



UNIVERSITY *of* WISCONSIN

---

**GREEN BAY**

# **Climate Action Plan**

Revised

December 1, 2013

# Table of Contents

- 1. Introduction ..... 2
  - 1.1. American College & University Presidents' Climate Commitment..... 3
  - 1.2. Summary of Goals, Approaches, Outcomes..... 4
  - 1.3. Authors and Process ..... 4
  - 1.4. Campus Overview ..... 4
  - 1.5. The University of Wisconsin – Green Bay Quick Facts..... 6
- 2. Analysis Tool..... 7
  - 2.1. Collection Inputs..... 8
- 3. Fiscal Year 2012 GHG Inventory Results ..... 8
  - 3.1. Offsets..... 11
  - 3.2. Total Emissions..... 12
- 4. Moving to Climate Neutrality..... 12
  - 4.1. Scope 1 Emissions..... 13
  - 4.2. Scope 2 Emissions..... 16
  - 4.3. Scope 3 Emissions..... 28
  - 4.4. Investigating Offsets..... 20
- 5. Conclusion ..... 20
- 6. References..... 20

# University of Wisconsin- Green Bay

## Climate Action Plan

### 1. Introduction

The International Panel on Climate Change's (IPCC) 2007 Fourth Assessment Report, developed through consensus of over 4,000 of the world's leading experts on climate and climate change states, "Unless action is taken soon to stabilize and then decrease concentrations of greenhouse gases in the atmosphere, these changes will cause widespread damage to ecosystems, natural resources, and economic activities. Such damages could end prosperity in developed countries and threaten human survival in developing countries" (IPCC, 2007).

The United Nations Environment Programme (UNEP), a leader in driving action to mitigate climate change says,

"There is alarming evidence that important tipping points, leading to irreversible changes in major ecosystems and the planetary climate systems, may already have been reached or passed. Ecosystems as diverse as the Amazon rainforest and the Arctic tundra, for example, may be approaching thresholds of dramatic change through warming and drying. Mountain glaciers are in alarming retreat and the downstream effects of reduced water supply in the driest months will have repercussions that transcend generations. Climate feedback systems and environmental cumulative effects are building across Earth systems demonstrating behaviors we cannot anticipate.

The potential for runaway greenhouse warming is real and has never been more present. The most dangerous climate changes may still be avoided if we transform our hydrocarbon based energy systems and if we initiate rational and adequately financed adaptation programs to forestall disasters and migrations at unprecedented scales. The tools are available, but they must be applied immediately and aggressively" (UNEP, n.d.).

As institutions of higher learning, universities have a unique responsibility and challenge to produce climate literate graduates that enter the workforce with critical thinking skills, awareness and understanding of the potential impacts of climate change on both personal and professional lives. The current state of climate change demands that higher education institutions serve as role models for their local communities and regions by "walking the talk" through identifying and reducing their greenhouse gas emissions. This can be done through a heightened focus on sustainable practices across all campus operations and in providing formal as well as informal learning opportunities to build awareness and ideally, behavior change. This Climate Action Plan focuses on targeted efforts to reduce campus greenhouse gas emissions and is part of a larger campus sustainability plan which targets aspects of building a sustainable future for the University of Wisconsin – Green Bay (UW – Green Bay) campus such as co-curricular education, curriculum offerings, diversity and affordability, as well as public engagement.

This document provides information on the following:

- A brief history of UW - Green Bay and its participation in the American College and University Presidents' Climate Commitment
- An overview of the Cool Air-Clean Planet greenhouse gas analysis tool used to conduct this inventory
- UW - Green Bay's Fiscal Year 2011/12 greenhouse gas inventory results
- Interim and long-term goals to achieve climate neutrality

## 1.1 American College and University Presidents' Climate Commitment

In 2007, under Chancellor Bruce Shepard's leadership, UW - Green Bay became a Charter signatory to the American College and University Presidents' Climate Commitment (ACUPCC), pledging the campus to achieve carbon neutrality in a reasonable period of time. Under the ACUPCC definition, climate neutrality is defined as "having no net greenhouse gas (GHG) emissions, to be achieved by minimizing GHG emissions as much as possible, and using carbon offsets or other measures to mitigate the remaining emissions," (ACUPCC, FAQ, n.d.). Our current Chancellor, Thomas Harden, strongly supports and is committed to UW - Green Bay meeting the requirements of the ACUPCC climate neutrality promise of which this Climate Action Plan is a part.

The GHG protocol standards called for by the ACUPCC Commitment expect signatories to provide an accounting of emissions from the six greenhouse gases (GHG) identified in the Kyoto Protocol. These GHGs include carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), hydrofluorocarbons (HFC's), perfluorocarbons (PFC's), and sulphur hexafluoride (SF<sub>6</sub>). But, as suggested by the ACUPCC implementation guide, the main focus is on CO<sub>2</sub> emissions generated within the organizational boundaries defined for the campus. For UW - Green Bay, those boundaries include all buildings and operations located on the 680 acre Green Bay campus.

