

# CLIMATE ACTION PLAN

PROMOTING SUSTAINABILITY AT FROSTBURG STATE UNIVERSITY



**September 15, 2009**

Presented by the Learning Green, Living Green (LGLG) Sustainability Committee,  
Frostburg State University

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<http://www.frostburg.edu/lglg/cap.htm>.

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## Introduction

Frostburg State University became a charter member of the [American College and University Presidents Climate Commitment](#) (ACUPCC) in April 2007 and is committed to developing and establishing a Climate Action Plan (CAP) as part of this commitment by September 15, 2009. The CAP provides a framework that will guide FSU to climate neutrality by the year 2030. The CAP is divided into five structured areas to ensure a multifaceted approach to addressing climate neutrality:

- **Mitigation Strategies** – Implementing strategies that will reduce FSU’s carbon footprint
- **Education** – Strengthening environmental sustainability studies throughout all areas of the curriculum to ensure that every FSU student is exposed
- **Research** – Providing FSU students, faculty and staff opportunities to engage in research opportunities relating to climate change and environmental sustainability
- **Outreach** – Connecting with all FSU constituents to promote sustainability and encourage others to get involved
- **Finance** – Identifying ways to finance the CAP, faculty research relating to environmental sustainability, as well as LGLG as a whole

The ACUPCC defines climate neutrality as having no net greenhouse gas emissions. This should be achieved by minimizing greenhouse gas emissions to the furthest extent possible through conservation and technology upgrades. The remaining emissions may be offset through valid and reliable *carbon offsets*.

As an institution within the University System of Maryland (USM), Frostburg State University supports the [USM Environmental Sustainability and Climate Change Initiative](#). Launched in April 2008, the USM Sustainability initiative aims to promote environmental stewardship and sustainable practices across the system's universities, research institutions and regional higher education centers. It focuses on developing policies, practices and programs that will make the university system a national leader in institutional responses to the challenges of global climate change.

### ***FSU’s Learning Green, Living Green Sustainability Initiative***

The Learning Green, Living Green (LGLG) sustainability initiative began in summer 2007, shortly after FSU became a member of the ACUPCC. Today, the initiative is led by the LGLG Committee, which is also charged with developing a University climate action plan. During the first several months of being, the committee was led by a designated chairperson. Since fall 2008, the committee has been led by the LGLG Advisory Group, a group of individuals representing FSU faculty, staff and alumni. In summer 2009, the LGLG Advisory Group has been working with FSU administrators to establish parameters for a permanent office of sustainability.

In fall 2008, the LGLG Committee and Advisory Group began research for the writing of FSU’s Climate Action Plan. The actual writing began in early spring 2009. In the early stages of the process, the LGLG Committee established five working groups that would work on the components of the plan as outlined in the [ACUPCC Implementation Guide](#). Working groups were established for emissions, mitigation strategies, education, research, outreach, finance and tracking progress. Each working group developed an outline of strategic objectives that were later compiled into a comprehensive plan.

Throughout the summer of 2009 and concurrent with the development of FSU's CAP, LGLG representatives began the development of a mission and vision for the LGLG sustainability initiative. In doing so, the committee also defined key terms relevant to the mission and vision. These documents are currently under development and will be presented on LGLG's Web site in fall 2009:

[www.frostburg.edu/lglg/](http://www.frostburg.edu/lglg/).

### ***Defining Sustainability***

LGLG defines sustainability as *improving the quality of life for current and future generations by addressing environmental, social and economic needs at Frostburg State University.*

The [U.S. Environmental Protection Agency](#) defines "sustainability" as *meeting the needs of the present without compromising the ability of future generations to meet their own needs.*

Although LGLG Committee members agree with the EPA definition, many feel that it may suggest a "maintenance" mentality. There is also some confusion over the breadth and depth of the term "sustainability," with a concern that it is strictly limited to environmental issues.

### ***The ACUPCC Commitment***

The ACUPCC has partnered with the [Association for the Advancement of Sustainability in Higher Education](#) (AASHE) to establish a reporting framework. In line with ACUPCC commitments and in addition to the development of a Climate Action Plan by September 15, 2009, Frostburg State University has agreed to the following elements of the ACUPCC commitment:

1. *Establish an institutional structure for development of the CAP* – FSU has achieved this with the establishment of the Learning Green, Living Green (LGLG) Committee. In July 2009, the committee included approximately 20 members that assisted in the development of FSU's CAP (*Appendix A: LGLG Committee Membership for the Development of FSU's Climate Action Plan*).
2. *Measure Greenhouse Gas Emissions* – FSU has achieved this by posting [FSU's 2007 Greenhouse Gas Inventory](#) on the AASHE Web site in September 2008. The inventory includes emissions data from 2002 through 2007.
3. *Select Tangible Actions* – In fall 2007, FSU selected the following actions for implementation:
  - ***EnergyStar Procurement Policy*** – In February of 2009, FSU established its Energy Efficient Purchasing Policy 3.115 (*Appendix B: Energy Efficient Purchasing Policy*).
  - ***Purchase 15 Percent of Energy From Renewable Sources*** – In April 2008, FSU participated with the D.C. Consortium and signed contracts to begin purchasing wind-certified **renewable energy** credits equal to 15 percent of the University's total electric consumption.
  - ***Waste Minimization*** – In 2008 and 2009, FSU participated in Recyclemania, the national 10-week collegiate recycling competition. In 2009, FSU placed 75th out of 198 institutions in waste minimization. The LGLG Committee selected three associated measures to reduce waste: (1) establish a campus recycling program, (2) replace production of paper materials with online alternatives and (3) create and promote a system for the campus community to report wasteful practices and offer suggestions for waste reduction.

## Timeline for Climate Neutrality

The LGLG Committee proposes that FSU work collaboratively to achieve climate neutrality by the year 2030. The table below lists target dates for climate neutrality for Frostburg State University, shown in comparison with the target dates established by the State of Maryland in the [Climate Change Commission’s 2008 Climate Action Plan](#). To be comparable with the state, FSU also selected 2006 as its base year.

<b>Frostburg State University</b> (as proposed in 2009 CAP)	<b>State of Maryland</b> (MD Commission on Climate Change)
<b>15 percent reduction by 2010</b>	<b>10 percent reduction by 2012</b>
<b>20 percent reduction by 2014</b>	<b>15 percent reduction by 2015</b>
<b>25 percent reduction by 2016</b>	<b>25 percent reduction by 2020</b>
<b>50 percent reduction by 2020</b>	<b>90 percent reduction by 2050</b>
<b>100 percent reduction by 2030</b>	
Base year: <b>2006</b>	Base year: <b>2006</b>

The LGLG Committee asserts that Frostburg State University can and should exceed the target dates for climate neutrality identified for the State. To boost involvement and promote short-term action, LGLG proposes a timeline that is within the professional lifetime of many current employees. Rationale for this assertion includes the following:

- Due to FSU’s unique location and biodiversity, we greatly impact the Chesapeake Bay Watershed as well as regional watersheds. As a result, we must neutralize our impact as quickly as possible.
- As an institution of higher learning, Frostburg State University must exercise leadership in climate awareness.
- As a smaller and less complex entity within the state, FSU has greater flexibility in establishing and implementing strategies that mitigate emissions.
- FSU has an opportunity to adopt local, viable and reliable *carbon offsetting* strategies after emissions are reduced to the greatest extent possible.

## Understanding CAP Strategic Objectives

FSU's Climate Action Plan contains 49 strategic objectives that will contribute to climate neutrality for Frostburg State University by the year 2030. Each objective is described in the subsequent sections of this plan.

Strategic objectives are categorized in three ways:

- "Strategy types" refers to the areas of the plan that the strategic objectives aim to address.
- Strategies are listed in color based on the "Implementation timeline" to begin implementation.
- "Responsible entities" refers to the individual or group that is charged with implementation.

Following the Conclusion section of this document, an "Implementation Guide" summarizes the strategic objectives in line with these three categories.

### **Strategy Types**

Each strategic objective can be categorized into one of six strategy types, as presented below. Mitigation strategies are subcategorized further into five areas that define their origins and refine their goals and impacts.

- **Foundation Strategies (FD)** – Frameworks must be established to successfully meet the goal of climate neutrality.
- **Emissions Tracking Strategies (EM)** – Objectives that are aimed at improving current emissions tracking methodology.
- **Mitigation Strategies (M)** – Objectives that have a direct impact on reducing emissions at FSU.
  - **Conservation and Use of Energy and Resources (CU)** – Objectives for the purchase of electricity and all objectives that reduce emissions through conservation.
  - **Buildings and Land Use (BL)** – Objectives related to new building construction, grounds maintenance and forest preservation.
  - **Transportation (TR)** – Objectives that complement the ultimate goal of establishing a true "*walking campus*" at FSU.
  - **Consumption and Generation of Food and Waste (CG)** – Objectives that aim to reduce solid waste from food and general consumption.
  - **Offsetting (OF)** – Objectives that compensate for carbon emissions at FSU by reducing emissions elsewhere.
- **Education and Research Strategies (ER)** – Objectives that provide FSU students, faculty and staff opportunities to engage in curricular, co-curricular, and research opportunities relating to climate change and environmental sustainability.
- **Outreach Strategies (OT)** – Connecting with all FSU constituents to promote sustainability and encouraging others to get involved.
- **Finance Strategies (FN)** – Identifying ways to finance the CAP, faculty research relating to environmental sustainability, as well as LGLG as a whole.

### **Implementation Timeline**

Strategic objectives listed in this plan fall into three timeline categories, presented below. Although there is an established date to begin implementation for each objective, there is no established deadline for achieving implementation. At this time, does not have enough information about every strategic objective to propose a deadline for completion. However, this component may be added in subsequent versions of the CAP.

<b>GREEN Strategies</b> <u>Begin</u> Implementation by 9/15/09
<b>BLUE Strategies</b> <u>Begin</u> Implementation in Academic Year 2009-2010
<b>GREY Strategies</b> <u>Begin</u> Implementation in Academic Year 2010-2011

### **Responsible Entities**

The CAP Implementation Guide provides recommendations on those entities that will be responsible for implementation of each strategic objective. LGLG notes that these assignments are fluid and are not meant to exclude individuals or groups interested in pursuing particular areas. The responsible entities provided in the implementation guide include:

- FSU Administration **ADM**
- Sustainability Office/Coordinator **SOC**
- Learning Green, Living Green Committee **LG2**
- Mitigation Strategies Group **MSG**
- College of Liberal Arts and Sciences Sustainability Committee **CSC**
- Outreach Strategies Group **OSG**
- Finance and Research Group **FRG**

### **Organization of Strategic Objectives**

Subsequent sections of the CAP are presented according to strategy type, beginning with Foundation Strategies. As a reminder, the “Implementation Guide” that follows the Conclusion section of this document summarizes the strategic objectives in-line with the three categories presented above.

## Foundation Strategies

The LGLG Committee has determined that certain frameworks must be established to successfully meet the goal of climate neutrality at Frostburg State University. Primarily, the University must establish permanent leadership and a governance structure for sustainability. Additionally, the University must (1) establish and promote communications and negotiation with USM affiliates, (2) identify and develop new guidelines and policies to facilitate the goal of climate neutrality and (3) track and benchmark sustainability through participation in national surveys and rating systems.

### ***Leadership and Governance Structure***

The LGLG Committee affirms that establishing a leadership and governance structure for sustainability is perhaps the most important step for the institution to take to achieve its goals for climate neutrality and sustainable operations. To stay on track with target dates, the University will begin implementation of the following strategic objectives by September 15, 2009.

#### ***Sustainability Leadership***

##### ***FD.1 – Sustainability Leadership Structure***

FSU administrators will establish a permanent Office of Sustainability with a program budget and Sustainability coordinator. ADM

The most important foundation strategy for meeting the goal of climate neutrality is to establish permanent leadership and coordination of FSU's sustainability initiative. Successful implementation of FSU's Climate Action Plan hinges on strong leadership.

In the absence of a Sustainability coordinator, the LGLG Advisory Group has led the initiative since fall 2008. During this time, LGLG representatives found that: (1) The committee approach used in AY 2008-2009 is not adequate for long-term leadership and direction. (2) Sustainability has a prominent role in FSU's Draft Strategic Plan and Draft Mission, but this emphasis is not reflected in the allocation of resources and personnel for actions relating to sustainability. (3) Based on results from the [AASHE STARS Pilot Report](#) (p. 240), most AASHE-member institutions have a sustainability officer. The report shows that 88.3 percent of participating institutions had a paid sustainability officer in 2008.

In summer 2009, the Advisory Group developed and submitted a proposal for permanent leadership in sustainability (*Appendix C: Proposed Recommendations for Permanent Leadership in Sustainability*), citing the following rationale:

- A Sustainability coordinator would serve as an ambassador for climate and habitat awareness, promoting initiatives that will ultimately improve the quality of life for all individuals and species.
- The establishment of a permanent office of sustainability would propel FSU as a leader in sustainability initiatives within higher education.
- Added benefits to establishing a permanent office include opportunities for boosting student recruitment and retention, and opportunities to explore external funding for sustainability.

**Sustainability Framework** – The LGLG Committee determined that a formal structure should be in place to pursue CAP strategic objectives. FSU’s **Sustainable Bobcat** illustrates how components of our proposed structure combine to create a successful sustainability initiative. In establishing this framework, LGLG Committee members believe that deficiencies in any one area may hinder progress for achieving climate neutrality goals in the future.

**FSU’s Sustainable Bobcat – Foundation for Sustainability at FSU**



**“Brains”** of Sustainability:  
Education & Research



**“Heart”** of Sustainability:  
Mitigation Strategies



**“Soul”** of Sustainability:  
Outreach Strategies



**“Pockets”** of Sustainability:  
Finance Strategies



**“Paws”** of Sustainability:  
Office Coordinator



The Sustainable Bobcat illustrates the need for establishing a framework for implementation of climate action plan strategies. The five components work together to successfully attain FSU’s goals for climate neutrality and environmental sustainability.



**Sustainability Office Coordinator** – Establishing permanent leadership is the most important Foundation Strategy for meeting the goal of climate neutrality. The paw print is an icon of FSU’s identity, and the Sustainability Coordinator will incorporate that identity with the mission and vision of LGLG. A key role of the Sustainability Coordinator will be to motivate others and move initiatives forward.



**Mitigation Strategies** – The “heart” of sustainability at FSU, this section of the plan deals directly with the reduction of greenhouse gas emissions. Mitigation strategies have the greatest impact on achieving climate neutrality.



**Education and Research Strategies** – This category of the Climate Action Plan represents the “brain” of sustainability at FSU, dealing with incorporating sustainability education and research into curricular and co-curricular programs at FSU. Education and research are important for establishing a culture of climate consciousness.



**Outreach Strategies** – The “soul” of sustainability at FSU, these objectives deal with reaching out to all FSU constituents and promoting sustainability to encourage others to get involved. These objectives will contribute indirectly to reduction of greenhouse gas emissions and contribute to establishing a culture of climate consciousness.



**Finance Strategies** – These objectives represent the “pocket” of sustainability at FSU, dealing with identifying ways to fund the sustainability initiative and to keep it solvent and healthy over time and in the long run.

### **Mitigation Strategies Working Group**

#### ***FD.2 – Mitigation Strategies Working Group***

LGLG will establish a permanent structure to oversee implementation and future development of mitigation strategies. LG2

At the heart of any climate action plan, mitigation strategies are those that directly reduce greenhouse gas emissions. As a result, the majority of the strategic objectives within this plan are contained within this category. LGLG recommends that, because of the highly technical nature of mitigation strategies, the working group should be led by a Facilities representative.

