

Westminster College

# Climate Action Plan

2010-2015 and Beyond



**WESTMINSTER**

SALT LAKE CITY • UTAH

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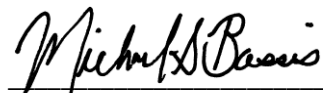
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This plan was formally adopted by Westminster College President Michael Bassis on July 27, 2010.



Dr. Michael S. Bassis

# Westminster College Climate Action Plan

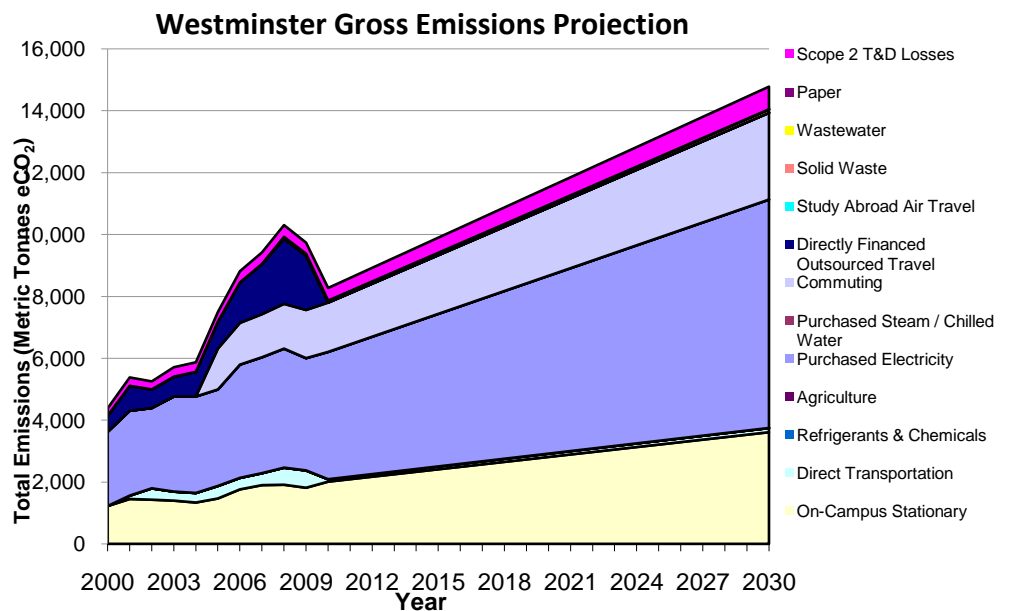
## Executive Summary

This climate action plan (CAP) has been prepared by the Westminster College Sustainability Task Force in support of the American College and University Presidents' Climate Commitment (ACUPCC), signed by Westminster College president Michael Bassis on April 13, 2007. The plan outlines specific strategies and mitigation steps to minimize the institution's greenhouse gas emissions and climate impact. This will be achieved by (1) reducing campus energy consumption, (2) obtaining energy from renewable and sustainable sources, (3) institutionalizing a sustainable culture among students, faculty, and staff, and (4) securing carbon offsets.

By adopting this plan, Westminster College commits to the following:

- Annual goal of reducing net GHG emissions by at least 3% per year between 2010 and 2020
- Target date of 2030 for achieving carbon neutrality
- Providing resources necessary to implement actions included in this plan for 2010-2015

After years of significant increase, Westminster saw a 6% decrease in emissions in 2009. Westminster was responsible for a net 9,549 metric tons carbon dioxide equivalent (MTCDE) in the 2008 baseline year. Assuming linear growth, the College will be responsible for over 15,000 MTCDE by 2030.



This plan provides a list of specific strategies and actions for reducing emissions by 10-15% over the next five years. Acknowledging the uncertainty of future carbon legislation and markets, utility fuel mixes, campus population, and financial circumstances, the Campus Sustainability Task Force elected to provide a detailed five year plan for emissions reductions, including specific projects, building upgrades, and policy changes. While more general goals are listed all the way out to the target 2030 neutrality date, detailed project plans will still need to be developed at the end of the first five years.