Of the seven suggested "Tangible Actions" ACUPCC recommends higher education institutions adopt, UW - Green Bay committed to take action on four (ACUPCC, Reporting System, n.d.). These include:

- Establish a policy that all new campus construction will be built to at least U.S. Green Building Council LEED Silver standard or equivalent.
  - Current Status: UW - Green Bay must follow the State of Wisconsin's Sustainable Facilities Standards for any new construction. This standard meets LEED Silver requirements should the institution decide to seek accreditation under the LEED program.
- Adopt an energy-efficient appliance purchasing policy requiring purchase of Energy Star certified products in all area for which such ratings exist.
  - Current Status: UW - Green Bay purchasing is required to follow State of Wisconsin Department of Administration and University of Wisconsin System policy. Regarding Energy Star purchases the policy states: The State encourages the use of equipment which meets the Environmental Protection Agency (EPA) Energy Star requirements. The Energy Star Program is a voluntary contract between an Original Equipment Manufacturer (OEM) and the EPA. It is not mandatory that every device offered under this bid meet Energy Star requirements but the bulk of the product line should be energy efficient. Bidder should identify those items which meet the Energy Star requirements on the Bidder Response Sheet.
- Encourage use of and provide access to public transportation for all faculty, staff, students and visitors at our institution.
  - Current Status: UW - Green Bay, in partnership with Green Bay Metro, offers the U-Pass program to faculty, staff and students. This program allows unlimited free city bus usage using the individual's University ID card.
- Participate in the Waste Minimization component of the national RecycleMania competition and adopt three or more associated measures to reduce waste
  - Current Status: UW - Green Bay has participated in and will continue to participate in RecycleMania on an annual basis.

## 1.2 Summary of Goals, Approaches, Outcomes

Carbon neutrality, or a net zero carbon footprint, refers to balancing a measured amount of carbon emissions with an equal amount of offset or sequestered carbon or by purchasing “carbon offsets” to make up the difference, getting to net zero carbon emissions. Carbon neutrality is commonly used in the context of fossil fuel use associated with transportation, energy production and industrial processes.

The best way to achieve a carbon neutral status is to first maximize efforts to enhance energy efficiency, thus avoiding the need to purchase energy from non-renewable GHG emitting sources in the first place. With efficiency efforts in place, installing renewable energy options that meet internal hurdles for cost and payback will be considered. Lastly, for emissions that can't be eliminated with enhanced efficiency or installation of renewable resources, carbon offsets should be considered. Offsets can include purchasing renewable energy generated by the local power provider, planting trees with additionality benefits, or by purchasing from offset vendors that fund 'carbon projects' leading to prevention of future GHG emissions.

Using a baseline year of FY2010, the UW - Green Bay has set a goal of reducing GHG emissions by 15 percent by 2030 and becoming climate neutral by 2050.

## 1.3 Authors and Process

The UW - Green Bay Sustainability Committee provided guidance, input and review of this Climate Action Plan. Members of the FY2013-2014 committee include:

John Arendt, Associate Director, Environmental Management and Business Institute  
Scott Ashmann, Associate Professor, Chairman  
Laurie Case, Sustainability and Strategic Planning Coordinator  
Jay Dressen, Account Manager, Wisconsin Public Service  
Jorge Estevez, Associate Professor  
Joshua Goldman, Information Technology  
Marie Helmke, Purchasing  
John Katers, Professor  
Heba Mohammad, Student Member  
Taryn Oleson, Student Member  
Paul Pinkston, Director, Facilities Planning and Management  
Joe Schoenebeck, Laboratory Manager  
John Stoll, Professor  
Patricia Terry, Professor  
Rick Warpinski, Director, University Union

The review process included review by the Sustainability Committee and an open review period for the campus community for the original document and review by the Sustainability Committee on the 2013 revision.

## 1.4 Campus Overview

UW - Green Bay, founded in 1965, engaged in a novel approach to campus planning that joined together academic programs, residential life, and the physical campus environment. The program areas focused on environmental research and teaching and the campus was conceived as a holistic university community, with students spending much of their time on campus. The university was heralded for its environmental ethic. It was dubbed Eco U™ by *Harper's Magazine*, *Newsweek* and other national and regional media in the early 1970s. The nickname came about in large part because of the University's multidisciplinary approach to solving environmental problems. As former interim Chancellor David Ward once put it, “We were green long before green became mainstream.”

Carrying that commitment forward, the current Mission Statement for the university states: "UW- Green Bay provides an interdisciplinary, problem-focused educational experience that prepares students to think critically and address complex issues in a multicultural and evolving world. The University enriches the quality of life for students and the community by embracing the educational value of diversity, promoting environmental sustainability, encouraging engaged citizenship, and serving as an intellectual, cultural and economic resource." (*Approved by the UW System Board of Regents, September 2007.*)

The 290-acre Cofrin Arboretum that surrounds the campus buildings and residence halls is a physically tangible example of the University's commitment to the natural environment. The Cofrin Arboretum was established at the inception of the University to restore and preserve natural areas for their ecological, educational, and aesthetic values. The purpose of the Arboretum is to restore and preserve some of Wisconsin's native ecological communities and to provide a place where people can enjoy and appreciate nature. It serves both the University and the local community as a popular destination for hiking, recreation, and outdoor learning. Emphasis is placed on the protection, enrichment, and development of native Wisconsin plant communities and areas of special ecological significance. Forests, prairies, ponds, and creeks represent some of the major natural features thriving in the Arboretum.