### **Outreach Working Group**

#### ***FD.3 – Outreach Strategies Working Group***

LGLG will establish a permanent structure to oversee implementation of outreach strategies. LG2

The “soul” of sustainability at FSU, the outreach working group will be charged with developing sustainability campaigns and initiatives that engage FSU students, faculty, staff, the surrounding community, the region, and beyond. Membership should include representatives from Media and Communications, Leadership and Civic Engagement and Student Services.

### **Finance and Research Working Group**

#### ***FD.4 – Finance and Research Working Group***

LGLG will establish a permanent structure to oversee implementation of research and finance strategies. LG2

Many strategic objectives dealing with finance are also tied to faculty and student research. As a result, this working group, the “pocket” of sustainability at FSU, will work to meet financial objectives as they relate to research initiatives and the sustainability initiative overall. Membership on this working group should include representatives from University Advancement, Research and Sponsored Programs and FSU faculty and staff with an interest in sustainability.

### **College of Liberal Arts and Sciences Sustainability Planning Group**

The LGLG Committee applauds the College of Liberal Arts and Sciences (CLAS) for its proactive action in establishing an ad hoc committee to pursue sustainability in curricular and co-curricular programs at FSU. The group is open to membership to anyone at FSU who is interested in sustainability issues. The charge of the CLAS Sustainability Planning Group is to explore ways in which CLAS can help facilitate the University's commitment to sustainability. The specific goals of this group include:

- Explore ways to infuse sustainability across the curriculum.
- Investigate potential new interdisciplinary curricula.
- Look at ways to facilitate co-curricular sustainability activities.
- Develop a toolbox of literature and skill sets that could inform others and be used by faculty and staff in their programs and courses.

LGLG aims to closely align with this committee to ensure that goals and objectives relating to education and research, as presented in this plan, are efficiently and properly carried out. As long as the CLAS group is meeting regularly, it is not necessary to establish a new working group for education.

## **Other Foundation Strategies**

The following strategic objectives will build on the foundation for sustainability at FSU by establishing a culture of sustainability, outlining modes of communication, and developing benchmarking capabilities. Implementation of these strategic objectives will begin in the 2009-2010 academic year.

### *FD.5 – USM Communication and Negotiations*

FSU administrators and the Office of Sustainability will communicate with USM representatives to share information and needs as related to achieving CAP goals. ADM, SOC

As a smaller USM institution that is geographically separated from centralized USM institutions, it is important to maintain contact and communications with our down-state colleagues. This strategy will be particularly important in negotiating the purchase of *renewable energy* credits.

### *FD.6 – Policy and Guideline Identification*

LGLG and the Office of Sustainability will consult with FSU administrators to discuss the development of policies and guidelines that facilitate the goal of climate neutrality. SOC, LG2

Policies and guidelines help to shape the organizational culture at any institution. In some cases, it may be necessary to communicate the University's position on an issue related to sustainability by establishing formal policies. In other cases, establishing informal guidelines may meet our needs for promoting climate neutrality and sustainability. There are several strategies in this plan that should be reviewed for adoption of University policies and guidelines in the future.

### *FD.7 – Internal Surveys and External Benchmarking*

The Office of Sustainability will develop and administer internal surveys and submit sustainability data to external review and rating systems to facilitate tracking and establish and maintain benchmark comparisons. SOC

*Internal Surveys* – The development and administration of periodic surveys to FSU constituents will serve as a valuable tracking measure. Data collected will facilitate in tracking level of engagement, areas of concern or interest, and commuter transportation.

*External Benchmarking* – Participation in “green” national surveys and rating systems will serve as an indication of how FSU measures up against similar institutions and how we improve over time. Examples include annual participation in the [Princeton Review Green Rating](#) and the AASHE [Sustainability Tracking, Assessment and Ratings System](#), which in 2009 completed its pilot phase. Results from such activities can be incorporated in periodic updates to the plan.

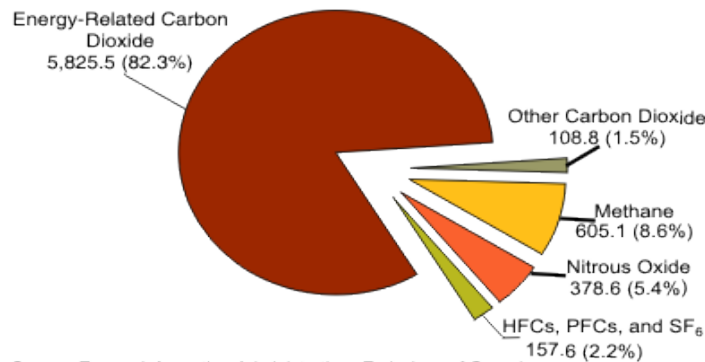
# Greenhouse Gas Emissions

Between 2002 and 2008, Frostburg State University has used the [Clean Air Cool Planet Carbon Calculator](#) to estimate greenhouse gas emissions. This calculator is referenced and recommended in the American College and University Presidents' Climate Commitment Guide.

## Background

Carbon dioxide (CO<sub>2</sub>) is considered the principle contributor to global warming, but it is not the only greenhouse gas that contributes to global warming. **Exhibit 1** displays U.S. greenhouse gas emissions in millions of metric tons of *carbon dioxide equivalent* (CO<sub>2</sub>e) In 2006, energy-related carbon dioxide emissions, resulting from the combustion of petroleum, coal and natural gas, represented 82 percent of total U.S. *anthropogenic* greenhouse gas emissions (Energy Information Administration: <http://www.eia.doe.gov/bookshelf/brochures/greenhouse/Chapter1.htm>). Along with CO<sub>2</sub>, the most common greenhouse gases are methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulfur hexafluoride (SF<sub>6</sub>).

**Exhibit 1: U.S. Anthropogenic Greenhouse Gas Emissions by Gas, 2006 (Million Metric Tons of Carbon Dioxide Equivalent)**



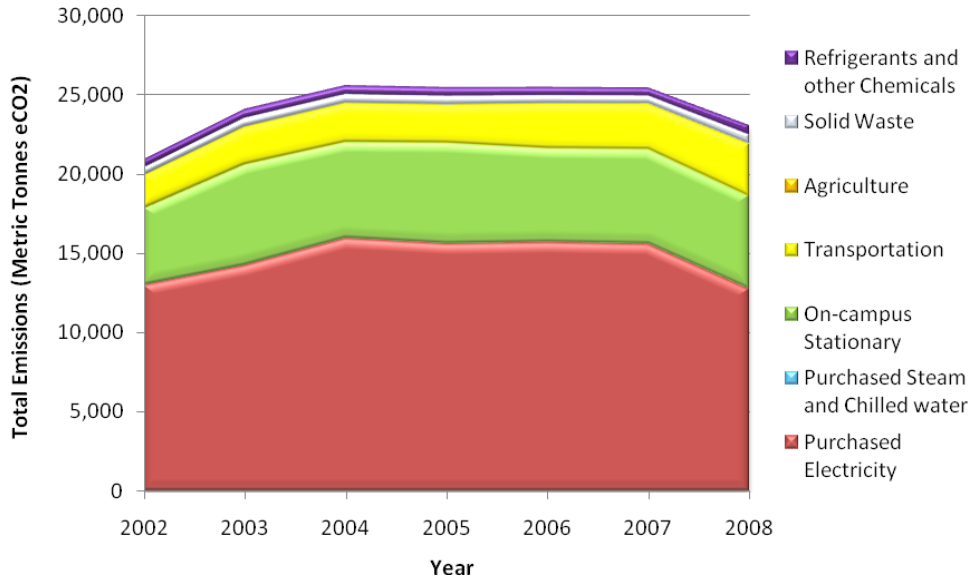
Source: Energy Information Administration, *Emissions of Greenhouse Gases in the United States 2006* (Washington, DC, November 2007)

The *carbon dioxide equivalent* (CO<sub>2</sub>e) is the standard unit of measure used to calculate total greenhouse gas emissions. This measure takes into account the fact that greenhouse gases differ in their *global warming potential* (GWP). The Clean Air Cool Planet Calculator converts all emissions into metric tons CO<sub>2</sub>e.

## FSU Emissions Overview

Total greenhouse emissions for Frostburg State University between 2002 and 2008 are presented in **Exhibit 2**. There was a dramatic increase in emissions between 2002 and 2004, attributed to the construction and opening of the 117,000-square-foot Compton Science Center. Total emissions were level between 2004 and 2007, at which time there were no major construction projects or renovations and student and employment growth were minimal. A decrease in emissions in 2008 is attributed to the purchase of 15 percent of total electricity from certified renewable wind energy credits.

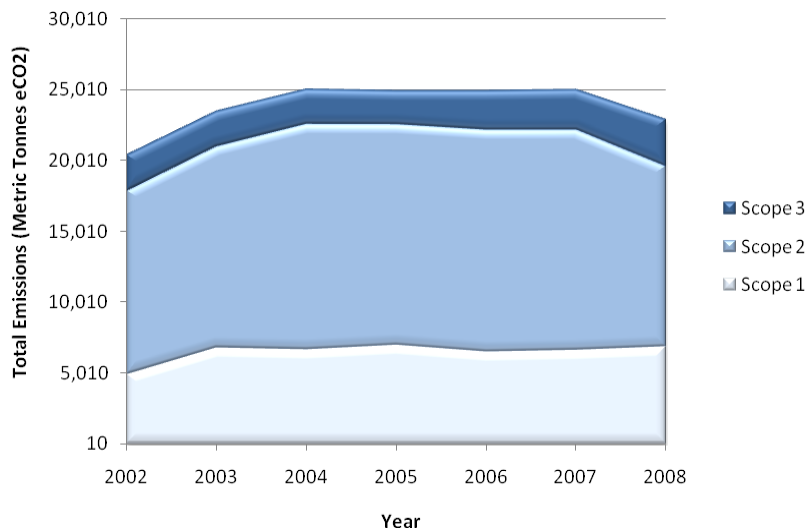
**Exhibit 2: Total Emissions, Frostburg State University**



The carbon calculator categorizes emissions data into three operational boundaries or scopes. **Exhibit 3** displays emissions by scopes for Frostburg State University.

- SCOPE 1 includes direct sources of greenhouse gas emissions owned and controlled by the institution. Examples include natural gas, emissions from FSU fleet vehicles and *fugitive emissions*.
- SCOPE 2 includes indirect emissions generated primarily through the production of electricity that is purchased by the institution. Scope 2 emissions account for the majority of total emissions at FSU.
- SCOPE 3 includes indirect emissions not controlled by the University, such as air travel; student, faculty and staff commuting, and solid waste transported to the landfill.

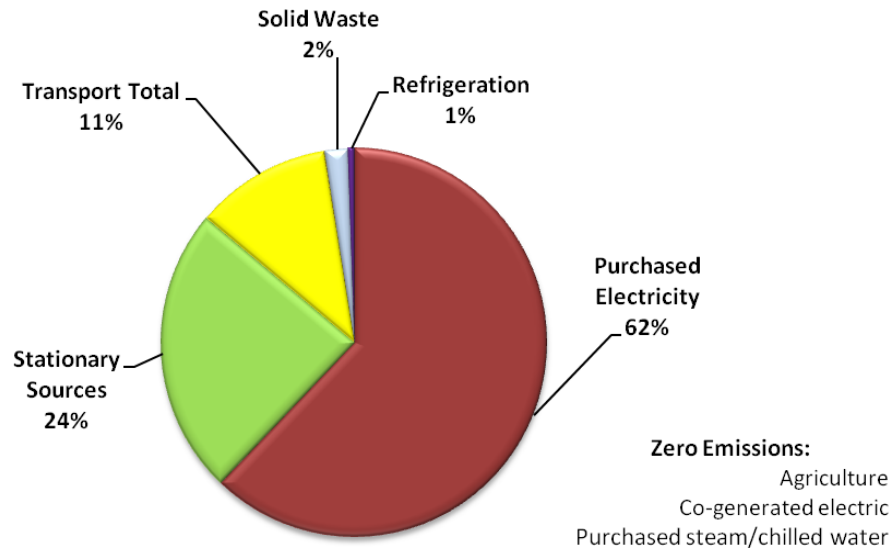
**Exhibit 3: Total Emissions by Scope, Frostburg State University**



## Types of Emissions

**Exhibit 4** presents the breakdown of FSU greenhouse gas emissions by source in 2008. The top three contributors to greenhouse gas emissions at Frostburg State University are (1) purchased electricity, (2) stationary sources and (3) transportation. In 2008, purchased electricity was the largest contributor to emissions at Frostburg State University, with 63 percent of total emissions.

**Exhibit 4: Total Emissions by Source, Frostburg State University, 2008**



## Emissions Tracking

The LGLG Committee has expressed concerns about tracking methods for certain areas of FSU's greenhouse gas emissions inventory. The following strategic objectives aim to address these concerns.

### *EM.1 – Tracking Transportation*

Mitigation representatives will continuously improve tracking methods used in determining emissions from commuter transportation and will determine tracking guidelines for external constituents. *MSG*

Although emissions from transportation sources such as air travel and the University fleet are easily tracked, emissions from commuter miles – the bulk of transportation emissions – are very difficult to pinpoint. As a result, emissions for commuter transportation are largely estimated. In spring 2008, the FSU Department of Geography performed an analysis of commuter transportation by mapping proximity to FSU for students, faculty and staff, and making inferences on distance traveled based on proximity and perceived habits. *Appendix D: Where We Live, Share a Ride* presents some of the findings from this study. Mitigation representatives must determine whether there are more accurate ways to pinpoint commuter emissions. Specific areas to clarify include the following:

- Accounting for current student travel on weekends
- Accounting for transportation by potential students for *Open House*, *Preview FSU*, or similar activities
- Accounting for transportation by external constituents that perform services for the University

Fulfilling this strategic objective will be integral in assessing the success and impact of subsequent strategic objectives that deal with commuter transportation emissions.

### *EM.2 – Tracking Utilities in External Locations*

Mitigation representatives will determine whether FSU should account for its use of the Lyric Building on Main Street and the Hagerstown Center. MSG

Emissions from utilities generated by leased external locations such as the Lyric Building in Frostburg and the Hagerstown Center are currently not factored into FSU's greenhouse gas emissions inventory. Mitigation representatives will consult with utility companies and other lessees to determine how emissions from utilities in external locations should be tracked.

This action will provide a more accurate portrayal of total emissions from utilities. It would also serve as an energy conservation outreach activity. If students, faculty, and staff situated at these external locations are advised through outreach campaigns that emissions at these locations are included in the big picture, they will be more proactive in reducing their own individual impact.

### *EM.3 – Tracking Use of Resources, Solid Waste and Recycling*

Mitigation representatives will perform a life-cycle analysis to develop an inventory of resources used on campus, and will continue to track solid waste consumption and the collection of recycled goods on an ongoing basis. MSG

By performing a life-cycle analysis on resources used on campus, FSU will develop an inventory that tracks the impacts and consumption of paper and other office supplies, food products, and related items that are not already tracked within FSU's greenhouse gas emissions inventory. Tracking the use of these resources will be essential in developing conservation and management strategies that aim at reducing resource use and consumption at FSU.

Through participation in the national [Recyclemania](#) competition over the last two years, FSU Physical Plant has dramatically improved its solid waste and recycling tracking methodology. In 2009, FSU scored in the top half in virtually all categories:

- Waste Minimization Category – 75th out of 198 institutions
- Grand Champion Category – 74th out of 206 institutions
- Per-Capita Classic – 94th out of 293 institutions
- Paper Recycling – 35th out of 204 institutions
- Cardboard Recycling – 114th out of 204 institutions
- Bottle and Can Recycling – 137th out of 210 institutions

By including waste minimization as one of its three target goals within the ACUPCC framework, FSU pledges to become an annual participant in Recyclemania. FSU aims to continually improve its annual rankings, particularly for the waste minimization component. With the help of a part-time Recycling Coordinator, mitigation representatives will continue to track solid waste and recycling on an ongoing basis, and will work to improve FSU's recycling program by maintaining and improving recycling centers on campus.