## Westminster College 2010-2015 GHG Emissions Reductions Strategies and Actions

| STRATEGY/ACTION   | Annual Emissions Avoided (MTCDE) | % of 2008 Baseline |
|---|----------------------------------|--------------------|
| <b>Strategy 1: Improve the efficiency of existing buildings on campus.</b>                          |                                  |                    |
| ACTION: Complete lighting and controls modifications in Giovale Library.                            | 70                               | 0.7%               |
| ACTION: Replace old HVAC Equipment with most efficient models possible.                             | Unknown                          |                    |
| ACTION: Reduce lighting in over lit areas.  | 83                               | 0.9%               |
| ACTION: Start a Building Performance Audit and Readjustment Program.                                | 168                              | 1.8%               |
| ACTION: Install computer Power Save software.   | 199                              | 2.1%               |
| <b>Strategy 2: Reduce the percentage of students, faculty, and staff commuting alone to campus.</b> |                                  |                    |
| ACTION: Implement parking fee to discourage single occupancy vehicle use.                           | 156                              | 1.6%               |
| <b>Strategy 3: Increase the amount of campus electricity generated from renewable sources.</b>      |                                  |                    |
| ACTION: Create voluntary Wind Power My Room/Office campaign.  | 190                              | 2.0%               |
| <b>Strategy 4: Make low-carbon living and transportation part of campus culture.</b>                |                                  |                    |
| ACTION: Incorporate Sustainability in New Student and Faculty/Staff Orientations.                   | unknown                          |                    |
| ACTION: Launch annual Residence Hall Energy Challenge.  | 4                                | 0.1%               |
| <b>Strategy 5: Institutionalize sustainability by incorporating it into the 2010 Master Plan.</b>   |                                  |                    |
| ACTION: Incorporate sustainability goals and guidelines into 2010 Master Plan.                      |                                  |                    |
| <b>TOTAL</b>  | <b>870</b>                       | <b>9.2%</b>        |

Westminster will not be able to make significant progress on its climate commitment without designated funding from the College. The reductions steps outlined in this plan may be funded through parking fee revenue, establishment of a revolving loan fund, building endowments, utility company incentives, grants, donations, voluntary student fees, and/or the institutional operating budget. The most promising funding mechanism is the investment of parking fee revenue into a revolving loan fund.

This plan also includes strategies for including sustainability in the curriculum and co-curriculum, and many of the actions listed have significant potential to enhance student learning.

## Introduction

*“Westminster College will be a sustainability leader in our community, integrating sustainable learning throughout the Westminster experience and into all facets of campus life. Behavioral programs, student learning, and operational actions will all prioritize sustainability in order to graduate students that are well-prepared to understand and act in a dynamic, green, and global society.”*

– Westminster College Sustainability Goal

This climate action plan has been prepared in support of the American College and University Presidents’ Climate Commitment (ACUPCC), signed by Westminster College president Michael Bassis on April 13, 2007. The plan provides information about how and when Westminster College will achieve carbon neutrality. Consistent with the ACUPCC, the Climate Action Plan (CAP) sets goals and identifies steps toward neutralizing the climate impact of (1) greenhouse gas emissions that result directly from the College’s operations, (2) emissions that result from generation of the electricity that the College consumes, (3) daily commuting by faculty, staff, and students, and (4) air travel for College business. Taking action on these emissions represents an important step in combating climate change.

The goal of the Westminster CAP is to outline specific strategies and mitigation steps to minimize the institution’s greenhouse gas emissions and climate impact. This will be achieved by (1) reducing campus energy consumption, (2) obtaining energy from renewable and sustainable sources, (3) institutionalizing a sustainable culture among students, faculty, and staff, and (4) purchasing carbon offsets.

In the summer of 2007, the college organized a Campus Sustainability Task Force (CSTF) comprised of faculty, staff, and student representatives and chaired by the College’s Environmental Center Director. The Campus Sustainability Task Force has set a goal of carbon neutrality by 2030, and believes this date is as aggressive as possible based on current knowledge, policies, technologies, and economics.

While a neutrality date of 2030 may seem unrealistic to some and too late to others, it is in line with national, state, and city goals being set forth. President Obama’s New Energy for America plan calls for 10 percent of the country’s electricity to come from renewable sources by 2012, and 25 percent from renewables by 2025. Moreover, it proposes to reduce total greenhouse gas emissions by 88 percent by 2050. It is our hope and assumption that Westminster College, like all institutions of higher education, will benefit from national policy changes taking place alongside our individual campus actions.

Between now and 2020, Westminster College will aim to meet Salt Lake City's goal of a 3% annual reduction in greenhouse gasses per year for the next ten years, compared to a 2008 baseline. This will indeed be a challenge as campus continues to increase enrollment and building space.