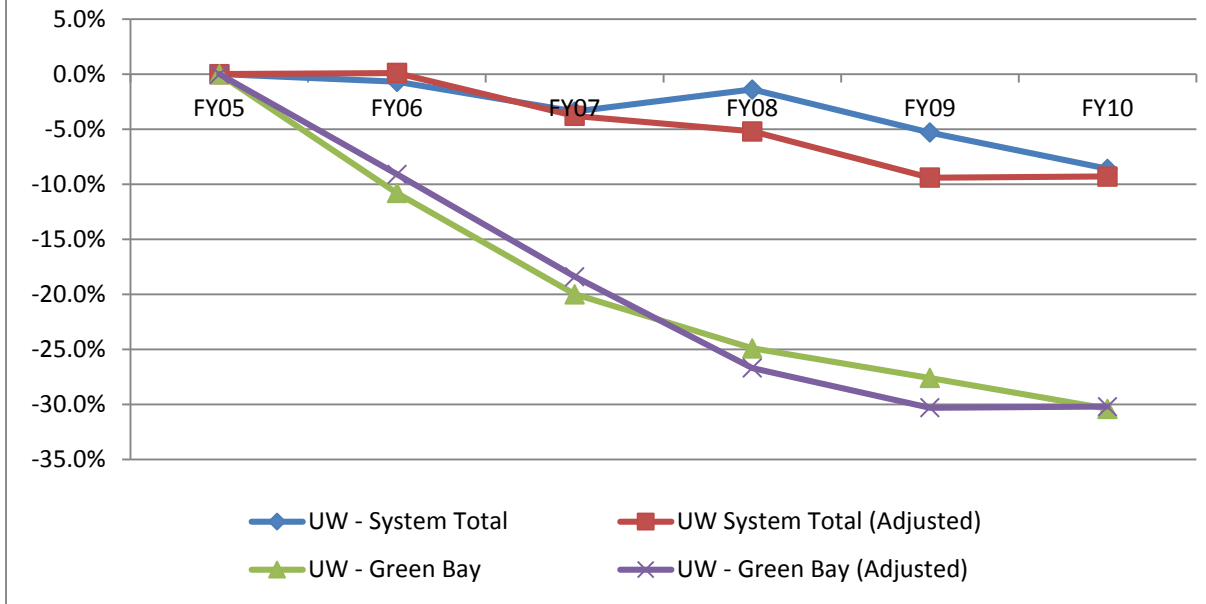
Mary Ann Cofrin (MAC) Hall, built in 2001, also serves as an example of how UW-Green Bay's environmentally focused tradition was translated into the design of a campus classroom facility. The building incorporates day lighting, solar windows, room occupancy lighting sensors and other energy efficiencies – the majority being cutting-edge applications at the time of construction. The Kress Events Center, home to campus sports and athletic facilities, was completed in 2007. It includes a solar thermal array, currently offline for repair, which heats the Center's swimming pool and provides hot water for showers and laundry services. A floor made from recycled tires can also be found in the Fitness Center.

Both the natural environment and the built environment on campus contribute to the learning environment. Faculty and staff actively engage students to help them develop knowledge and skill sets toward being productive and environmentally aware citizens. The UW-Green Bay academic plan promotes hands-on learning through internships, research and team projects. It also demands that students have the ability to make connections — to examine issues from different perspectives, and to work effectively with those from other fields. UW-Green Bay is structured in a way educators describe as "interdisciplinary." Academic programs are grouped not by narrow departments but by practical areas of interest.

The University's environmental perspective competes with the social and physical realities of a dependence on fossil fuels – both for operating campus facilities as well as for students, faculty and staff commuting to campus. The challenges are ongoing, but focused attention on areas contributing to greenhouse gas emissions has yielded positive results. Wisconsin Act 145, passed by the state legislature in 2006, directed state institutions to reduce total btu energy usage by 20% by 2010 from a FY 2005 baseline. Over the last eight years, actions taken to make academic building systems more energy efficient have achieved great success with more than a 30 percent decrease in weather-adjusted BTU/GSF (Figure 1) through FY2010.

**Figure 1. Percent Change from Base (BTU/GSF)**

(Wisconsin Department of Administration, 2011)



More students are bringing cars to campus than ever before and offering alternative transportation options to change the behavioral dependence on cars is an important challenge. In collaboration with the Green Bay Metro, the University offers faculty, students and staff the U-Pass program, which provides free bus rides on the local transit system.

With an environmental ethic as a core founding value, UW – Green Bay has a proud heritage that it will continue to build upon with its efforts to mitigate greenhouse gas emissions and enhance campus sustainability. By operating in a sustainable manner and by providing its students with an opportunity to develop a comprehensive understanding of climate change issues regardless of their major discipline of study, UW – Green Bay graduates can take their place in society and the economy armed with critical thinking skills to become active participants in battling climate change.

**1.5 The University of Wisconsin-Green Bay Quick Facts**

**The University of Wisconsin – Green Bay:**

- Was FOUNDED in 1965.
- Is fully ACCREDITED by the North Central Association
- Is LOCATED on the bayshore on the northeast edge of Green Bay, Wisconsin.