## Mitigation Strategies

The “heart” of sustainability at FSU, mitigation strategies have a direct impact on reducing emissions. Nearly half of the strategic objectives in this plan are placed in this category. Mitigation strategies are divided into six categories to define their origins and refine their goals and impacts:

- Conservation and Use of Energy and Resources (CU) – Objectives for the purchase of electricity and all objectives that reduce emissions through conservation
- Buildings and Land Use (BL) – Objectives related to new building construction, grounds maintenance and forest preservation
- Transportation (TR) – Objectives that complement the ultimate goal of establishing a true “*walking campus*” at FSU
- Consumption and Generation of Food and Waste (CG) – Objectives that aim to reduce solid waste from food and general consumption
- Offsetting (OF) – Objectives that compensate for carbon emissions at FSU by reducing emissions elsewhere

To achieve zero emissions by 2030, LGLG recommends the adoption of three mitigation techniques:

- Conservation of existing purchased electricity, on-campus stationary, transportation, and solid waste
- Purchase of certified *renewable energy* credits
- Technology and equipment upgrades that result in further reductions of purchased electricity, on-campus stationary, transportation, and solid waste
- Mitigation of remaining emissions through *carbon offsets*

Conservation should be a primary objective for FSU because nothing is cleaner than energy that is not consumed. Purchase of *renewable energy* credits should occur immediately with target ratios that fall in line with FSU’s target dates for climate neutrality. Technology and equipment upgrades should be a third area of focus, as these types of decisions involve careful analyses of costs and benefits. Finally, after emissions are mitigated to the furthest extent within our control, offsetting practices should be adopted to neutralize all remaining emissions.

The LGLG Committee recommends that FSU work to achieve the following emissions reductions from energy conservation and equipment upgrades for purchased electricity, on-campus stationary, transportation and solid waste:

- 10 percent reduction by 2008
- 15 percent reduction by 2010
- 20 percent reduction by 2014
- 22 percent reduction by 2016
- 25 percent reduction by 2020
- 50 percent reduction by 2030

These reduction goals are approximate targets that may be adjusted over time. The LGLG Committee has established general targets for all categories with the full realization that these exact targets may not be met for each category. As a result, the LGLG Committee will reevaluate this area in particular in subsequent versions of the CAP.

## Conservation and Use of Energy and Resources

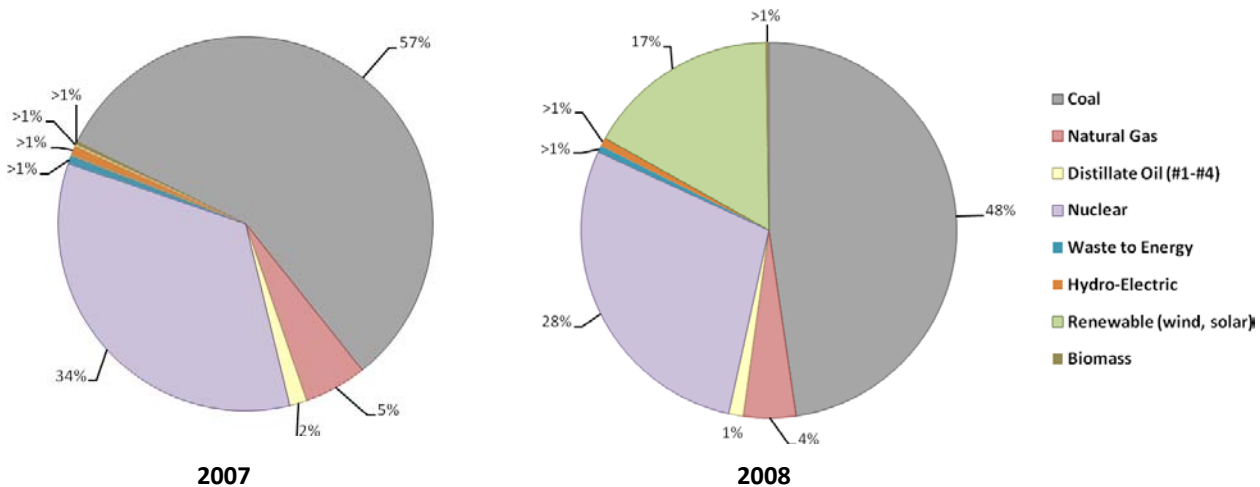
This category includes the purchase of electricity as well as all resource and energy conservation objectives for internal operations.

### *M.CU.1 – Shift to Renewable Purchased Energy*

Mitigation representatives will annually purchase 15 percent of electricity from renewable energy, with a transition to 100 percent renewable energy by 2030, falling in line with target dates for climate neutrality whenever possible. **MSG**

A shift to renewable purchased electricity is crucial in obtaining significant emissions reductions. Purchased electricity is the largest contributor to emissions at Frostburg State University, with 63 percent of total emissions in 2008. This large proportion can primarily be attributed to two factors: 1) FSU does not have a co-generated, on-site power plant, and 2) the main source of energy in FSU's **custom fuel mix** is coal, which has a high **global warming potential**, compared to other sources.

**Exhibit 5: FSU's Custom Fuel Mix for Purchased Electricity, 2008**



**Exhibit 5** displays FSU's **custom fuel mix** in 2007 and 2008. The drop in coal and nuclear power in 2008 can be attributed to the purchase of certified **renewable energy** credits in 2008, which totaled 15 percent of total purchased electricity. Gradually switching to renewable energy over the next 20 years will have a significant impact on total emissions.

Renewable energy should be purchased in-line with FSU's target dates for climate neutrality:

- Purchase at least 15 percent of energy from renewable sources annually by 2010.
- Purchase at least 20 percent of energy from renewable sources by 2014.
- Purchase at least 25 percent of energy from renewable sources by 2016.
- Purchase at least 50 percent of energy from renewable sources by 2020.
- Purchase 100 percent of energy from renewable sources by 2030.

Although energy purchased from renewable energy is more costly than standard energy, it is necessary for climate neutrality and will support the development of renewable energy markets in our region and beyond, driving down costs for renewable energy over time.

### *M.CU.2 – Sub-metering Analysis System*

Mitigation representatives will collect and analyze sub-metering data for individual buildings to improve methods of tracking and managing energy use between buildings. MSG

Before development of a comprehensive Climate Action Plan was under way, sub-metering data for individual buildings or building groups was collected but not regularly reviewed for analysis. This type of data is valuable because it facilitates detailed tracking of emissions on a building-to-building basis rather than the broad, macro-level analysis generated by creating annual emissions inventories. Mitigation representatives will develop a reliable sub-metering analysis system so that the impact of implemented strategic objectives can be assessed.

Such a system will also be beneficial for outreach campaigns and competitions. For example, students can organize an energy conservation competition between residence halls, where data from the sub-metering analysis will determine winners.

### *M.CU.3 – Mitigation Consultation Services*

Mitigation representatives will seek consultation services to identify ways to reduce emissions in operations through facilities and technology upgrades. MSG

Because of the impact of mitigation strategies and the resource impacts associated with facility and technology upgrades, it is necessary to hire a consultant to identify ways of reducing emissions. FSU has already made progress in this area. In spring 2009, the energy services company [NORESKO](#) was selected by the University System of Maryland to develop means of reducing emissions and costs generated from energy consumption. NORESKO engineers and consultants arrived at Frostburg in August 2009 for an initial consultation. A Phase I report will be delivered to FSU in September 2009. The report will provide recommendations on developing and financing comprehensive lighting, boiler and energy management system improvements.

Before the NORESKO partnership was established, LGLG's Mitigation Strategies Working Group for the Climate Action Plan had begun identifying strategic objectives that deal with upgrades to facilities and technologies. The committee acknowledges that the recommendations that will emerge from the NORESKO partnership will cover many of the committee's recommendations and will likely go further. As a result, these objectives are listed in the Climate Action Plan as recommendations to be reviewed and considered by facilities representatives.

LGLG recommendations for Facilities and Technology Upgrades include:

1. *Alternative Energy Investment Upgrades* – FSU should consider investment of alternative, **bio-fuel** and **renewable energy** technologies for all major facilities upgrades.
2. *Update Lighting Technology* – For all ongoing lighting maintenance, FSU should replace current T5 and T8 fluorescent lighting and incandescent lighting with LED and CFL technology.
3. *HVAC Equipment Upgrades* – In line with scheduled maintenance, FSU should upgrade HVAC equipment to more efficient and **bio-fuel** options.
4. *Energy Efficient Appliances* – In line with scheduled replacement of equipment, FSU should upgrade appliances and related technologies to Energy Star-certified alternatives.
5. *Vending Machine Energy Control* – FSU should install [Vending Miser](#)<sup>®</sup> or related technologies to provide reductions in vending machine energy consumption.

Following implementation of NORESKO's recommendations, LGLG will revisit these objectives in subsequent updates to the Climate Action Plan.

#### *M.CU.4 – Resource and Energy Conservation Plan*

Mitigation and Outreach representatives will develop a plan to facilitate energy and resource conservation across campus. MSG, OSG

Nothing is cleaner than energy that is not consumed. Due to inefficiencies of energy production and distribution, energy conservation would save many times the amount of energy that is actually conserved. Mitigation and Outreach working groups should collaborate to develop a broad resource and energy conservation plan that will lead to phased-in emissions reductions. The plan may include the development or revision of administrative policies or guidelines. A particular area of emphasis should deal with establishing seasonal power management guidelines.

#### *M.CU.5 – Residence Hall Conservation*

Mitigation and Outreach representatives will collaborate with the Residence Hall Association and others to develop conservation strategies. MSG, OSG

The Office of Residence Life has shown interest and enthusiasm in working with the LGLG Committee to collaboratively meet our goals of climate neutrality and environmental sustainability. By collaborating with the Residence Hall Association to identify ways to conserve energy generated from student use of residence halls, FSU can see a significant reduction in energy use within these buildings. As an example, Middlebury College successfully piloted a program that allowed students to request a drying rack for their rooms. The pilot realized significant energy savings and cost savings of approximately \$1,914 for 66 students.

#### *M.CU.6 – Computing Technologies Conservation*

Mitigation representatives will collaborate with IT representatives to develop technology conservation strategies. MSG

Use of computing technologies generates significant emissions at any organization. Here at FSU, there is an enormous potential to reduce emissions in this area by encouraging conservation and investing in more efficient technologies. Collaboration with IT representatives is essential since they have background and expertise that others do not possess. These groups should establish conservation goals for computers, printers, copiers and other equipment in computer labs, residence halls, and faculty and staff offices.

Objectives that have been suggested for consideration by LGLG representatives include:

- Use of software that tracks and limits student printing in computer labs
- Investing in duplex printer technologies and using settings that encourage duplex printing
- Use of power management settings in computer labs
- Turning off equipment during non-business hours
- Use of energy efficient alternatives such as NComputing devices

### *M.CU.7 – Lighting Conservation*

Mitigation representatives will evaluate buildings in terms of daytime and overnight lighting, making lighting reductions where appropriate. *MSG*

As a subset of the broader conservation plan previously mentioned, a lighting conservation plan would entail evaluating buildings in terms of daytime and overnight lighting, making lighting reductions where appropriate, and potentially establishing guidelines and policies for lighting conservation.

### **Buildings and Land Use**

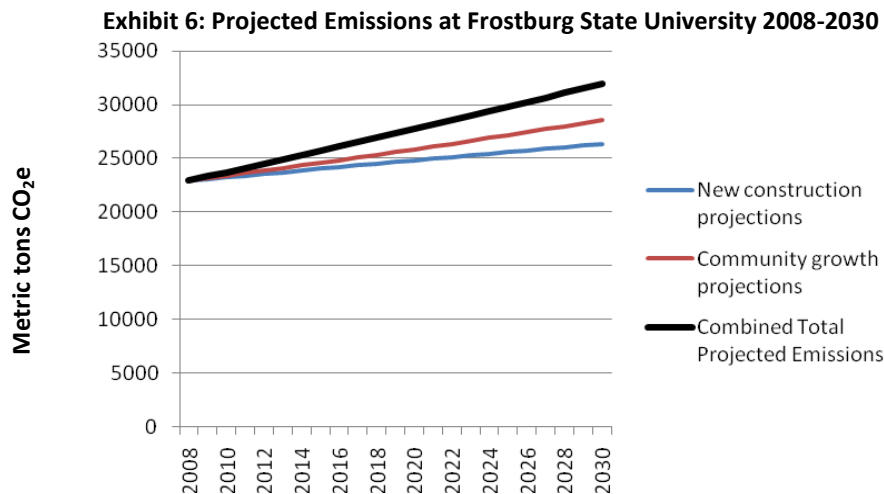
This category includes objectives related to new building construction, grounds maintenance, and forest preservation.

### *M.BL.1 – New Building Energy Purchasing*

Mitigation representatives will ensure that all new buildings are built LEED silver-certified or higher and are powered with renewable energy through purchase of renewable energy credits or other sources. *MSG*

To meet its climate neutrality goals, FSU must establish a plan that will accommodate growth in a way that will limit increased emissions. Two factors typically combine to influence greenhouse gas emissions for any institution: 1) community size and growth and 2) net assignable square feet (NASF). We define community size as combined FSU students, faculty and staff.

FSU expects moderate growth over the next two decades according to FSU’s [Facilities Master Plan Update](#) for 2007-2017, with some new construction planned. Growth in total students, faculty and staff is expected to grow roughly 1 percent annually. In addition, new construction will increase total square footage by 213,725 NASF. **Exhibit 6** shows projected emissions at FSU from 2008 to 2030. The blue trend line shows projected emissions from new construction, whereas the red trend line shows projected emission from community growth. The black trend line shows combined total projected emissions. Using these estimated growth projections and based on data provided in FSU’s greenhouse gas inventory, we can project that total greenhouse gas emissions will exceed 30,000 metric tons CO<sub>2</sub>e in around the year 2025 (CO<sub>2</sub>e, or carbon dioxide equivalent, is the standard unit of measure used to calculate total greenhouse gas emissions).



To offset the expected growth in emissions from new construction, FSU must ensure that all new buildings are constructed to LEED-silver specifications or higher, based on the [U.S. Green Building Council's Leadership in Energy and Environmental Design](#) (LEED) Green Building Rating System. In addition, any increases in energy emissions resulting from new construction should be cancelled out through purchase of certified *renewable energy* credits, offsets, or other sources.

#### *M.BL.2 – Grounds Maintenance Guidelines*

Mitigation and Outreach representatives will work with administrators and facilities representatives to establish guidelines for sustainable grounds. *MSG, OSG*

Grounds maintenance is an important component in sustainable planning for the University for two reasons: (1) Procedures for grounds maintenance have a direct impact on water resources and emissions levels that have harmful environmental effects. (2) FSU grounds are at the forefront of what students, faculty, staff and visitors see at FSU.

Care should be taken to ensure that maintenance crews use sustainable practices to reinforce our culture of sustainability. Mitigation and outreach representatives should review all grounds maintenance practices and establish guidelines wherever practical. In some cases, it may be necessary to consult with administration to establish formal policies. Issues to review and consider include:

- Use of environmentally friendly salt on walkways and roads
- A no-idling policy (turning off service vehicles and machinery when not occupied or in use)
- Minimal use of leaf blowers and motorized tools that serve a function that can be accomplished through hand tools
- Planting native species that do not require excessive water and care
- Use of organic fertilizers and composted material
- Minimum grass length in inches or centimeters before required mowing

#### *M.BL.3 – Forest Preservation Plan*

Mitigation and Outreach representatives will develop a plan for preserving and restoring forested space on campus. *MSG*

Forests are important players in climate change because they act as carbon sinks, absorbing carbon dioxide that is otherwise emitted into the atmosphere. As a result, forested space within an organization can be included as an emissions offset. In 2008, 220 metric tons of CO<sub>2</sub>e were offset at FSU based on information presented in FSU's greenhouse gas emissions inventory.