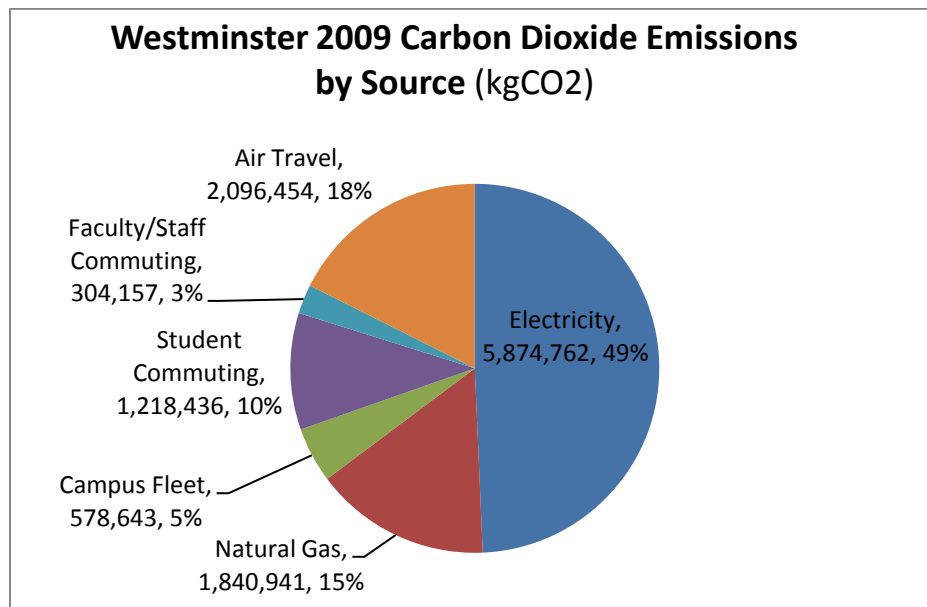
Prior to this plan, the College has already taken action to mitigate its greenhouse gas emissions. The construction of the Meldrum Science Center demonstrates that commitment with conservation features designed to achieve a LEED® Gold certification from the U.S. Green Building Council. Forty two solar panels on the roof of Dolores Dore Eccles Health Wellness and Athletic Center provide free, clean electricity, and 10% of Westminster's total electricity comes from renewable sources like wind and solar through Rocky Mountain Power's Blue Sky program. The College also offers free access to transit and bicycles to all students, faculty, and staff. Perhaps most impressive, fiscal year 2008-2009 saw a nearly six percent decrease in total greenhouse gas emissions over the previous year, while built square footage and campus population both increased to an all-time high. The decrease is due primarily to the ongoing efforts of the campus Facilities Department, which has been upgrading lighting and building equipment each year.

# Westminster Greenhouse Gas Emissions

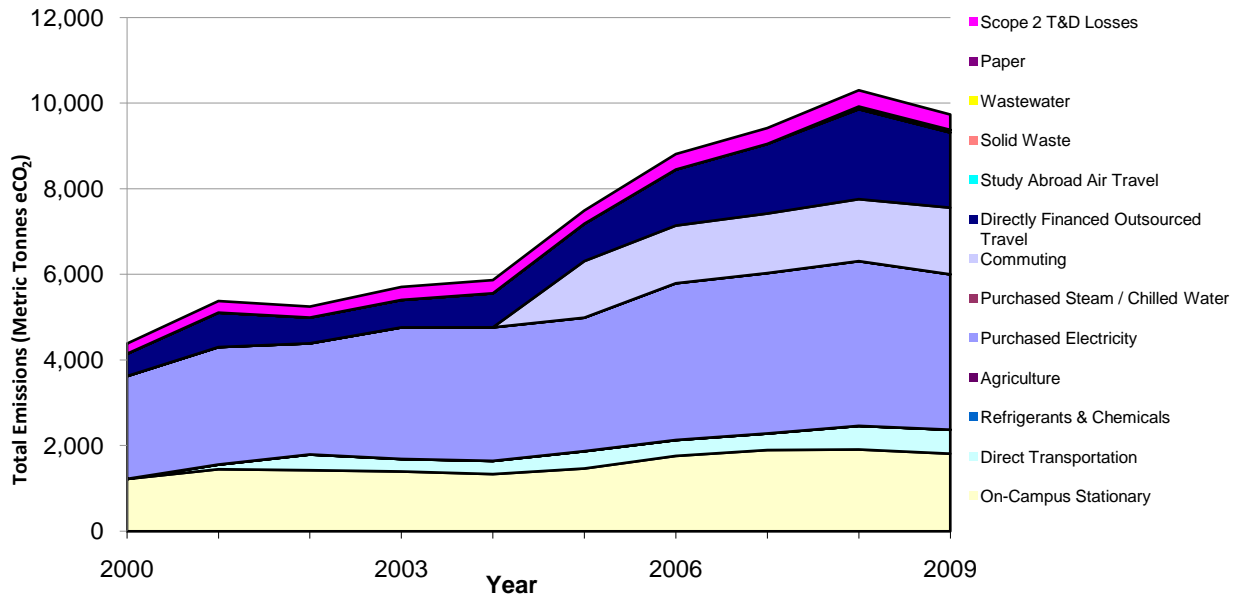
## Greenhouse Gas Emissions: Where We Are Now