**The POPULATION of the Green Bay metropolitan area:**

250,000

**Outstanding features:**

- 680 rolling, wooded bayshore acres, a nine-hole golf course and an arboretum with a five-mile biking/walking path
- Current, well-equipped academic and laboratory facilities
- Underground concourse system connecting all academic buildings and the eight-story Cofrin Library
- A fitness and recreation center, along with a 4,000-seat sports and concert venue, at the Kress Events Center

- The Weidner Center for the Performing Arts, a nationally renowned 2,000-seat performance hall which hosts popular guest artists along with performances by UW-Green Bay students

### **Students**

- 6,500 total enrollment (Fall 2013)
- 4,833 are full-time undergraduates
- 22.6 is the new-freshman mean ACT score
- 3.34 is the median high school grade point

### **Faculty**

- 155 full time
- 96% of tenure-track professors hold the Ph.D. or highest credential in their field
- 24/1 is the student/faculty ratio
- 29% of classes have fewer than 20 students

### **Top Majors (by degrees granted)**

- Business Administration
- Psychology
- Human Development
- Human Biology
- Communication
- Education
- Accounting
- History
- Political Science

### **Degrees**

- Bachelor of Applied Studies (B.A.S.)
- Bachelor of Arts (B.A.)
- Bachelor of Science (B.S.)
- Bachelor of Business Administration (B.B.A.)
- Bachelor of Music (B.M.)
- Bachelor of Social Work (B.S.W.)
- Bachelor of Science Nursing (B.S.N.)
- Master's of Management (M.S.)
- Master's in Environmental Science and Policy (M.S.)
- Master's in Applied Leadership for Teaching and Learning (M.S.)
- Master of Social Work (a collaborative M.S.W. with UW-Oshkosh)
- Associate of Arts and Sciences (A.A.S.) degree

### **Approximate full-time TUITION and FEES for 2013-2014:**

\$7,648 for residents  
\$15,222 for nonresidents

## **2. Analysis Tool**

UW – Green Bay used the Clean Air – Cool Planet (CA-CP) Campus Carbon Calculator Version 6.6 to calculate the campus GHG emissions. The calculator determines the University's output of the six GHGs specified by the Kyoto Protocol: carbon dioxide (CO<sub>2</sub>); methane (CH<sub>4</sub>); nitrous oxide (N<sub>2</sub>O); hydrofluorocarbons (HFC's); perfluorocarbons (PFC's); and, sulphur hexafluoride (SF<sub>6</sub>). CA-CP is the preferred tool suggested by the ACUPCC for determining a campus-wide carbon footprint.

The CA-CP calculator has functionality which includes helping structure the tasks and data requirements of conducting a greenhouse gas emissions inventory, projecting future emissions, and evaluating the



effects of potential GHG emission reduction projects. The CA-CP calculator uses standard methodologies established by the GHG Protocol Initiative. It is the “tool of record” in use at over 1,200 campuses nationwide (Clean Air – Cool Planet, n.d.).

The CA-CP calculator categorizes the University’s responsibility for emissions and the control it has over these emission quantities into three categories or scopes.

**Scope 1** includes direct emissions from sources that are owned and/or controlled by the University. This includes combustion of natural gas at the University’s power plant, fossil fuel combustion emissions from the University fleet vehicles, fugitive emissions from refrigeration, and emissions from fertilizer usage on campus grounds. The University has complete control over, and is solely responsible for Scope 1 emissions.

**Scope 2** includes indirect emissions from sources that are not controlled or operated by the University, but whose products deliver on-campus energy (electricity, steam and chilled water). The University’s need for this energy production contributes to emissions through the energy conversion process such as the burning of coal to produce electricity. Although the producer is responsible for generating the electricity and emitting GHGs, they did not use any of the energy produced. UW - Green Bay purchases electricity only, with steam and chilled water produced on campus (included in Scope 1 emissions).

**Scope 3** includes other emissions related to University operations but don’t come as a direct result of a University owned or operated process such as emissions from commercial air travel paid for by the university or air travel for study abroad programs or faculty, staff and student commuting. This scope also includes other processes or actions paid for by the University that result in GHG emissions.

The most recent GHG inventory was conducted in FY12, 1 July 2011 to 30 June 2012. The output from this calculator serves as the actionable data for this Climate Action Plan.

## **2.1 Collection Inputs**

Collecting data required contacting multiple departments and units across campus for information. Not all data were readily available, so extrapolations from existing data were used when necessary. A survey was conducted of the campus community regarding commuting behaviors. Response rates were fairly low in some categories, so the data used in this inventory may not necessarily be representative of actual commuting behaviors. Sustainability staff will continue to work with departments to ensure data collection for requested data sets is recorded appropriately for use in the CA-CP calculator for future years.

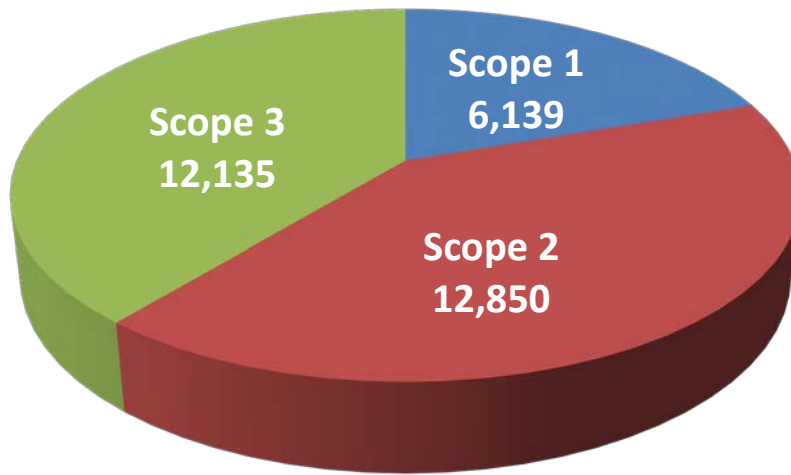
## **3. Fiscal Year 2011/12 GHG Inventory Results**

For FY 2012 (July 1, 2011 to June 30, 2012), the UW - Green Bay emitted an estimated 31,123.5 MT (Table 1, Figures 2 - 4).