According to research conducted in 2008 by the FSU Department of Geography, FSU's landscape has changed dramatically over the years, with a significant reduction in forested space since 1979.

*Appendix E: FSU's Changing Landscape* illustrates the changing landscape of FSU in terms of forested space compared to developed land. Between 1979 and 2005, total forested space at FSU dropped from 52 percent to 38 percent. Within this timeframe, a net loss of 36.6 acres can be attributed to the construction of the Edgewood Commons, Appalachian Laboratories, ABC Building, intramural fields and all service roads.

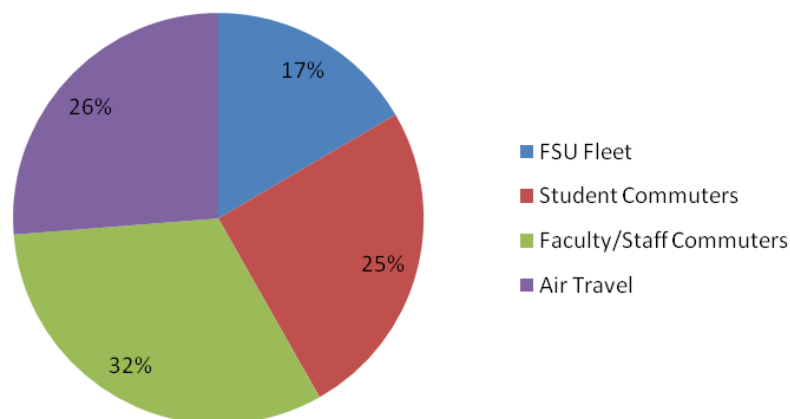
In 2009, FSU reversed the declining trend in forested space thanks to a tree-planting initiative funded by the Chesapeake Bay Trust. Over 1,000 native saplings and shrubs were planted during the week of Earth Day, increasing FSU’s preserved forest space by 3.9 acres. To date, 15.16 acres of FSU forest space are preserved within the FSU Arboretum.

The LGLG Committee recommends that a forest preservation plan be developed to preserve and protect additional acreage at FSU, establishing target goals for acreage of preserved forest space over the next 20 years.

### **Transportation**

This category includes objectives that complement the ultimate goal of establishing a true “*walking campus*” at FSU. According to FSU’s greenhouse gas inventory in 2008, significant transportation emissions come from four sources: faculty/staff commuting, student commuting, air travel, and vehicles in the FSU fleet. **Exhibit 7** displays the relative impacts of each of these four transportation categories. Total transportation emissions in 2008 were 3,303 CO<sub>2</sub>e. Of this, 57 percent of emissions were generated from faculty, staff and student transportation.

**Exhibit 7: Transportation Emissions at Frostburg State University, 2008**



The three strategic objectives listed for this category aim to reduce emissions from commuting, the FSU fleet and to some extent, air travel. Air travel can also be reduced through offsetting practices, which will be discussed at the end of this section.

#### *M.TR.1 – Commuter Transportation Campaign*

Mitigation and Outreach representatives will develop campaigns to improve facilities and increase awareness for walking, biking and public transportation. MSG, OSG

According to FSU’s 2007 [Facilities Master Plan Update](#), FSU will improve facilities with the goal that it will increasingly become a *walking campus*. This will decrease vehicle congestion and improve quality of life, health and wellness for all students, faculty, and staff. In particular, a walking campus atmosphere will reinforce a culture of sustainable living.

In line with the recommendations in the Master Plan update, Mitigation and Outreach representatives will collaborate on this objective. Mitigation representatives will work to improve facilities and resources that support walking, biking, and public transportation. In turn, Outreach representatives will implement an awareness campaign about the benefits of walking, biking, and using Allegany County Transit for public transportation. For example, FSU should consider establishing a location to house bikes belonging to on-campus student residents, and pair this with a bike-sharing program. Once this is established, Outreach representatives will promote the use of the bike facilities and the bike-sharing program.

To facilitate implementation of this objective, FSU should establish an efficient carpooling program, particularly for vehicles in the FSU fleet. The vehicle reservation system in place does not facilitate carpooling at this time. Faculty and staff have expressed an interest in establishing a carpooling program, particularly for popular travel destinations such as Hagerstown and the Baltimore-Washington corridor.

#### *M.TR.2 – FSU Parking*

Mitigation and Outreach representatives will consult with the Administration to develop a student, faculty, and staff parking strategy that discourages excessive driving. MSG

To become a true *walking campus*, a parking plan must be established that discourages excessive driving. The [Facilities Master Plan Update](#) suggests moving major parking facilities to the perimeters of campus and establishing a core that is pedestrian-friendly. Because parking generates revenue through issuing parking permits, Mitigation and Outreach representatives should consult with the FSU Administration to present ideas that discourage excessive driving. Some suggestions to be considered include (1) limiting student parking for on-campus residents to those lots that are closest to students' residence halls and (2) increasing the fees for permits and/or reducing the total number of permits issued.

#### *M.TR.3 – Travel Reduction Guidelines*

Mitigation representatives will consult with administration to establish guidelines that will encourage telecommuting, carpooling and other options that result in reduced travel. MSG

An important trend in business today is the increase in telecommuting, thanks to improved technologies in this arena. Rather than traveling long distances to attend conferences and seminars, more and more businesses are participating in virtual e-conferences and webinars. By adopting and supporting such practices at FSU, travel will be reduced in all categories (faculty, staff, and student commuting; FSU fleet and air travel). An added benefit would be reduced costs, since telecommuting options are less costly than traditional ones. In addition, replacement and maintenance costs for the FSU fleet would be lower due to the a reduction in travel.

#### *M.TR.4 – Alternative Fuel Fleet*

As fleet vehicles undergo replacement, Mitigation representatives will ensure that hybrid, bio-fuel and other alternatives are used whenever possible. MSG

Emissions from the FSU fleet account for 17 percent of total transportation emissions. This category includes passenger and service vehicles owned by FSU. By introducing more hybrid, *bio-fuel* and alternative fuel technologies to the fleet, FSU will see significant reductions in emissions from transportation. Emissions can be reduced further through proper vehicle maintenance. An important benefit of implementing this strategic objective is that it will support national alternative fuel and vehicle markets.

### ***Consumption and Generation of Food and Waste***

Emissions from solid waste are minimal, accounting for approximately 2 percent of total emissions (579 metric tons CO<sub>2</sub>e in 2008). Nonetheless, the consumption of food and generation of waste is among the most visible aspects of college living. To sustain and promote a culture of sustainability, strategies must be in place to reduce waste from food and general consumption.

#### ***M.CG.1 – Recycling***

Mitigation representatives will promote recycling on campus through investment in recycling bins and through education and outreach. MSG

Due to the high visibility of recycling programs at college campuses, improving FSU's recycling program should be a university priority.

In spring 2009, a pilot project conducted by students in a Sociology of the Environment class showed that FSU constituents recycle more when a recycling program is properly implemented. For the pilot project, students implemented new recycling procedures in one academic building, with the hopes that the project would be extended to additional buildings. The building selected, Guild Center, houses the Sociology, Social Work, Psychology, Political Science, Economics, and Management departments. Actions taken for the project include adding recycling centers near all trash areas, new labeling and advertising posters placed near recycling centers, and removal of all classroom trash bins. As a result of the project's success, LGLG recommends that a similar recycling initiative be implemented campus-wide, phasing in new buildings to adopt the enhanced recycling procedures each year.

#### ***M.CG.2 – Composting***

LGLG and Outreach representatives will work with Dining Services to establish a campus composting site and program. MSG, LG2

Discarded food waste contributes significantly to total solid waste, affecting emissions within this area. Establishing a composting program with Dining Services will result in a marginal reduction in total emissions at FSU, but it will offer numerous added benefits:

- A composting program that is well publicized will result in greater student awareness about food consumption and conservation.
- Composted material can be used as natural fertilizer for FSU grounds, reducing the need to apply costly and ecologically harmful chemical fertilizers.
- Composting will decrease landfill waste, which will result in lower landfill costs.

The LGLG Committee recommends that a composting program be established for organic waste generated by Food Services initially. A broader composting program, where organic matter can be collected at several locations campus-wide, should be phased in once a solid program is under way.

### *M.CG.3 – Sustainable Cuisine*

LGLG and Outreach representatives will work with food service providers to develop a plan for acquiring, serving and selling foods that are sustainable. [LG2](#)

Although food miles traveled is not included in FSU’s greenhouse gas emissions inventory, food is a staple in college life and must be included in a comprehensive plan. Establishing a sustainable cuisine option for students, faculty and staff would be instrumental in the development of a sustainable culture. LGLG recommends that the following actions be taken to promote sustainable cuisine at FSU:

- Increased use of local produce within FSU Dining Services
- Considering an on-site organic garden or greenhouse
- Considering participation in a community outreach program to combat hunger such as the [Campus Kitchens Project](#)
- Educating students about the benefits of sustainable cuisine (including strategies within and outside the classroom)

### **Offsetting**

**Offsetting** is “a reduction in emissions somewhere else to balance out the emissions you cannot reduce” ([www.carbonfund.org/](http://www.carbonfund.org/)). For most organizations, acquiring carbon offsets is the only way to reduce emission to zero.

### *M.OF.1 – Offset Plan*

LGLG, Mitigation representatives, and the Office of Sustainability will begin vetting various offsetting strategies to ensure responsible and verifiable use of offsets. [SOC, MSG, LG2](#)

Offsetting practices should be adopted only after FSU emissions are mitigated to the furthest extent within our control. The LGLG Committee strongly feels that mitigation strategies should focus on reducing emissions through conservation, equipment and efficiency upgrades, and use of **renewable energy**. Nonetheless, it would be impossible to achieve zero emissions without adopting offsetting practices.

Although adopting offsets may occur near the end of our deadline for climate neutrality in 2030, the LGLG Committee recommends that FSU begin careful consideration of our offsetting options within the next two years to ensure responsible and verifiable use of offsets. Priority should be placed on offsetting practices that have a local impact.

## Mitigation Impacts

To conclude the Mitigation section of FSU’s Climate Action Plan, the table below summarizes the target dates and actions that must be taken between now and 2030 in our quest for climate neutrality.

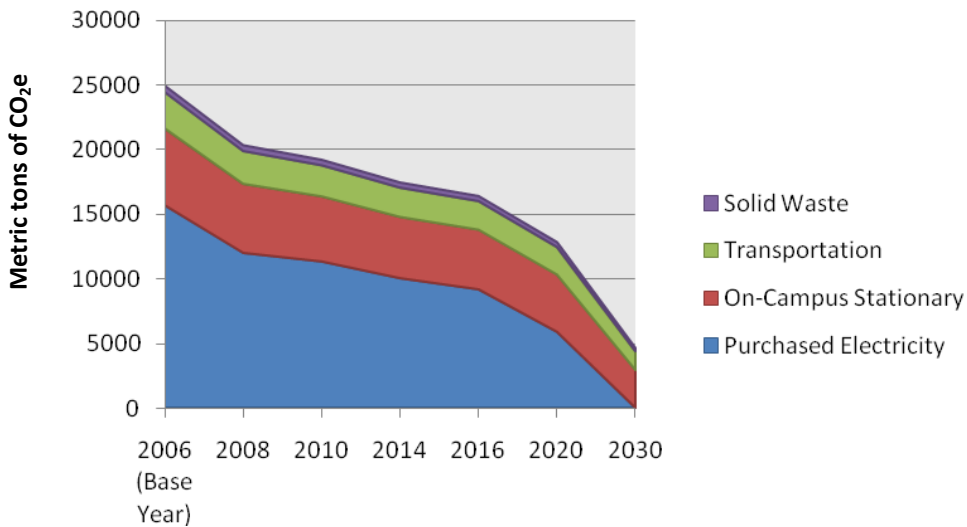
Year	Reduction From Conservation and Equipment Upgrades*	Purchase of Renewable Energy
2006 (base year)	-	-
2008	10 percent	-
2010	15 percent	15 percent
2014	20 percent	20 percent
2016	22 percent	25 percent
2020	25 percent	50 percent
2030	50 percent	100 percent

\*Reductions from conservation and equipment upgrades are approximate goals that apply to total emissions for purchased electricity, on-campus stationery, transportation, and solid waste.

These reduction goals are approximate targets that may be adjusted over time. The LGLG Committee has established general targets for all categories with the full realization that these exact targets may not be met for each category. For example, a 50 percent reduction in emissions from purchased electricity may occur before 2030, whereas a 50 percent reduction in emissions from transportation may occur after 2050. As a result, the LGLG Committee will reevaluate this area in particular in subsequent versions of the CAP.

**Exhibit 8** shows the projected results of meeting such target goals. According to these estimated projections, total emissions at Frostburg State University will be reduced by 80 percent by the year 2030. The remainder of the emissions (about 5,000 metric tons of CO<sub>2</sub>e) may be offset to achieve carbon neutrality.

**Exhibit 8: Estimated Projections for Impacts of CAP Strategic Objectives**



## Education and Research Strategies

Representing the “brain” of sustainability at FSU, education and research objectives deal with incorporating sustainability education and research into curricular and co-curricular programs at FSU. Although the direct impact on reduced emissions may be smaller than the impact of mitigation strategies, education and research are important to the mission and vision of LGLG because they pave the way for establishing a culture of climate consciousness.

Frostburg State University is committed to strengthening sustainability studies throughout all areas of the curriculum so that every graduating student experiences sustainability through one or more areas. The four areas explored include a sustainability toolbox, a minor in Sustainability Studies, the general education program (GEP), and co-curricular activities. Some initiatives will require proposals to governance and MHEC.

### ***Minor in Sustainability Studies***

#### *ER.1 – Minor in Sustainability Studies*

CLAS Sustainability Committee representatives will work to establish a minor in Sustainability by 2010. *CSG*

A minor in Sustainability Studies will provide an avenue for students interested in sustainability to develop more knowledge in this area. It would help students to develop enhanced understanding of scientific, social and political aspects of sustainability; knowledge of careers in sustainability; appreciation for the cultural and economic barriers to creating more sustainable societies; enhanced problem solving, communication and leadership skills; and awareness of the long-term impacts of climate and environmental change.

A minor program will be developed in the near term and will be a valuable contribution to the FSU curriculum. The minor will:

- Be built around an introductory course and a capstone course.
- Be open to students in all majors and colleges.
- Be designed to help students understand the broader implications of sustainability.
- Include community development or community service work.
- Ensure students have exposure to the key areas of:
  - Physical environment and natural resources
  - Human society, lifestyles, and culture
  - Economics, public policy, and business

The development of a minor assumes that academic majors continue to develop specialized courses in sustainability as appropriate for their programs. In addition, it assumes an introductory course in sustainability studies will be offered as a part of a learning community or as a freshman seminar (IDIS 150) as well as a core course of the minor program. The minor will require development of only two new courses. With support, the minor can be offered by fall 2010.

## **Sustainability Toolbox**

### ***ER.2 – Sustainability Toolbox***

CLAS Sustainability Committee representatives will implement a Web-based toolbox that is accessible to all FSU students, faculty, and staff before summer 2010. [CSG](#)

The sustainability toolbox will be a Web-based catalog of resources in various subject areas related to sustainability. The toolbox will provide a resource for instructors and students wishing to be more educated about sustainability. These materials will support sustainability curricula and other institutional initiatives. Materials are currently under review by faculty, staff, students and administrators. A survey will be conducted to gather additional input on what resources would aid in the infusion of sustainability concepts and skills into any and all courses. Lesson plans or modules with specific exercises that faculty could use directly or adapt for use in modified ways are also under development.

