary efforts of colleges and universities to directly reduce their GHG emissions by planning, funding, and initiating avoidance, reduction, and replacement programs, it is nevertheless important to internalize the cost of carbon emissions, and it is unlikely that colleges and universities will in the near future be able to directly achieve GHG neutrality without the supplemental investment in carbon offsets... *and*
 6. Signatories may determine investing in offsets, by developing offset projects themselves, investing directly in offset projects, or purchasing credits generated from offset projects, to be an effective way of achieving interim targets and climate neutrality and/or creating a financial incentive for reducing internal emissions... *and*
 7. When done correctly, investment in carbon offsets is scientifically valid and results in the absolute reduction of greenhouse gas emissions to the atmosphere.

- II. *Therefore*, the ACUPCC Institutions have developed a set of guidelines that each will voluntarily apply to any investments in carbon offsets or participation in carbon markets they may undertake as part of their efforts to achieve GHG neutrality, and that will provide guidance for making investments and reducing the risks associated with those investments. The guidelines are as follows:
1. **Offset projects are real and emissions reductions are additional:** Projects result in actual reductions of GHG emissions and would not have otherwise occurred under a reasonable and realistic business-as-usual scenario.
 2. **Offset projects are transparent:** Project details (including project type, location, developer, duration, standard employed, etc.) are known to the institution and communicated to stakeholders in a transparent way to help ensure validity and further the goal of education on climate disruption and sustainability.
 3. **Emissions reductions are measurable:** Projects result in measurable reductions of GHG emissions.
 4. **Emissions reductions are permanent:** Projects result in permanent reductions of GHG emissions.
 5. **Emissions reductions are verified:** Projects result in reductions of GHG emissions that have been verified by an independent third-party auditor that has been evaluated using the accompanying criteria.*
 6. **Offset projects are synchronous:** Projects result in reductions of GHG emissions that take place during a distinct period of time that is reasonably close to the period of time during which the GHG emissions that are being offset took place.*
 7. **Offset projects account for leakage:** Projects take into account any increases in direct or indirect GHG emissions that result from the project activity.
 8. **Credits are registered:** Credits generated from project activities are registered with a well-regarded registry that has been evaluated using the accompanying criteria.*
 9. **Credits are not double-counted:** Credits generated from project activities are not double-counted or claimed by any other party.*
 10. **Credits are retired:** Credits are retired before they are claimed to offset an institution's annual greenhouse gas inventory, or a portion thereof.

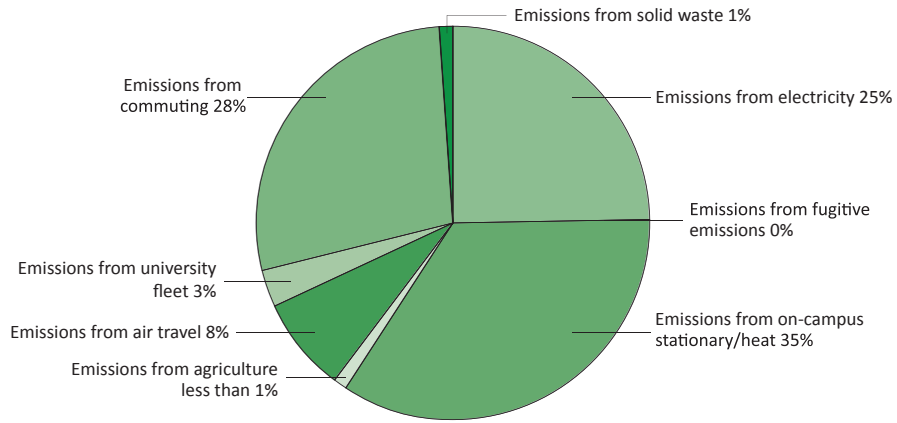
* For more details and guidance on the characteristics of an "independent third-party auditor," a "reasonably close" time period, "a well-regarded registry," and strategies for ensuring against double counting, please see the accompanying document to this protocol: *Investing in Carbon Offsets: Guidelines for ACUPCC Institutions*.