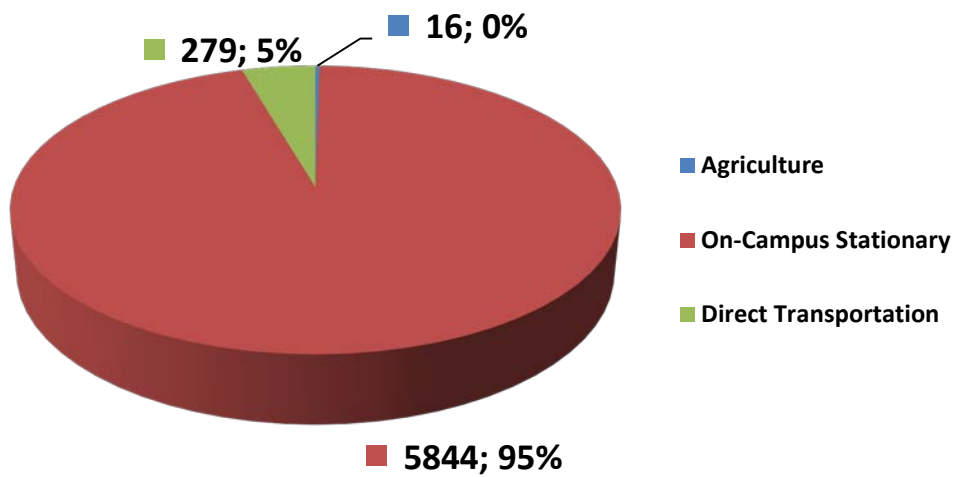
Table 1: GHG Emissions in MT eCO<sub>2</sub> by Scope

Type	FY10-11 MT eCO <sub>2</sub>	FY11-12 MT eCO <sub>2</sub>	% Change FY11 vs. FY12	FY11-12 % of Total eCO <sub>2</sub>
<b>SCOPE 1</b>				
On-Campus Stationary	6,379.2	5,844.3	(9.15)	18.78
Direct Transportation	275.4	279.2	1.34	.897
Agriculture	17.4	15.8	(10.13)	.05
<b>SCOPE 2</b>				
Purchased Electricity	14,404.0	12,849.8	(12.09)	41.38
<b>SCOPE 3</b>				
Faculty/Staff/Student Commuting	8,866.6	8,420	(5.30)	27.05
Directly Financed Travel	1,430.1	2,236.3	56.37	7.18
Solid Waste	179.1	127.8	(40.14)	.41
Wastewater	15.6	15.8	1.28	.05
Paper	59.6	63.7	6.88	.20
Transmission & Distribution Losses	1,424.6	1,270.9	(12.09)	4.08
<b>TOTALS</b>	<b>33,051.3</b>	<b>31,123.5</b>		
Offsets	0	0		
<b>TOTAL EMISSIONS</b>	<b>33,051.3</b>	<b>31,123.5</b>	(6.2)	

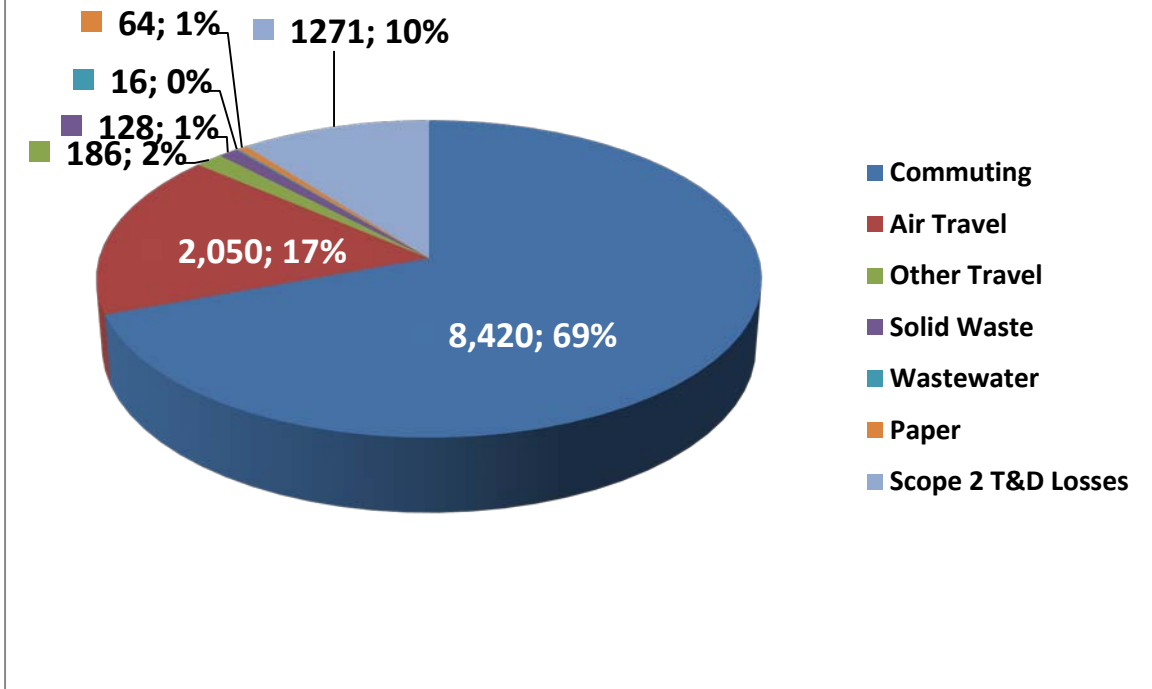
**Figure 2. Total FY2012 Greenhouse Gas Emissions (MT eCO<sub>2</sub>)**