The FSU Sustainability Toolbox Subgroup of the CLAS Sustainability Committee will continue to work on a sustainability toolbox and have it ready for use by spring 2010.

## **Co-curricular Activities**

### ***ER.3 – Sustainability and Co-curricular Activities***

CLAS Sustainability Committee representatives will work to establish one or more of three co-curricular sustainability options for students before summer 2010. [CSG](#)

The CLAS Sustainability Committee has recommended that the following three options be applied to promote sustainability in co-curricular activities:

#### **1. Faculty Development Program**

To assist this initiative and encourage faculty to develop or redesign courses with sustainability components across all disciplines, Frostburg State University will support a faculty development program that provides faculty with a one-time, competitive opportunity to participate in workshops to learn about sustainability issues and incorporate the theme in their courses through hands-on teaching projects. The University will support the competitive program with \$1,000 per faculty member, with follow-up reporting on the faculty-developed themes/projects.

#### **2. Student Summer Reading Experience**

The University will consider instituting a summer reading experience based on sustainability literature for incoming freshmen.

#### **3. Summer Sustainability Experience**

Frostburg State University will support a Summer Sustainability Experience. This will be a three-week intensive learning experience for students focused on a project or field experience to be completed on a sustainability theme. This will be modeled after Furman University's May Experience. The student will earn IDIS 150 and IDIS 350 or Practicum credits.

With support from the FSU administration, any of the three programs described above can be implemented in summer 2010.

## ***Sustainability in the GEP***

### ***ER 4 – Sustainability in the GEP***

CLAS Sustainability Committee representatives will select one of the proposed methods of incorporating sustainability into the General Education Program for the 2011 catalog. [CSG](#)

As part of the University's General Education requirements, the University will explore the possibility of students taking at least one course featuring sustainability themes within the Program of General Education. The sustainability component will replace or complement one of the following: IDIS 150, IDIS 160, IDIS 350 or a new GEP Category "G." For reference, see [Appendix F: Frostburg State University's Undergraduate General Education Program, 2009-2011](#).

#### ***IDIS 150***

- One hundred percent of students would be covered as courses are required for GEP.
- Courses are accessible to all since they are of an introductory level with no prerequisites.
- Sustainability topics would parallel institution's goal to "foster sense of understanding" (FSU). Such courses would couple liberal knowledge with skill enhancement (i.e., skills of inquiry, critical thinking and synthesis).
- IDIS 150 courses allow for faculty to model interdisciplinary thought as they consider a theme, subject, or issue from multiple disciplinary perspectives.

#### ***IDIS 160***

- IDIS 160 courses are currently defined as "energy literacy." If campus discussions and curricula on sustainability are framed by scientific, environmental, and ecological issues, then current IDIS 160 expectations parallel the sustainability initiative.
- The current curricula for IDIS 160 will only require minor modification to meet the expectations of a new sustainability initiative. Therefore, all courses with such designation can be "sustainability" courses. Additionally, this would provide students more options for a three-credit science course.
- One disadvantage of this choice is that it promotes the concept of sustainability as science issue, rather than one that can also be grounded in the humanities, social sciences and other areas.

#### ***IDIS 350***

- Under this option, alternative perspectives from the humanities and social sciences would be welcomed.
- As IDIS 350, faculty could have higher expectations for students' critical thinking, researching and reading skills.
- Existing topics could be reworked or renumbered to allow for consistency across all offered sections of IDIS 350.
- IDIS 350 is defined as an "inquiry centered colloquium" that models interdisciplinary thought and exploration.

#### ***New GEP Category "G"***

- The University will evolve a new General Education category, "G". This category would include a listing of newly approved and existing courses that conform to thematic expectations.
- These courses will cross departmental and disciplinary boundaries and extend beyond scientific constructs of sustainability.

Continued discussions about integrating sustainability into the GEP will take place in the 2009-2010 academic year, with the goal of at least one of the proposed methods being adopted for the 2010-2011 academic year.

### **Other Education and Research Strategies**

#### *ER.5 – Faculty Teaching Pledge*

LGLG and Outreach representatives will collaborate with others on campus to implement a voluntary faculty teaching pledge for faculty who can commit to including sustainability topics in the classroom. LG2, OSG

By establishing a voluntary teaching pledge, FSU will promote incorporating sustainability into teaching and will assist with tracking for education initiatives involving sustainability. Faculty interested in including sustainability topics in course presentations or minimizing the environmental footprint of the class can choose to participate. Though the program will be voluntary, it may be supplemented with the use of incentives or rewards.

#### *ER.6 – Bio-fuel and Renewable Energy Research and Education*

FSU will make research of bio-fuel and renewable energy a priority by seeking interest and funding. SOC, LG2, FRG

While the market for **bio-fuel** and **renewable energy** systems is still very new, the outlook for jobs in this area indicates that significant growth is expected in the coming years. To remain competitive, FSU must pursue new educational and research opportunities within this field.

LGLG applauds the work of Dr. Oguz Soysal and Ms. Hilkat Soysal of the FSU Department of Physics and Engineering for their continuing research in renewable energy. Most notably, the Soysals were instrumental in establishing FSU's [Wind and Solar Energy \(WISE\) Residential Demonstration Project](#) in 2006. More recently, the Soysals helped secure a \$738,000 grant for a new [Sustainable Energy Research Facility \(SERF\)](#) at FSU. Thanks to their efforts, FSU is quickly becoming renowned in the region for renewable energy research, applications, and training.

Achieving this strategic objective will result in two added benefits: (1) Research in this area may result in new technologies or ideas that will result in reduced emissions at FSU. (2) Supporting bio-fuel and renewable energy research and education will promote these markets, which will eventually drive costs down for alternative fuel sources and technologies.

### **Tracking Education and Research**

#### *ER.7 – Tracking Sustainability Courses*

The Sustainability Coordinator will collaborate with Academic Affairs to maintain a list of all courses related to sustainability and environmental awareness issues. soc

FSU should maintain a list of graduate and undergraduate courses related to sustainability and environmental awareness issues. Meeting this objective will assist with tracking availability of courses and enrollment levels. Updates to the list of courses should be made every two years with the development of new academic catalogs. In meeting this objective, the Office of Sustainability would begin tracking number of sections offered, number of students enrolled, number of students successfully passing, and other parameters.

In categorizing courses as “sustainable,” FSU should consider developing a tiered identification system in which faculty members are surveyed regarding the number of class sessions that incorporate sustainability.

- S1 – Courses cover sustainability/environmental issues in at least ¾ of all class sessions.
- S2 – Courses cover sustainability/environmental issues ¼ to ¾ of all class sessions.
- S3 – Courses cover sustainability/environmental issues for at least one class and up to ¼ of all class sessions.

#### *ER.8 – Tracking Curricular and Co-curricular Activities*

The Sustainability Coordinator will collaborate with Academic Affairs to track enrollment, completion and other aspects as they relate to sustainability content. [SOC](#)

FSU should track student enrollment, completion rates and level of campus-wide involvement for all curricular and co-curricular programs related to sustainability studies. In doing so, FSU will be able to determine levels of interest in these programs over time.

#### *ER.9 – Tracking Sustainability Toolbox*

The Sustainability Coordinator will collaborate with Academic Affairs to track the frequency of use of toolbox materials and the variety of information presented. [SOC](#)

Tracking the use of the sustainability toolbox will help determine how important it will be to promote the use of the toolbox. As an example, if the toolbox is posted online, it would be relatively easy to track the number of “hits” received over time.

#### *ER.10 – Tracking Research*

Finance and Research representatives will work with Research and Sponsored Programs and individual departments to develop a method for tracking research activities on campus. [SOC](#), [FRG](#)

By tracking research in sustainability, FSU will be able to measure the quantity of sustainability research taking place over time. This objective will facilitate the implementation of a reward system for research in sustainability.

Information to be tracked may include:

- Number and scope of campus-wide sustainability research projects: past, present and future
- Dollar amounts awarded to fund sustainability research projects
- Impacts of implemented sustainability research projects
- Projections and established goals for future research projects

## Outreach Strategies

Representing the “soul” of sustainability at FSU, outreach objectives deal with reaching out to all FSU constituents and promoting sustainability to encourage involvement. By publicizing mitigation actions, outreach objectives will contribute indirectly to reducing greenhouse gas emissions. They will have a direct impact on establishing a culture of climate consciousness.

### *OT.1 – Sustainability Outreach Campaign*

Outreach representatives will develop and implement a comprehensive sustainability outreach campaign that focuses on raising awareness, fostering pride, taking action, gathering support, and expanding horizons. OSG

Through a comprehensive outreach campaign, the Outreach Group will work to engage FSU students, faculty, staff, the surrounding community, the region, and beyond. The campaign will begin with the on-campus community (Phase 1) and eventually include the off-campus community as well (Phase 2).

The overall goals of the outreach campaign will be to:

- Raise Awareness – Make the CAP a known and respected part of FSU’s goals and philosophy
- Foster Pride – The campus community becomes engaged and committed to sustainability and carries the plan forward
- Take Action – Members of the campus community implement the CAP in their on-campus, working, and teaching behaviors
- Gather Support – The CAP becomes successful enough that outside support, including funding, grows
- Expand Horizons – Campus community raises awareness of family, friends and community by incorporating sustainability practices into everyday life

During Phase 1 of the outreach campaign, Outreach representatives will work toward getting students, faculty, and staff on-board. Techniques may include:

- Initial and on-going training on FSU’s CAP directed toward all FSU students, faculty, staff, new employees and block leaders
- On-going sustainability training
- Engagement techniques:
  - Establishing emotional connections
  - Campus Commitment Challenge Series
  - Faculty teaching pledge
  - Campus competitions
  - Prompts and reminders
  - Recruiting
- Communications and Marketing – Elevate awareness about actions being taken, increase name recognition and create a new norm for campus behavior and activity

During Phase 2 of the outreach campaign, Outreach representatives will work toward reaching out to the off-campus community. Techniques may include:

- Visioning – Asking community members what their sustainability needs are (e.g., home energy, recycling, organic foods, poverty, and flooding)

- Serving as a resource – Providing value-added opportunities to the community (i.e., job training and information, and developing expertise on subjects of sustainability)
- Action partnership development – Working to create viable arrangements that contribute to community well-being and sustainability as well as to the FSU Climate Action Plan

### *OT.2 – VISTA Worker*

Outreach representatives will secure a VISTA worker by fall 2010 to help coordinate community outreach activities on campus and beyond. [OSG](#)

By bringing in a well-qualified external constituent to the outreach campaign, FSU would gain a fresh perspective and expertise on community outreach for sustainability. Securing an [Americorps VISTA](#) worker for sustainability would provide assistance in incorporating the second phase of the comprehensive outreach campaign. A VISTA worker could educate the local community on sustainability issues and provide trainings, seminars, and programs that help those in impoverished areas lower their energy and food costs through sustainable efforts. Possible duties may include:

- Educating the community on weatherization and the associated savings
- Teaching community members how to build and maintain compost bins and organic gardens
- Educating the community on energy-saving habits and the savings associated with these habits

### *OT.3 – Student Commitment*

Outreach representatives will seek student input on ways students can contribute to the sustainability initiative and to reducing FSU's carbon footprint. [OSG](#)

Outreach representatives should collaborate with student representatives to determine how to secure student commitment to climate neutrality at Frostburg State University. After dividing FSU's 2008 total emissions equally between full-time students, faculty, and staff at FSU, the share of emissions for the average individual is approximately 3.3 metric tons of CO<sub>2</sub>e annually. According to the Environmental Protection Agency's [EPA Emissions Equivalency Calculator](#), this is equivalent to:

- A total of 1,246 gallons of consumed gasoline
- Carbon sequestered from 281 seedlings grown for 10 years
- Emissions from the energy use of one home for one year
- Greenhouse gas emissions avoided by recycling 3.8 tons of waste instead of sending it to the landfill

To mitigate their own share of emissions, students can contribute in the following ways:

- Conservation – Student pledge to recycle, turn off lights, etc.
- Leadership – Student representation on LGLG and working groups, clubs and organizations
- Service Learning – Participation in outreach activities related to sustainability and reducing individual or classroom carbon footprints
- Academics – Working with faculty to incorporate experiential learning opportunities within the classroom that are sustainable and/or reduce FSU's carbon footprint
- Finance – Student fundraising, donations, loans, activity fees or parking fees where funds would directly benefit FSU's sustainability initiative

#### *OT.4 – Local Environmental Issues*

LGLG and the Sustainability Office will serve as an intellectual resource on local environmental issues by providing expertise and avenues for involvement. *SOC, LG2*

Throughout the development of FSU's CAP, a number of local environmental issues were discussed in public arenas. In establishing a mission that would serve the University best, LGLG views itself as a non-political entity that, along with promoting climate neutrality, will serve as an intellectual resource on local environmental issues. As an institution of higher learning, LGLG members and the Office of Sustainability will provide credible expertise on local issues. The University may also provide avenues for involvement through hospitality by allowing guests to use University facilities for meeting space. On a collective basis, LGLG members will support those issues that promote the goals outlined in this plan. On an individual basis, LGLG members are free to support any position, if the views expressed are clearly their own.

#### *OT.5 – Business Alliances*

Outreach representatives will form alliances with regional businesses to share best practices and facilitate environmental consciousness. *OSG*

As another subset of Phase 2, Outreach representatives will reach out to regional businesses to promote sustainability and the establishment of a climate consciousness. This will be accomplished primarily through networking.

#### *OT.6 – Hiring Guidelines*

Outreach representatives will collaborate with Human Resource representatives to identify ways to attract new employees that have an interest in sustainability education and research. *SOC, OSG*

This objective is established with the rationale that employees interested in sustainability will be more likely to commit to climate neutrality and climate mentality. Possible avenues for promoting to new prospective employees include:

- Presence at annual new faculty and staff events
- A message on sustainability included in print and On-line hiring notices
- A Web presence on FSU's OHR Web site
- Posting hiring notices in Sustainability journals

#### *OT.7 – Sustainability Award System*

The Office of Sustainability will establish an award system that rewards FSU students, faculty and staff that take part in sustainability efforts. *SOC, LG2*

FSU should establish an award system that rewards FSU students, faculty, and staff that take part in sustainability efforts, and assists in the tracking of campus-wide initiatives. Numerous independent and decentralized initiatives related to sustainability exist on campus and have always been difficult to track. A reward system will promote outreach and communication and will improve tracking.

## Finance Strategies

Finance strategies represent the “pocket” of sustainability at FSU, dealing with identifying ways to fund the sustainability initiative and keep it healthy over time and in the long run. Establishing financial solvency for sustainability is very important, because the strategies outlined in FSU’s CAP can only be successfully implemented if they are financed accordingly.

Funding sources typically cited in Climate Action Plan resource documents and implemented by other institutions include:

- Institutional financing
- Revolving funds that funnel savings from energy conservation projects into investments for other mitigation and conservation projects
- Grants from government, foundations, or business partners
- Energy efficiency and *renewable energy* incentives provided by government or utilities
- Borrowed money from tax-exempt bonds or other types of borrowing
- Financial instruments specifically designed to promote renewable energy development
- Alumni donations and other fundraising
- Student activity fees and graduating class gifts

### *FN.1 – Sustainability Finance Plan*

Finance and Research representatives will investigate and present a plan for financing various sustainability initiatives. FRG

To ensure long-term viability of FSU’s Climate Action Plan, finance and research representatives should develop a comprehensive sustainability finance plan. The plan will outline levels of funding from each source listed above. In establishing a finance plan, Finance and Research representatives will conduct cost and return analyses of all CAP strategies annually. This analysis will outline the costs of implementation for each strategy, as well as any returns in the form of cost savings over time.