Preliminary Task and Priority List

Department	Section	Purpose	Hierarchy	Implementation Date	Priority Level (1 High - 5 Low)	Student Project
B&G	1.3-A	Generation	Avoid	Spring '10	1	
B&G	1.3-B	Efficiency	Avoid/Reduce	Spring '10	1	Yes 8-L
B&G	1.3-C	Prioritization	Avoid	Spring '10	1	
B&G	1.3-D	Verification	Avoid	Spring '10	1	
B&G	1.3-E	Monitoring/Awareness	Reduce	Spring '10	1	
B&G	2.3-A	Conservation	Reduce	Spring '10	1	
B&G	2.5-C	Awareness	Avoid		5	Yes 7-S
B&G	3.3-A	Conservation	Reduce	Spring '10	1	
B&G	6.4-A	Conservation	Reduce		3	Yes 12-S
Climate Task Force and Energy & Climate Committee	7.4-A-B	Conservation/Awareness	Avoid/Reduce	Spring '10	1	
Energy & Climate	2.3-B-C-D-E-F	Conservation	Reduce	Spring '10	1	Yes 9-L
Energy & Climate	2.4-B	Monitoring/Awareness	Reduce		2	
Energy & Climate	2.4-D	Prioritization	Replace/Avoid		4	Yes 5-L
Energy & Climate	2.4-E	Conservation	Reduce	March '10	1	
Energy & Climate	2.5-B	Conservation	Reduce		1	
Energy & Climate	3.3-B-C-D-E	Conservation	Reduce	Spring '10	1	
Energy & Climate	3.4-B	Monitoring/Awareness	Reduce		2	
Energy & Climate	3.4-D-E	Monitoring/Awareness	Reduce	Fall '10	1	
Energy Purchasing team	7.2-B & 7.3-A	Purchasing	Offset	14-'15-repeat annual	1	
Shuttle Advisory	4.5-A	Awareness/Conservation	Reduce	Spring '10	1	
Sustainability Coordinator	1.4-A-B	Awareness	Reduce	Spring '11	3	Yes 2-S
Sustainability Coordinator	2.4-A	Targeted Conservation	Reduce	Fall '10	1	Yes 1-L
Sustainability Coordinator	2.4-C	Awareness	Reduce	Fall '10	2	Yes 5-L
Sustainability Coordinator	2.5-A	Finance	Avoid		1	Yes 3-S
Sustainability Coordinator	2.5-D	Prioritization	Avoid		4	
Sustainability Coordinator	2.6-A-B	Targeted Conservation	Reduce	Fall '10	1	
Sustainability Coordinator	3.4-A	Targeted Conservation	Reduce	Fall '10	1	Yes 2-L
Sustainability Coordinator	3.4-C	Awareness	Reduce	Fall '10	2	Yes 6-L
Sustainability Coordinator	3.5-A-B	Targeted Conservation	Reduce	Fall '10	1	Yes 4-L
Sustainability Coordinator	4.3-A-B	Monitoring/Awareness	Reduce	June '10	3	Yes 1-S
Sustainability Coordinator	4.4-A-B	Targeted Conservation	Avoid/Reduce/Replace/Offset	Spring '11	3	Yes 5-S
Sustainability Coordinator	4.5-C	Awareness/Conservation	Reduce	Summer '10	1	
Sustainability Coordinator	4.6-A-B	Monitoring/Awareness	Offset	Spring '11	4	Yes 6-S
Sustainability Coordinator	5.3-A-B	Monitoring/Conservation/Awareness	Reduce/Offset	Fall '11	4	Yes 4-S
Sustainability Coordinator	5.4-A-B	Awareness	Avoid	Fall '11	3	Yes 10-L
Sustainability Coordinator	5.5-A	Awareness/Conservation	Reduce		4	Yes 8-S
Sustainability Coordinator	5.5-B	Prioritization	Offset	Spring '10	3	Yes 9-S
Sustainability Coordinator	5.5-C	Conservation	Reduce/Offset	Spring '10	1	Yes 10-S
Sustainability Coordinator	6.3-A	Conservation/Awareness	Avoid/Reduce	Fall '10	4	Yes 11-S
Sustainability Coordinator	6.5-A-B	Conservation/Monitoring	Offset	Spring '11	4	Yes 13-S
Sustainability Coordinator	7.2-A	Monitoring/Awareness	Offset		1	Yes 7-L
Sustainability Coordinator	7.3-C	Monitoring	Offset	Spring '10	1	Yes 3-L
Transportation Working Group	4.5-D	Awareness/Conservation	Reduce	Spring '10	3	
VP of Finance	4.5-B	Project Finance	Avoid/Reduce/Replace/Offset	Spring '10	3	

Supplementary Charts

Emissions by Source



Greenhouse Gas Inventory