**Figure 3. FY2012 Scope 1 Emissions (MT eCO<sub>2</sub>)**



**Figure 4. FY2012 Scope 3 Emissions**



### 3.1 Offsets

A decision was made by the students in 2009 to no longer provide funding from their student fees for participation in the NatureWise renewable energy credit (REC) program offered by the local utility company. Their decision was based on learning that the utility has less than 2 percent of generation coming from the renewable resources of wind, solar and hydroelectric. Even fewer of these resources were located in Wisconsin. The utility has no immediate plans for building renewable energy production facilities in the state. Due to the increased costs of purchasing RECs through this program and the perception of little impact due to the low amount of renewable energy in the utility's portfolio, the students decided to terminate participation in the program.

In 2005, the State Legislature passed Wisconsin Act 141, the "Energy Efficiency, Renewable Resources, and Energy Policy Act." Act 141 has the general goal of promoting energy efficiency and renewable energy. One of the specific components of Act 141 is to establish goals for the purchase of renewable electricity by certain state agencies. The act sets a goal of 10 percent renewable electricity purchases by December 2007 and 20 percent by December 2011. The Wisconsin Department of Administration (DOA), in compliance with Wisconsin Act 141, purchases electricity on behalf of the University of Wisconsin System. The purchased RECs are then distributed to UW System schools based on previous year's usage. However, because we could not verify through the DOA whether these RECs were properly certified per ACUPCC guidelines, we did not include them as offsets in this GHG inventory.

In addition, UW - Green Bay's 290 acre Cofrin Arboretum that surrounds the main campus, was determined by a 2007 Environmental Science and Policy capstone class to be sequestering 1,402 MT eCO<sub>2</sub> annually. This was not included in the offsets as it was existing biomass, without additionality, per guidance provided by ACUPCC regarding forested campus properties. Solar thermal panels heat the pool

and provide hot water for laundry and showers in the Kress Events Center, but were offline during portions of FY2012 and were not included in the offset calculations, either.

### **3.2 Total Emissions**

With data from all three scopes in the CA-CP calculator, UW – Green Bay’s total emissions were 31,123 MT eCO<sub>2</sub> for FY2011-12.

## **4. Moving to Climate Neutrality**

This Climate Action Plan is part of UW - Green Bay’s overall efforts to build a sustainable campus environment. It includes specific actions to target reductions in greenhouse gas emissions to meet the campus commitment to climate neutrality by 2050 from a 2008 baseline. Potential action steps are presented for each of the three Scopes using three time frames: short-term (2011-2016); mid-term (2017-2025); and, long-term (2026-2050). This is a living document and will be reviewed and updated on a biennial basis.

As with many other universities across the country, UW - Green Bay is confronting economic challenges due to cuts in state support as the current economic climate continues to take a toll on higher education funding and flat to slightly declining enrollment which impacts tuition revenues. As a result of the uncertainty of funding resources, this Climate Action Plan focuses more heavily on short-term actions over the next five years with low budgetary needs. Additional funding sources must be identified for implementation of new programs or changes to current infrastructure that require costly retrofits or new technology installations.

In the short-term timeline, this Climate Action Plan focuses on:

- Building awareness by increasing education efforts
- Conservation
- Increasing efficiency of current systems
- Improving alternative transportation opportunities
- Developing and implementing a comprehensive methodology for acquiring data to populate the greenhouse inventory tool in order to increase accuracy in future years

## 4.1 Scope 1 Emissions

Goal: 15% reduction by 2030

The UW - Green Bay heating/cooling plant uses natural gas to operate boilers and chillers. This plant currently services all campus buildings except residential housing, which are on a separate feed and billing from the local utility provider. All natural gas usage for residential and academic buildings has been included in the calculations for this GHG inventory. Other On-Campus Stationary Sources include University fleet vehicles and fertilizer usage. No co-generation systems currently exist on campus.

Targeted Area	Timeline: 2011-2016	Timeline: 2017 – 2025	Timeline: 2026 – 2050
<p><i>On-Campus Stationary Sources: Heating/Cooling</i></p>	<ul style="list-style-type: none"> <li>• Behavior Change Programs               <ul style="list-style-type: none"> <li>○ Expand Eco-Rep program across Residence Life to increase conservation educational programs applicable to all resource usage (heat, water, electricity) and recycling.</li> <li>○ Establish and promote guidelines and tips for having a “green” room/apartment and reducing amount of materials brought to campus during the summer prior to freshman year.</li> <li>○ Improve communication and promotion efforts to build awareness of available energy conservation techniques, tools &amp; products (e.g. energy star efficient fans, CFL bulbs instead of incandescent in office lamps)</li> <li>○ Review opportunities to</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Behavior Change Programs               <ul style="list-style-type: none"> <li>○ Yearly updating of educational materials and conservation programs to refresh content</li> </ul> </li> <li>• Conservation &amp; Efficiency               <ul style="list-style-type: none"> <li>○ Update HVAC and control systems on campus buildings during remodels</li> <li>○ Replacement to more thermally efficient windows where needed and on all remodels</li> <li>○ Replace chiller system with new technology to improve efficiency and performance</li> <li>○ Install energy efficient water preheat system for makeup water at heating plant</li> <li>○ Maintain rainwater catchment system for cooling tower</li> <li>○ Sub-meter buildings to track and manage water usage</li> <li>○ Continue to evaluate</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Behavior Change Programs               <ul style="list-style-type: none"> <li>○ Continual evolution of materials and approaches to support behavior changes for increased awareness of energy efficiency and sustainability in life choices.</li> </ul> </li> <li>• Conservation &amp; Efficiency               <ul style="list-style-type: none"> <li>○ Add necessary infrastructure for co-generation system(s) from renewable resources (e.g. biomass) at the University Heating/Cooling Plant</li> </ul> </li> </ul>