### *FN.2 – Revolving Fund for Mitigation Strategies*

Mitigation and Finance and Research representatives will investigate the feasibility and potential of establishing a revolving fund for mitigation projects. MSG, FRG

FSU should consider establishing a revolving fund in which the savings from energy conservation initiatives are funneled into an account which then is used to fund other mitigation projects. As an example, cost savings from the installation of low-flow shower heads could be allocated for investment in retro-commissioning of air distribution systems, and cost savings from this measure would in turn be used for something else. With successful implementation, the fund would cover many of the costs of investment for more efficient technologies.

### *FN.3 – Sustainability Fund*

Finance and Research representatives will establish a fund through donations, fundraising and grants. FRG

With successful implementation, a sustainability fund would cover costs associated with education, research, and outreach. Establishment of such a fund at FSU would support any of the following activities:

- Curricular, co-curricular, and research activities that incorporate sustainability
- Community outreach
- Office of Sustainability budget
- Research and teaching fellowships to bring innovative leaders in sustainability to our area

### *FN.4 – Sustainability Alumni Association*

Finance and Research representatives will consider creating an alumni association devoted to sustainability.

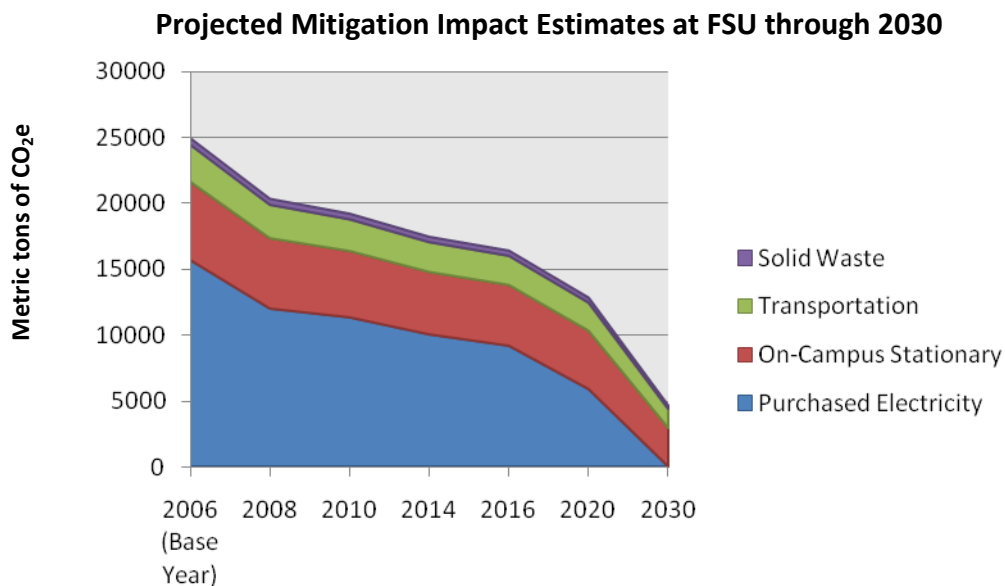
FRG

Many leading institutions have established sustainability alumni associations. As an example, [Oberlin College](#) has an alumni group called *EnviroAlums* devoted to promoting sustainability among alumni. Establishing a similar association at FSU would strengthen the link between alumni and current faculty, staff, and students.

## Conclusion

Frostburg State University will submit its Climate Action Plan to the Association for the Advancement of Sustainability in Higher Education (AASHE) on September 15, 2009. In implementing the strategies of this document, we aim to achieve climate neutrality at FSU by the year 2030.

FSU will ultimately source 100 percent of purchased electricity from renewable sources by 2030. FSU will also implement conservation strategies and efficiency upgrades to our internal operations that will result in a 50 percent reduction in total consumption from 2006 levels by 2030. Combined, these strategies will reduce total emissions to fewer than 5,000 metric tons CO<sub>2</sub>e, which would represent an 80 percent reduction from 2006 levels.



The *FSU CAP Implementation Guide* is presented on the next page and fulfills two objectives: The first page of the implementation guide displays the assignment of implementing strategic objectives. The next few pages of the implementation guide summarize the strategic objectives according to strategy type. The LGLG Committee sees this as a living document that will be subject to review, revision and improvement every two years. The following areas in particular will be addressed in the 2011 revision:

- Provide update on CAP strategic objectives
- For objectives not yet completed, add estimated completion deadlines to CAP strategic objectives
- Provide update on new policies and guidelines that promote CAP objectives
- Determine need for Education Strategies committee
- Update estimated reduction goal targets for mitigation strategies
- Review, implement, and evaluate NORESO recommendations
- Re-evaluate FSU's growth rate and Facilities Master Plan

While the CAP takes inventory of FSU's resources and provides a framework for achieving climate neutrality, LGLG acknowledges that climate neutrality is but one aspect of sustainability. LGLG is also committed to fostering and promoting an institutional culture that takes into account water quality, conservation, land management and other environmental issues that are related but perhaps beyond the immediate and specific scope of reducing carbon emissions. LGLG acknowledges that climate neutrality is a start. The ultimate goal is establishing a culture of climate consciousness.

# FSU Climate Action Plan Implementation Guide:

## Assignment of Strategic Objectives

*This page lists all strategic objectives under assigned areas of responsibility. A number of strategies are listed more than once, indicating shared responsibility between groups. Note that these assignments are fluid and are not meant to exclude individuals or groups interested in pursuing particular areas.*

Implementation Timeline	Strategy Types
<b>GREEN Strategies</b> Begin Implementation by 9/15/09	EM – Emissions Strategies FD – Foundation Strategies M – Mitigation Strategies CU – Conservation & Use of Energy & Resources BL – Buildings & Land Use TR – Transportation SW – Solid Waste OF – Offsetting ER – Education & Research Strategies OT – Outreach Strategies FN – Finance Strategies
<b>BLUE Strategies</b> Begin Implementation in AY 09-10	
<b>GREY Strategies</b> Begin Implementation in AY 10-11	

### FSU Administration

FD.1	Sustainability Leadership Structure
FD.5	USM Communication & Negotiations

### Sustainability Coordinator

FD.1	Sustainability Leadership Structure
FD.5	USM Communication & Negotiations
FD.6	Policy & Guideline Identification
FD.7	Internal Surveys and External Benchmarking
ER.7	Tracking Sustainability Courses
OT.4	Local Environmental Issues
ER.6	Bio-fuel and Renewable Energy Research
M.OF.1	Offset Plan
ER.8	Tracking Curricular & Co-curricular Activities
ER.9	Tracking Sustainability Toolbox
ER.10	Tracking Research
OT.6	Hiring Guidelines
OT.7	Sustainability Award System

### Mitigation Strategies Working Group

M.CU.1	Shift to Renewable Purchased Energy
EM.1	Tracking Transportation
EM.2	Tracking Utilities in External Locations
EM.3	Tracking Resources, Solid Waste & Recycling
M.CU.2	Sub-Metering Analysis System
M.CU.3	Mitigation Consultation Services
M.CU.4	Resource and Energy Conservation Plan
M.CU.5	Residence Hall Conservation
M.CU.6	Computing Technologies Conservation
M.BL.1	New Building Energy Purchasing
M.BL.2	Grounds Maintenance Guidelines
M.TR.1	Commuter Transportation Campaign
M.TR.2	FSU Parking
M.CG.1	Recycling
M.CG.2	Composting
FN.2	Revolving Fund for Mitigation Strategies
M.CU.7	Lighting Conservation
M.BL.3	Forest Preservation Plan
M.TR.3	Travel Reduction Guidelines
M.TR.4	Alternative Fuel Fleet
M.OF.1	Offset Plan

### LGLG Committee

FD.2	Mitigation Strategies Working Group
FD.3	Outreach Strategies Working Group
FD.4	Research & Finance Working Group
FD.6	Policy & Guideline Identification
M.CG.2	Composting
OT.4	Local Environmental Issues
FN.2	Cost & Return Analysis
ER.6	Bio-fuel and Renewable Energy Research
M.CG.3	Sustainable Cuisine
M.OF.1	Offset Plan
ER.5	Faculty Teaching Pledge
OT.7	Sustainability Award System

### CLAS Sustainability Planning Group

ER.1	Minor in Sustainability Studies
ER.2	Sustainability Toolbox
ER.3	Sustainability and Co-curricular Activities
ER.4	Sustainability in the GEP

### Outreach Strategies Working Group

OT.1	Sustainability Outreach Campaign
OT.2	VISTA Worker
M.CU.2	Resource and Energy Conservation Plan
M.CU.3	Residence Hall Conservation
M.CU.4	Computing Technologies Conservation
M.BL.2	Grounds Maintenance Guidelines
M.TR.1	Commuter Transportation Campaign
OT.3	Student Commitment
OT.5	Business Alliances
ER.5	Faculty Teaching Pledge
OT.6	Hiring Guidelines

### Finance & Research Working Group

FN.1	Sustainability Finance Plan
FN.2	Revolving Fund for Mitigation Strategies
ER.6	Bio-fuel and Renewable Energy Research
ER.10	Tracking Research
FN.3	Sustainability Fund
FN.4	Sustainability Alumni Association

## Strategy Statements

The following pages list all Climate Action Plan strategies categorized by strategy type. Responsible entities are listed at the end of each strategy.

Please note: These assignments are fluid and are not meant to exclude individuals or groups interested in pursuing particular areas of implementation.

Implementation Timeline	Responsible Entities	Strategy Types
<b>GREEN Strategies</b> Begin Implementation by 9/15/09	ADM – Administrators SOC – Sustainability Office (Coordinator)	EM – Emissions Strategies FD – Foundation Strategies M – Mitigation Strategies CU – Conservation & Use of Energy & Resources
<b>BLUE Strategies</b> Begin Implementation in AY 09-10	LG2 – LGLG Committee MSG – Mitigation Strategies Group CSC – CLAS Sustainability Committee	BL – Buildings & Land Use TR – Transportation SW – Solid Waste OF – Offsetting
<b>GREY Strategies</b> Begin Implementation in AY 10-11	OSG – Outreach Strategy Group FRG – Finance & Research Group	ER – Education & Research OT – Outreach Strategies FN – Finance Strategies

### Foundation Strategies (FD)

**FD.1 – Sustainability Leadership Structure** – FSU administrators will establish a permanent Office of Sustainability with a program budget and Sustainability coordinator. ADM

**FD.2 – Mitigation Strategies Working Group** – LGLG will establish a permanent structure to oversee implementation and future development of mitigation strategies. LG2

**FD.3 – Outreach Strategies Working Group** – LGLG will establish a permanent structure to oversee implementation of outreach strategies. LG2

**FD.4 – Research and Finance Working Group** – LGLG will establish a permanent structure to oversee implementation of research and finance strategies. LG2

**FD.5 – USM Communication and Negotiations** – The Office of Sustainability and FSU administrators will communicate with USM representatives to share information and needs as related to achieving goals in the CAP. ADM, SOC

**FD.6 – Policy and Guideline Identification** – The Office of Sustainability will consult with FSU administrators to discuss the development of policies and guidelines that facilitate the goal of climate neutrality. SOC

**FD.7 – Internal Surveys and External Benchmarking** – The Office of Sustainability will develop and administer internal surveys and submit sustainability data to external review and rating systems to facilitate tracking and establish and maintain benchmark comparisons. SOC

### Emissions Strategies (EM)

**EM.1 – Tracking Transportation** – Mitigation representatives will continuously improve tracking methods used in determining emissions from transportation. MSG

**EM.2 – Tracking Utilities in External Locations** – Mitigation representatives will determine whether FSU should account for its use of the Lyric Building on Main Street and the Hagerstown Center. MSG

**EM.3 – Tracking Use of Resources, Solid Waste and Recycling** – Mitigation representatives will perform a life-cycle analysis to develop an inventory of resources used on campus, and will continue to track solid waste consumption and the collection of recycled goods on an ongoing basis. MSG

### Mitigation Strategies (M)

#### Conservation and Use of Energy and Resources (CU)

**M.CU.1 – Shift to Renewable Purchased Energy** – Mitigation representatives will annually purchase 15 percent of electricity from renewable energy, with a transition to 100 percent renewable energy by 2030, falling in line with target dates for climate neutrality whenever possible. MSG

**M.CU.2 – Sub-metering Analysis System** – Mitigation representatives will collect and analyze sub-metering data for individual buildings to improve methods of tracking and managing energy use between buildings. MSG

**M.CU.3 – Mitigation Consultation Services** – Mitigation representatives will seek consultation services to identify ways to reduce emissions in operations. MSG

**M.CU.4 – Resource and Energy Conservation Plan** – Mitigation and Outreach representatives will develop a plan to facilitate energy and resource conservation across campus. MSG, OSG

**M.CU.5 – Residence Hall Conservation** – Mitigation and Outreach representatives will collaborate with the Residence Hall Association and others to develop conservation strategies. MSG, OSG

**M.CU.6 – Computing Technologies Conservation** – Mitigation representatives will collaborate with IT representatives to develop technology conservation strategies. MSG

**M.CU.7 – Lighting Conservation** – Mitigation representatives will evaluate buildings in terms of daytime and overnight lighting, making lighting reductions where appropriate. MSG

### **Buildings and Land Use (BL)**

**M.BL.1 – New Building Energy Purchasing** – Mitigation representatives will ensure that all new buildings are built LEED silver-certified or higher and are powered with renewable energy through purchase of renewable energy credits or other sources. MSG

**M.BL.2 – Grounds Maintenance Guidelines** – Mitigation and Outreach representatives will work with administrators and facilities representatives to set guidelines for sustainable grounds. MSG, OSG

**M.BL.3 – Forest Preservation Plan** – Mitigation and Outreach representatives will develop a plan for preserving and restoring forested space on campus. MSG

### **Transportation (TR)**

**M.TR.1- Commuter Transportation Campaign** – Mitigation and Outreach representatives will develop campaigns to improve facilities and increase awareness for walking, biking and public transportation. MSG, OSG

**M.TR.2 – FSU Parking** – Mitigation and Outreach representatives will consult with Administration to develop a student, faculty and staff parking strategy that discourages excessive driving. MSG

**M.TR.3 – Travel Reduction Guidelines** – Mitigation representatives will consult with administration to establish guidelines that will encourage carpooling, telecommuting and other options that result in reduced travel. MSG

**M.TR.4 – Alternative Fuel Fleet** – As fleet vehicles undergo replacement, Mitigation representatives will ensure that hybrid, bio-fuel and other alternatives are used whenever possible. MSG

### **Consumption and Generation of Food and Waste (CG)**

**M.CG.1 – Recycling** – Mitigation representatives will promote recycling on campus through investment in recycling bins and through education and outreach. MSG

**M.CG.2 – Composting** – LGLG and Outreach representatives will work with Dining Services to establish a campus composting site and program. MSG, LG2

**M.CG.3 – Sustainable Cuisine** – LGLG and Outreach representatives will work with food service providers to develop a plan for acquiring, serving and selling foods that are sustainable. LG2

### **Offsetting (OF)**

**M.OF.1 – Offset Plan** – LGLG, Mitigation representatives and the Office of Sustainability will begin vetting various offsetting strategies to ensure responsible and verifiable use of offsets. SOC, MSG, LG2

### **Education and Research Strategies (ER)**

**ER.1 – Minor in Sustainability Studies** – CLAS Sustainability Committee representatives will work to establish a minor in Sustainability by 2010. CSG

**ER.2 – Sustainability Toolbox** – CLAS Sustainability Committee representatives will implement a Web-based toolbox that is accessible to all FSU students, faculty and staff before summer 2010. CSG