	<p>upgrade campuswide policies to enhance energy conservation</p> <ul style="list-style-type: none"> <li>○ Incorporate educational outreach efforts to faculty and staff to build awareness and support for sustainability efforts and enhance inclusion in classroom curricula</li> </ul> <ul style="list-style-type: none"> <li>● Conservation &amp; Efficiency <ul style="list-style-type: none"> <li>○ Examine space utilization for potential use shifts to increase efficiency of heating/cooling buildings</li> <li>○ Training and promotion of electronic file document storage for office management rather than print copy storage</li> </ul> </li> </ul>	<p>potential renewable energy technologies for application with existing facilities.</p>	
<p><i>Direct Transportation</i></p>	<p>Fleet</p> <ul style="list-style-type: none"> <li>● As fleet vehicles come up for replacement, choose vehicles from the State's Department of Administration approved list with the least environmental impact that can meet required functional needs</li> </ul>	<p>Fleet</p> <ul style="list-style-type: none"> <li>● As fleet vehicles come up for replacement, choose vehicles from the State's Department of Administration approved list with the least environmental impact that can meet required functional needs</li> <li>● Depending on status of plug-in electric vehicles in both fleet and general population usage, install charging station(s).</li> </ul>	<p>Fleet</p> <ul style="list-style-type: none"> <li>● All vehicles carbon neutral and powered by renewable systems.</li> </ul>

<p><i>Agriculture/Grounds</i></p>	<ul style="list-style-type: none"> <li>• Examine opportunities to promote usage of natural fertilizer alternatives</li> <li>• Develop written policies to ensure sustainability is one of the key considerations for landscape design and maintenance of actively managed green spaces on campus.</li> <li>• Review current best sustainable turf grass management practices and determine applicability to Green Bay climate for future implementation at all turf grass sights <ul style="list-style-type: none"> <li>○ For any new artificial turf fields, include sustainability and carbon load considerations in selection criteria for the turf system</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Complete transition away from synthetic to natural/organic fertilizers</li> <li>• As less chemically intensive natural turf grass management evolves, consider moving Shorewood Golf Course and athletic fields to a natural management system</li> <li>• Incorporate best practice, low impact management systems for any newly established natural turf athletic fields</li> </ul>	<ul style="list-style-type: none"> <li>• Continue management of all grounds in an ecologically sound and carbon neutral manner.</li> </ul>
-----------------------------------	--	---	--



## 4.2 Scope 2 Emissions

Purchased Electricity

Goal: 15% reduction by 2030

The UW – Green Bay utility provider is Wisconsin Public Service (WPS).

Targeted Area	Timeline: 2011-2016	Timeline: 2017 – 2025	Timeline: 2026 – 2050
Conservation & Efficiency	<ul style="list-style-type: none"> <li>• Continue lighting upgrades to more efficient fixtures as budgets allow               <ul style="list-style-type: none"> <li>○ Replace less efficient lighting in Kress Center practice gym, building wallpacks, path lighting, etc.</li> </ul> </li> <li>• Install electrical submetering on all buildings               <ul style="list-style-type: none"> <li>○ Conduct campus energy audit and target facilities with highest consumption per square foot to identify root causes and determine any appropriate conservation or mitigation actions</li> </ul> </li> <li>• Track renewable energy generation technologies and on an annual basis review applicability of technology for installation/usage on campus</li> <li>• Develop and deploy an energy usage/building dashboard reporting process for student/public information and tracking of energy usage by building</li> </ul>	<ul style="list-style-type: none"> <li>• Install renewable energy generation system when technologically and fiscally possible</li> <li>• When remodels/renovations occur in academic and student residence halls/apartment improve lighting efficiency and electrical systems with applicable new technologies</li> </ul>	<ul style="list-style-type: none"> <li>• Install renewable energy generation system when technologically and fiscally possible</li> </ul>

<p>Green/LEED Buildings</p>		<ul style="list-style-type: none"> <li>• Seek LEED EB O&amp;M certification for appropriate campus building upgrades as funding allows</li> <li>• Per state guidelines, any new building construction on campus will be built to a minimum of LEED Silver standards <ul style="list-style-type: none"> <li>○ Accreditation under LEED will be built into building construction budgets</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Seek LEED EB O&amp;M certification for appropriate campus building upgrades as funding allows</li> <li>• Per state guidelines, any new building construction on campus will be built to a minimum of LEED Silver standards <ul style="list-style-type: none"> <li>○ Accreditation under LEED will be built into building construction budgets</li> </ul> </li> </ul>
-----------------------------	--	---	---

### 4.3 Scope 3 Emissions

Commuting, Air Travel, Solid Waste, Wastewater, Paper

Goal: 20% reduction by 2030

Targeted Area	Timeline: 2011-2016	Timeline: 2017 – 2025	Timeline: 2026 – 2050
Commuting	<ul style="list-style-type: none"> <li>• Continue working with Green Bay Metro to support participation in free U-Pass bus ridership program</li> <li>• Improve signage for Bike Lanes and traffic awareness of cyclists</li> <li>• Investigate potential for bike share and bike locker program</li> </ul>	<ul style="list-style-type: none"> <li>• Work with local public authorities to incorporate bike lanes on public roads leading to campus when roads are resurfaced and/or reconstructed</li> <li>• Continue to investigate and develop alternative transportation options to campus such as a shuttle service from outlying communities with high density student/staff/faculty populations</li> <li>• When Campus Master Plan revision begins, encourage options that strengthen pedestrian and cycling access to campus</li> </ul>	
Directly financed travel	<ul style="list-style-type: none"> <li>• Establish a process to increase accuracy in tracking travel impact</li> <li>• Investigate current options and costs for carbon offsets to travel.</li> <li>• Consider policy change to include offsets as part of billed travel costs</li> <li>• Ensure technology options for attending virtual meetings, teleconferences and webcasts are current and remain current</li> </ul>	<ul style="list-style-type: none"> <li>• Work with travel vendors to provide bookings on more fuel efficient flights when possible</li> </ul>	

Solid Waste	<ul style="list-style-type: none"> <li>• Organic <ul style="list-style-type: none"> <li>○ Food pulper in dish room/Union</li> <li>○ Add organic waste and/or composting systems for post-consumer food waste</li> <li>○ Explore and implement composting opportunities for housing units</li> </ul> </li> <li>• Recyclables <ul style="list-style-type: none"> <li>○ Improve participation in annual RecycleMania competition</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Organic <ul style="list-style-type: none"> <li>○ Expand food composting program to incorporate organic waste from entire campus</li> </ul> </li> <li>• Recycling <ul style="list-style-type: none"> <li>○ Determine feasibility of committing to become a Zero Waste campus</li> </ul> </li> </ul>	
Wastewater	<ul style="list-style-type: none"> <li>• Investigate installation of energy and water efficient commercial dishwasher upgrade in Union</li> <li>• Examine cost and practicality of submetering specific buildings to determine water usage patterns to best target reduction opportunities</li> <li>• In building/housing remodels install water conserving replacements or retrofits</li> </ul>	<ul style="list-style-type: none"> <li>• For any newly constructed housing units, include grey water recycling system</li> <li>• Monitor and determine applicability of evolving water conserving technologies to campus environment</li> </ul>	
Paper	<ul style="list-style-type: none"> <li>• Replace current 30% recycled content office paper with 100% recycled content paper</li> <li>• Provide training to build awareness and increase participation in electronic record storage to replace hard-copy paper storage</li> </ul>	<ul style="list-style-type: none"> <li>• Establish goals and timeline to move to paperless administrative office operations</li> </ul>	

#### 4.4 Investigating Offsets

The carbon offset market is still relatively new with types of projects, typically renewable energy, energy efficiency and reforestation projects, continuing to evolve. Third party verification standards also vary, with Green-e certification gaining traction as the preferred standard. Costs for purchasing offsets also vary between offset providers. At the 2013 rates of a Wisconsin-based REC provider, RePower Now, cost is 2.5 cents/Kwh. For UW – Green Bay to offset only its electricity use for one year, the cost would be approximately \$497,000. The goal, of course, is to reduce greenhouse gas emissions through improving awareness, encouraging behavior change to increase climate-friendly actions and choices, and retrofitting to increase energy efficiency where technologically and fiscally appropriate. When those measures have achieved success, purchasing offsets will be the final step considered to bring the UW - Green Bay campus to carbon neutrality.

#### 5. Conclusion

In a time where the UW - Green Bay continues to face a challenging fiscal environment, reduced funding and the continued need to carefully balance spending decisions with a long list of compensation, programmatic and infrastructure needs, efforts to reduced greenhouse gas emissions will focus on less budget intense efforts in the short-term. Other non-state funding options will continue to be explored for higher budget infrastructure investments that could lower GHG emissions such as a renewable energy installation.

Since Fiscal Year 2005, the UW - Green Bay facilities and maintenance team and campus community has decreased thermal and electrical consumption in academic buildings by more than 30 percent through efficiency and conservation efforts (Figure 1). In the short-term, the opportunity for additional incremental decreases in heating/cooling and electrical usage will come from continued encouragement to change behaviors that impact the amount of GHG emissions and exploring innovative ideas that encourage involvement and participation across the entire campus community.

#### 6. References

- ACUPCC, FAQ. (n.d.). What is Climate Neutrality? Retrieved from <http://www.presidentclimatecommitment.org/about/faq#10>
- ACUPCC, Reporting System. (n.d.). Tangible Action Statistics. Retrieved from <http://rw.acupcc.org/stats/tangible-actions/>
- Cool Air – Clean Planet. (n.d.). Climate Action Toolkit – Introduction. Retrieved from <http://www.CleanAir-CoolPlanet.org/toolkit/>
- IPCC. (2007). *Climate Change 2007: Synthesis Report*. Retrieved from [http://www.ipcc.ch/publications\\_and\\_data/ar4/syr/en/contents.html](http://www.ipcc.ch/publications_and_data/ar4/syr/en/contents.html)
- UNEP. (n.d.). Climate Change – Introduction. Retrieved from <http://www.unep.org/Climatechange/Introduction/tabid/233/Default.aspx>
- Wisconsin Department of Administration. (2011). Energy Use in State Facilities. Conserve Wisconsin Report Fiscal Year 2010. Retrieved from <http://www.doa.state.wi.us/docview.asp?docid=7596&locid=4>