**ER.3 – Sustainability and Co-curricular Activities** – The CLAS Sustainability Committee will work to establish one or more of three co-curricular sustainability options by summer 2010. CSG

**ER.4 – Sustainability in the GEP** – CLAS Sustainability Committee representatives will select one of the proposed methods of incorporating sustainability into the General Education Program for the 2011 catalog. CSG

**ER.5 – Faculty Teaching Pledge** – LGLG and Outreach representatives will collaborate with others on campus to implement a voluntary faculty teaching pledge for faculty who can commit to including sustainability topics in the classroom. LG2, OSG

**ER.6 – Bio-fuel and Renewable Energy Research and Education** – FSU will make research of bio-fuel and renewable energy a priority by seeking interest and funding. SOC, LG2, FRG

**ER.7 – Tracking Sustainability Courses** – The Sustainability Coordinator will collaborate with Academic Affairs to maintain a list of all courses related to sustainability and environmental awareness issues. SOC

**ER.8 – Tracking Curricular and Co-curricular Activities** – The Sustainability Coordinator will collaborate with Academic Affairs to track enrollment, completion and other aspects as they relate to sustainability content. SOC

**ER.9 – Tracking Sustainability Toolbox** – The Sustainability Coordinator will collaborate with Academic Affairs to track the frequency of use of toolbox materials and the variety of information presented. SOC

**ER.10 – Tracking Research** – Finance and Research representatives will work with Research and Sponsored Programs and individual departments to develop a method for tracking research activities on campus. SOC, FRG

### **Outreach Strategies (OT)**

**OT.1 – Sustainability Outreach Campaign** – Outreach representatives will develop and implement a comprehensive sustainability outreach campaign that focuses on raising awareness, fostering pride, taking action, gathering support and expanding horizons. OSG

**OT.2 – VISTA Worker** – Outreach representatives will secure a VISTA worker by fall 2009 to help coordinate community outreach activities on campus and beyond. OSG

**OT.3 – Student Commitment** – Outreach representatives will seek student input on ways students can contribute to the sustainability initiative and to reducing FSU’s carbon footprint. OSG

**OT.4 – Local Environmental Issues** –LGLG and the Sustainability Office will serve as an intellectual resource on local environmental issues by providing expertise and avenues for involvement. SOC, LG2

**OT.5 – Business Alliances** – Outreach representatives will form alliances with regional businesses to share best practices and facilitate environmental consciousness. OSG

**OT.6 – Hiring Guidelines** – Outreach representatives will collaborate with Human Resource representatives to identify ways to attract new employees that have an interest in sustainability education and research. SOC, OSG

**OT.7 – Sustainability Award System** – The Office of Sustainability will establish an award system that rewards FSU students, faculty, and staff that take part in sustainability efforts. SOC, LG2

### **Finance Strategies (FN)**

**FN.1 – Sustainability Finance Plan** – Finance and Research representatives will investigate and present a plan for financing various sustainability initiatives. FRG

**FN.2 – Revolving Fund for Mitigation Strategies** – Mitigation and Finance and Research representatives will investigate the feasibility and potential of establishing a revolving fund for mitigation projects. MSG, FRG

**FN.3 – Sustainability Fund** – Finance and Research representatives will establish a fund through donations, fundraising and grants. FRG

**FN.4 – Sustainability Alumni Association** – Finance and Research representatives will consider creating an alumni association devoted to sustainability. FRG

# Sustainability Terms

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The information on this page is gathered from various sources including: the Environmental Protection Agency, Clean Air-Cool Planet, National Health Council, the Natural Resource Defense Council, the University Corporation for Atmospheric Research, the International Organization for Standardization, the Association of New Jersey Environmental Commission, the National Oceanic and Atmospheric Association and Carbonfund.org. To view a comprehensive listing of environmental terms, acronyms and abbreviations developed by the U.S. Environmental Protection Agency, go to <http://www.epa.gov/OCEPAterms/>.

**Anthropogenic** – Caused or produced by humans (i.e., anthropogenic global warming),

**Bio-fuel** – Gas or liquid fuel made from plant material. Includes wood, wood waste, wood liquors, peat, wood sludge and spent sulfite liquors.

**Carbon dioxide equivalent (CO<sub>2</sub>e)** – A measure used to compare the emissions from various greenhouse gases based on their global warming potential (GWP). The CO<sub>2</sub>e is commonly expressed as million metric tons of CO<sub>2</sub>, and is derived by multiplying the tons of the gas by the associated global warming potential (GWP).

**Carbon offset** – The act of mitigating (“offsetting”) greenhouse gas emissions. An example of this is planting trees to compensate for emissions generated through personal air travel.

**Custom fuel mix** – The combination of fuel types that combine to power an institution, usually expressed as ratios or percentages.

**Fugitive emissions** – Emissions that are not physically controlled but result from the intentional or unintentional release of greenhouse gases. They commonly arise from the production, processing, transmission, storage and use of fuels and chemicals, often through joints, seals, packing, gaskets, etc.

**Global warming potential (GWP)** – The index used to translate the level of emissions of various gases into a common measure to compare the relative radiative forcing of different gases without directly calculating the changes in atmospheric concentrations.

**Green washing** – The practice of making an unsubstantiated or misleading claim about the environmental benefits of a product, service, technology or company practice.

**Renewable energy** – Energy obtained from sources that are essentially inexhaustible, unlike, for example, the fossil fuels, of which there is a finite supply. Renewable sources include wood, waste, geothermal, wind, photovoltaic and solar thermal.

**Walking campus** – Barriers to pedestrian traffic are minimal in the central radius of campus and automobile traffic is moved to the outskirts of campus.

# **Appendix A: LGLG Committee Membership for the Development of FSU's Climate Action Plan**

## **LGLG Advisory Group Members**

John Brewer, Facilities  
Jonathan Gibraltar, FSU President  
Patrick O'Brien, Leadership and Community Engagement  
Kara Rogers Thomas, Department of Sociology  
Ann Townsell, Office of Publications  
Monika Urbanski, Office of Planning and Assessment

## **Campus Emissions**

John Brewer and Jon Diamond, Facilities

## **Mitigation Strategies**

David Arnold, Department of Geography  
Doug Baer, Residence Life Office  
Daniel Fiscus, Department of Biology  
Jeffrey Sellers, FSU AmeriCorps VISTA member

## **Education Strategies**

Sydney Duncan, Department of English  
Kara Rogers Thomas, Department of Sociology

## **Research Strategies**

Phillip Allen, Department of Geography  
Patrick O'Brien, Leadership and Community Engagement

## **Outreach Strategies**

Adrian Azunian, AmeriCorps OSM/VISTA member  
Paul Kazyak, Maryland Department of Natural Resources  
Kelly Martin, Western MD Resource Conservation and Development Council  
Ann Townsell, Office of Publications

## **Finance Strategies**

Joan Andorfer, Department of Political Science  
Rebecca Ramspott, Communications and Media Relations

## **Tracking Progress**

Karla Diehl, Department of Educational Professions  
Harriet Douglas, Student Support Services  
Monika Urbanski, Planning and Assessment

## **CAP Writing Team**

April Baer, Student and Educational Services  
Rebecca Ramspott, Communications and Media Relations  
Monika Urbanski, Planning and Assessment

## **Appendix B: Energy Efficient Purchasing Policy**

PN 3.115

Frostburg State University requires the purchase of energy-efficient products and equipment. Equipment purchases that are Energy Star-certified or that meet other nationally accepted standards of energy efficiency should be made whenever financially feasible. Departments should consider short- and long-term costs when choosing between highly efficient products and less efficient counterparts.

The Procurement Department may review purchases for compliance with this policy. Any department purchasing less efficient products or equipment may be required to report to the Procurement Office the reason for such purchase and indicate why an Energy Star-certified or other energy-efficient product was not chosen.

Internal Policy

# Appendix C: Proposed Recommendations for Permanent Leadership in Sustainability

## Introduction

The LGLG Committee is pleased that Frostburg State University is reconsidering the establishment of a permanent Office of Sustainability and the hiring of a Sustainability coordinator.

## Goal

The LGLG Advisory Group aims to provide guidance to the administration on recommendations for establishing permanent leadership in sustainability. The Advisory Group highlights specific needs that have come to light during the development of FSU's Climate Action Plan. We recommend that a full-time Sustainability coordinator be hired at the beginning of the 2009-2010 Academic Year.

## Rationale for Permanent Leadership

- A Sustainability coordinator would serve as an ambassador for climate and habitat awareness, promoting initiatives that will ultimately improve the quality of life for all individuals and species.
- Establishment of a permanent Office of Sustainability will propel FSU as a leader in sustainability initiatives within higher education.
- Successful implementation of FSU's Climate Action Plan hinges on strong leadership and an ability to "get the job done."
- LGLG representatives found that the committee approach used in AY 2008-2009 is not adequate for long-term leadership and direction.
- Sustainability has a prominent role in FSU's Draft Strategic Plan and Draft Mission.
- Most AASHE-member institutions have a Sustainability officer:
  - Results of [AASHE STARS Pilot Report](#) (p. 240) show that 88.3 percent of participating institutions had a paid Sustainability officer in 2008.

## Added Benefits

A Sustainability coordinator will bring additional benefits to the University:

- The interest in and commitment to sustainability is growing among youth. There are opportunities to boost student enrollment and retention by targeting youth and getting them interested in sustainability at FSU.
- Establishing a "face of sustainability" will raise the University's profile as a leader in sustainability initiatives in the community, region and beyond.
- A Sustainability coordinator will guide the implementation of strategies and improvements that will ultimately lead to cost savings over time. There are also external funding opportunities that, if explored, may prove lucrative for the institution.

## **Proposed Job Description**

**Title:** Coordinator/Director of Sustainability

**Salary:** Negotiable and commensurate with experience and qualifications

**Reporting to:** Director of Facilities.

*(The ideal candidate will work closely with individuals across administrative divisions. He or she will collaborate regularly with representatives from Administration and Finance, Academic Affairs and University Advancement.)*

### **Proposed Responsibilities for a Sustainability coordinator:**

- Support Frostburg State University's commitment to climate neutrality.
- Lead the Learning Green, Living Green sustainability initiative as Chair of the LGLG Steering Committee.
- Coordinate the implementation of Frostburg State University's Climate Action Plan.
- Spearhead new sustainability initiatives and coordinate efforts among the entire campus community.
- Collaborate, consult and assist with Physical Plant regarding construction projects, energy management and other projects that support climate neutrality.
- Provide leadership and direction in the areas of recycling and waste management.
- Track, assess, compile, submit reports and update FSU's greenhouse gas inventory and other sustainability data in compliance with the American College and University's Climate Commitment (ACUPCC) and the Association for the Advancement of Sustainability in Higher Education (AASHE)
- Represent FSU at University System of Maryland and AASHE sustainability meetings and conferences.
- Plan and coordinate outreach events related to sustainability such as Recyclemania, Focus Frostburg and Earth Week.

### **Minimum Qualifications:**

- Bachelor's degree and two years of related experience.
- Strong interest in climate neutrality and knowledge of sustainability issues and best practices.
- An ability to self-motivate and motivate others, and work independently and within a team.
- Strong writing, interpersonal, organizational, multitasking and leadership skills.

### **Preferred Qualifications:**

- Significant experience in developing and implementing strategic plans and policies relating to sustainability, energy management and conservation.
- Master's degree or at least three years of experience in higher education.
- Certification in Leadership in Environmental and Energy Design (LEED).

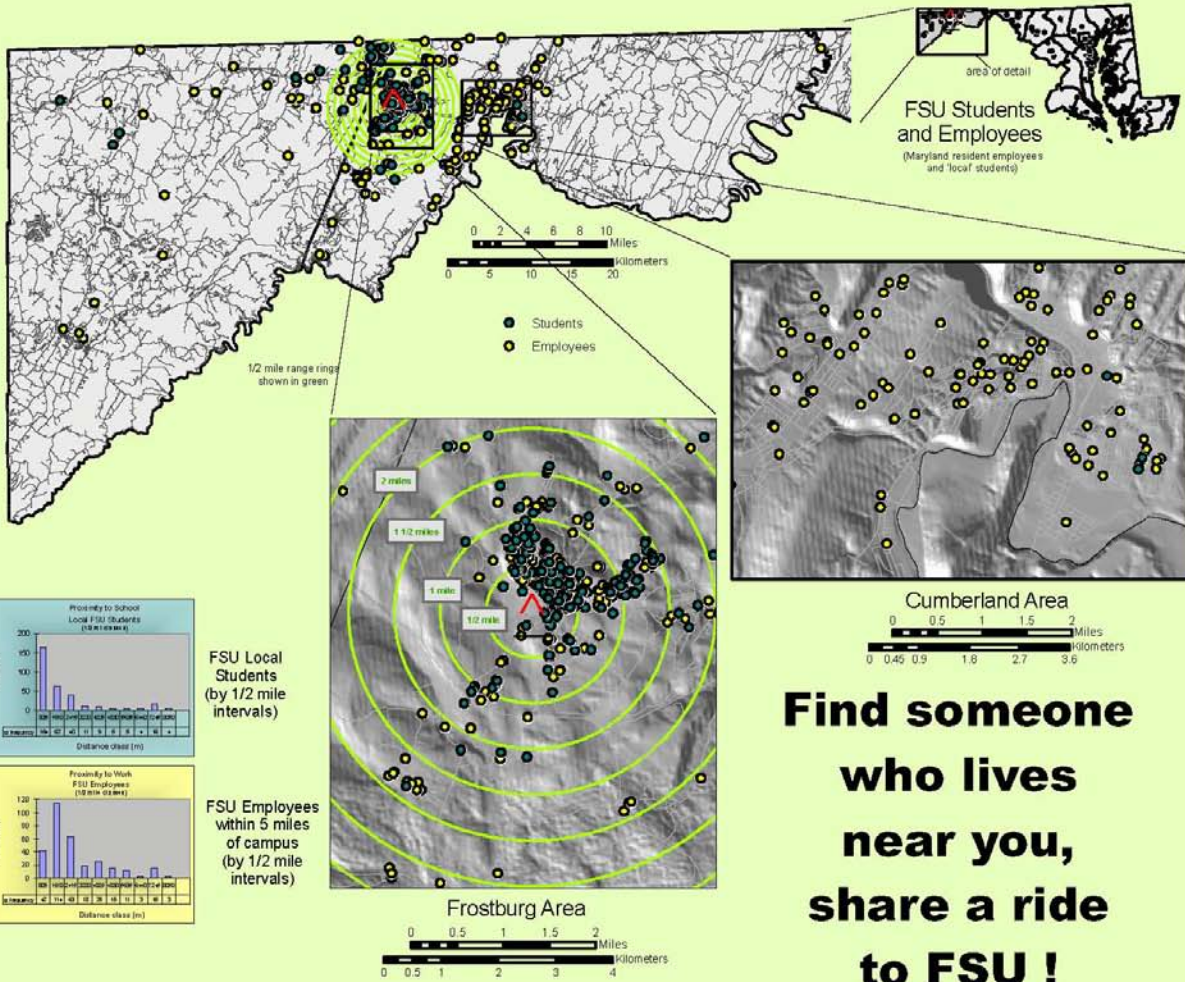
# Appendix D: Where We Live, Share a Ride



Frostburg State University's  
Learning Green/Living Green  
Sustainability Initiative Steering Committee  
Urges You To



## Share a Ride



**Find someone  
who lives  
near you,  
share a ride  
to FSU !**

### Did You Know...

- 23.5% of ALL FSU employees live within 1 mile of campus
- Maryland resident FSU employees live an average of 11.03 km (8.85 mi) from campus
- FSU employees living in Garrett and Allegany counties:
  - live an average of 8.8 km (4.2 miles) from campus
  - drive a combined total of at least 4,300 round trip miles per day commuting to work \*
  - contribute a combined total of ~3945 lbs CO<sub>2</sub>/day commuting to/from work \*\*
- 70.6% of FSU 'local' students (i.e. not living on campus) live within 1 mile of campus
- FSU students living in Garrett and Allegany counties:
  - live an average of 8.1 km (4.8 miles) from campus
  - would drive a combined total of at least 1,350 round trip miles per day commuting to school (if they all drove) \*
  - would contribute a combined total of ~1234 lbs CO<sub>2</sub>/day commuting to/from school (if they all drove) \*\*

\* straight-line distances (i.e. as the crow flies); total distances travelled are likely higher  
\*\* based on EPA estimated 21.5 feetwide mpg (see www.epa.gov)

January 2008

1/2 mile (805 m) range rings centered on FSU clock tower

Address data: Human Resources, FSU  
Street data: StreetMap USA  
814 Maryland resident employees; 86% matched.  
Employee analysis based on 309 Maryland residents.  
Student analysis based on 847 local students,  
excluding those living 'on-campus'; 79% matched.

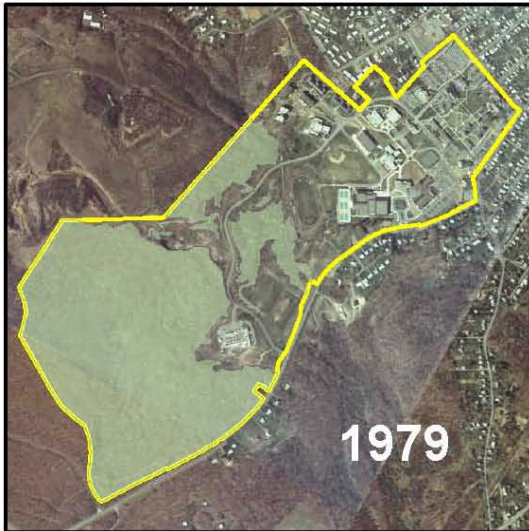
UTM, zone 17N  
North American Datum 1983

map & analysis by: Francis Precht, PhD, GISP  
Department of Geography  
Frostburg State University  
Frostburg, Maryland 21532

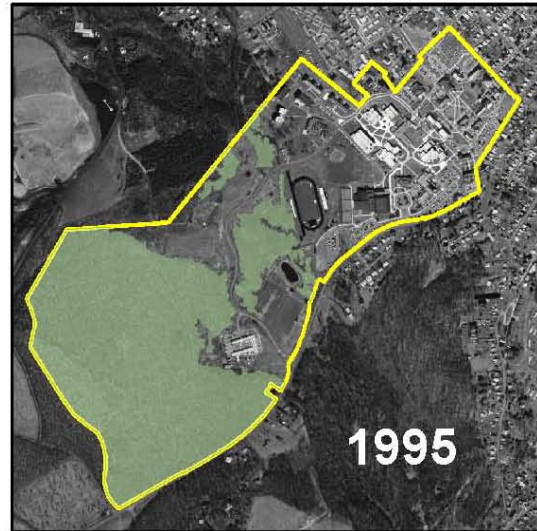


## Appendix E: FSU's Changing Landscape

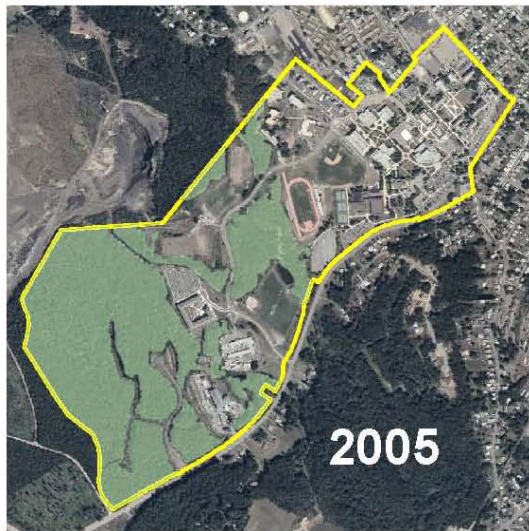
# The Changing Landscape of Frostburg State University



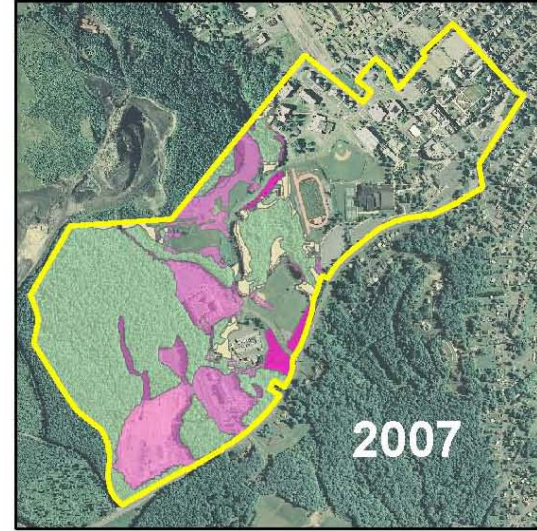
549,722m<sup>2</sup> forested (135.8 ac; 52% of FSU campus)



511,326m<sup>2</sup> forested (126.4 ac; 48% of FSU campus)  
old Compton Hall;  
new library mall;  
Performing Arts Center (PAC);  
large intramural field



448,030m<sup>2</sup> forested (110.7 ac; 42.5% of FSU campus)  
new Compton Science Center;  
new upper mall;  
Appalachian Lab building (7.1 ac);  
Edgewood Commons (7.6 ac);  
ABC@FSU access roads (5.9 ac)



402,570m<sup>2</sup> forested (99.5 ac; 36% of FSU campus)  
clearing for first ABC@FSU building (13.9 ac)  
arboretum: 15.16 ac



- FSU boundary (260.5ac)
- forest growth 1979-2007 (8.7ac)
- forested (in 2007 99.5 ac, incl regrowth)
- replanting project 2009 (3.9ac)
- net forest loss 1979 - 2007 (36.3ac; gross 45.2ac)

notes: airphotos from: Allegany County Planning & Zoning, 1979  
TerraServer-USA, 1995  
NAIP, June-September, 2005 & 2007  
boundary survey from FSU Physical Plant, based on contract survey, 2001

carbon sequestration capacity 1979: 1,099,301 lbs CO<sub>2</sub>/year  
carbon sequestration capacity 2007: 805,453 lbs CO<sub>2</sub>/year  
net carbon sequestration capacity loss 1979-2007: 293,849 lbs CO<sub>2</sub>/year  
(rate: 8095 lbs CO<sub>2</sub>/year/acre from EYB Carbon Zero Hero)

compilation & analysis: Francis Precht, PhD, GISP  
Department of Geography  
Frostburg State University  
Frostburg, Maryland 21532  
April, 2009



# Appendix F: The Program of General Education 2009-2011

## Undergraduate Catalog

### FROSTBURG STATE UNIVERSITY

Minimum of 40 credit hours required of all students

#### CORE SKILLS

*Minimum of 9 credit hours of coursework or credit by exam*

- |           |   |                  |
|-----------|---|------------------|
| <b>1.</b> | <b>Introductory Composition (3 hours)</b><br>ENGL 101/111* Freshman Composition   | <b>3 Hours</b>   |
| <b>2.</b> | <b>Advanced Writing—One of the following (3 hours each)</b><br>ENGL 308/309/310/312* Advanced Composition<br>ENGL 300 Critical Writing about Literature<br>ENGL 330 Business Writing<br>ENGL 338 Technical Writing<br>ENGL 339 Scientific Writing | <b>3 Hours</b>   |
| <b>3.</b> | <b>MATH—One of the following (3-4 hours each)</b><br>MATH 104 Intro to Mathematical Problem Solving<br>MATH 102 College Algebra<br>MATH 120 Pre-Calculus<br>MATH 209/219 Elements of Applied Probability & Statistics<br>MATH 236 Calculus I      | <b>3-4 Hours</b> |

#### MODES OF INQUIRY

*31-32 Hours*

- |           |  |                  |
|-----------|--|------------------|
| <b>A.</b> | <b>The Fine and Performing Arts:</b> At least one of the following (3 hours each)<br><i>Hours</i><br><b>Art</b> ART 100/111* Art Appreciation <u>OR</u> ART 110 Visual Imagery<br><b>Dance</b> DANC 110 Dance Appreciation<br><b>Music</b> MUSC 110 Introduction to World Music <u>OR</u> MUSC 117 Music of Africa, Asia, & the Americas<br><b>Theatre</b> THEA 106 Introduction to Theatre <u>OR</u> THEA 107 Introduction to Theatrical Vision   | <b>3</b>         |
| <b>B.</b> | <b>The Humanities:</b> At least two of the following (3 hours each)<br><b>Literature</b> ENGL 150/250* <u>OR</u> ENGL 221 Introduction to Literature/Intermediate Composition<br><b>History</b> HIST100/111* The Contemporary World in Historical Perspective<br><b>Philosophy</b> PHIL 101/111* Introduction to Philosophy <u>OR</u> PHIL 102 Contemporary Ethical Problems<br><b>Languages</b> FREN 250 Overview of French Language & Culture <u>OR</u> SPAN 250 Overview of Spanish Language & Culture  | <b>6 Hours</b>   |
| <b>C.</b> | <b>The Natural Sciences:</b> At least two of the following (3-4 hours each)<br><b>Biology</b> BIOL 109 Human Biology and the Environment <u>OR</u> BIOL 149 General Biology I<br><b>Chemistry</b> CHEM 100/113* Chemistry and Society <u>OR</u> CHEM 101 General Chemistry I<br><b>Geography</b> GEOG 103/113* Physical Geography<br><b>Physical Sciences</b> PHSC 100 Cosmic Concepts <u>AND</u> PHSC 101 Measurement <u>OR</u> PHSC 203 Physical Science <u>OR</u> PHYS 215 General Physics I <u>OR</u> PHYS 261 Principles of Physics I<br><b>Interdisciplinary</b> IDIS 160 Science, Technology, and Society (3 hours) | <b>7-8 Hours</b> |
| <b>D.</b> | <b>The Social Sciences:</b> At least two of the following (3 hours each)<br><b>Economics</b> ECON 200 Basic Economics <u>OR</u> ECON 201/211* Principles of Economics (Macro)<br><b>Geography</b> GEOG 104/114* Human Geography <u>OR</u> GEOG 110 World Regional Geography: Cultural Diversity<br><b>Political Science</b> POSC 110/112* Introduction to American Politics <u>OR</u> POSC 113/114* Introduction to  | <b>6 Hours</b>   |

**Psychology**  
**Sociology**

World Politics OR POSC 131 Introduction to Comparative Politics  
PSYC 150/151\* General Psychology  
SOC 100/111\* Introduction to Sociology

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**E. The FSU Colloquia:** Two courses (3 – 4 credits each) **6 Hours**  
IDIS 150/151\* First-Year FSU Colloquium (complete prior to earning 45 credit hours) AND select one course from  
IDIS 350/351\* Advanced FSU Colloquium (Complete after earning 45 credit hours) OR select one additional  
Modes of Inquiry course from Groups A-D above)

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**F. Identity and Difference:** One of the following **3 Hours**

- **A particular course may be counted to meet only one General Education requirement.**
- **You must meet all prerequisites listed for the course you select.**

AAST 200 Intro. to African-American Studies	MDFL 301 Latin American Women's Issues
AAST 400 Africans of the Diaspora	MUSC 117 Music of Africa, Asia, & the Americas
ART 301 Artistic Traditions: Asia	MUSC 250 Women in Music
ART 302 Artistic Traditions: Africa & the Americas	PHIL 308 Political Philosophy
GEOG 104/114 Human Geography	PHIL 311 Asian & African Philosophy
GEOG 110 World Regional Geography: Cultural Diversity	PHIL 409 Philosophy & Women
GEOG 427 Geography of Languages & Religions	POSC 131 Introduction to Comparative Politics
HEED 125 Health and Culture	PSYC 220 Psychology of Women
HIST 100/111 The Contemporary World in Historical Perspective	PSYC 325 African American Psychology
HIST 318 Native Peoples of the Americas	RECR 100 Leisure & Diverse American Culture
HIST 436 Women's Issues in World History	SOCI 224 Cultural Anthropology
INST 100 Intro. to International Studies	SOCI 305/SOWK 305 Racial & Cultural Minorities
INST 150 Intro. to World Religions	WMST 201 Introduction to Women's Studies
MDFL 111 Intercultural Understanding	

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Please note:

1. A particular course may be counted to meet only ONE General Education requirement.
2. More than one course or option cannot be counted where there are alternatives listed (as designated by OR) to meet Modes of Inquiry requirements in Groups A, B, C, D, and E.
3. PHSC 100 (Cosmic Concepts) without PHSC 101 (Measurement) does NOT count as a three-credit science course.
4. An asterisk (\*) designates an Honors Course equivalent.

## References

American College and University Presidents Climate Commitment (ACUPCC)

<http://www.presidentsclimatecommitment.org/>

Americorps VISTA

<http://www.americorps.gov/about/programs/vista.asp>

Association for the Advancement of Sustainability in Higher Education (AASHE)

<http://www.aashe.org/>

AASHE STARS Pilot Report

[http://www.aashe.org/files/documents/STARS/STARS\\_Pilot\\_Results.pdf](http://www.aashe.org/files/documents/STARS/STARS_Pilot_Results.pdf)

Campus Kitchens Project

<http://www.campuskitchens.org/national/>

CarbonFund.org:

[http://www.carbonfund.org/site/pages/how\\_it\\_works](http://www.carbonfund.org/site/pages/how_it_works)

Clean Air, Cool Planet Carbon Calculator

<http://www.cleanair-coolplanet.org/toolkit/inv-calculator.php>

Energy Information Administration

<http://www.eia.doe.gov/bookshelf/brochures/greenhouse/Chapter1.htm>

Environmental Protection Agency Emissions Equivalency Calculator

<http://www.epa.gov/RDEE/energy-resources/calculator.html>

Frostburg State University Facilities Master Plan Update

<http://www.frostburg.edu/admin/pplant/>

Frostburg State University Greenhouse Gas Emissions Inventory (2007)

<http://acupcc.aashe.org/>

Frostburg State University Learning Green, Living Green Sustainability Initiative

<http://www.frostburg.edu/lglg>

Frostburg State University Sustainability Energy Research Facility

[http://www.frostburg.edu/renewable/Documents/Bartlett\\_Release.pdf](http://www.frostburg.edu/renewable/Documents/Bartlett_Release.pdf)

Frostburg State University Wind and Solar Energy Residential Demonstration

<http://www.frostburg.edu/renewable/wisedemosystem.html>

Implementation Guide for the ACUPCC

[http://www2.presidentsclimatecommitment.org/pdf/ACUPCC\\_IG\\_Final.pdf](http://www2.presidentsclimatecommitment.org/pdf/ACUPCC_IG_Final.pdf)

NORESKO Energy Solutions

<http://www.noresko.com/site/content/index.asp>

Oberlin College

<http://new.oberlin.edu/>

Princeton Review Green Rating System

<http://www.princetonreview.com/green.aspx?RDN=1>

Recyclemania

<http://www.recyclemania.org>

State of Maryland Climate Change Commission 2008 Climate Action Plan

<http://www.mde.state.md.us/air/climatechange/index.asp>

United States Environmental Protection Agency

<http://www.epa.gov/>

United States Green Building Council

<http://www.usgbc.org/DisplayPage.aspx?CategoryID=19>

University System of Maryland Environmental Sustainability Initiative

<http://www.usmd.edu/usm/sustainability/>

Vending Miser®

<http://www.vendingmiserstore.com/>