The inventory submitted to ACUPCC in September 2008 included complete information for the fiscal year 2007-2008 (FY 2008) and partial historic data going back to 1999-2000. FY 2008 is used as the baseline year because it is the first year for which data on all required sources was available. An updated inventory was completed in October 2009 and includes data from FY 2008-2009. These reports provide a reasonably accurate picture of Westminster’s current and historic GHG emissions, and they provide insight into future emissions and energy use trends. Westminster College’s emissions inventory for FY 2008-2009 reveals:

- In FY 2008 (the baseline year) Westminster College was responsible for a net total of **9,549** metric tons of CO<sub>2</sub>e (MTCDE) from all sources required for reporting to ACUPCC.
- In FY 2009, Westminster College was responsible for a net total of **9,003** (MTCDE).
- This is a nearly **6% decrease** in net emissions from the previous year, while the total built square feet and campus population both increased.
- Both electricity and natural gas use both decreased significantly in FY 2009.
- Nearly half of all college emissions are from purchased electricity.
- 18% of emissions are from air travel.
- 13% of emissions are from commuting.
- Total dollars spent on electricity and natural gas more than doubled between 2000 and 2009.

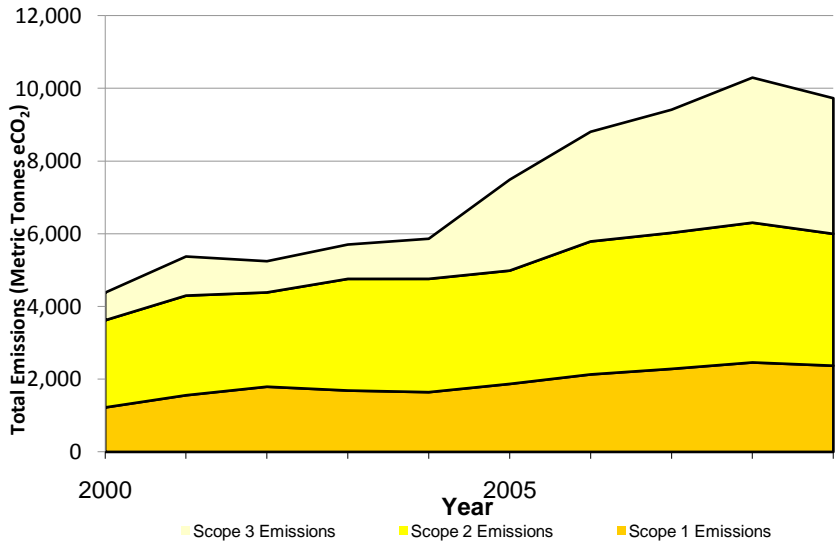


## Westminster College Gross GHG Emissions by Source 2000-2009



### Scope/Source of Emissions

The Clean Air-Cool Planet Calculator defines different categories of emissions by three scopes, or levels, of institutional responsibility. Scope 1 emissions are direct emissions from sources that are owned and/or controlled by the institution, like campus vehicles and natural gas. Scope 2 emissions are indirect emissions from sources that are neither owned nor operated by the institution but whose products are directly linked to on-campus energy consumption, primarily electricity. Scope 3 emissions include emissions from sources that are neither owned nor operated by the institution but are either directly financed or are otherwise linked to the campus via influence or encouragement, i.e. commuting.

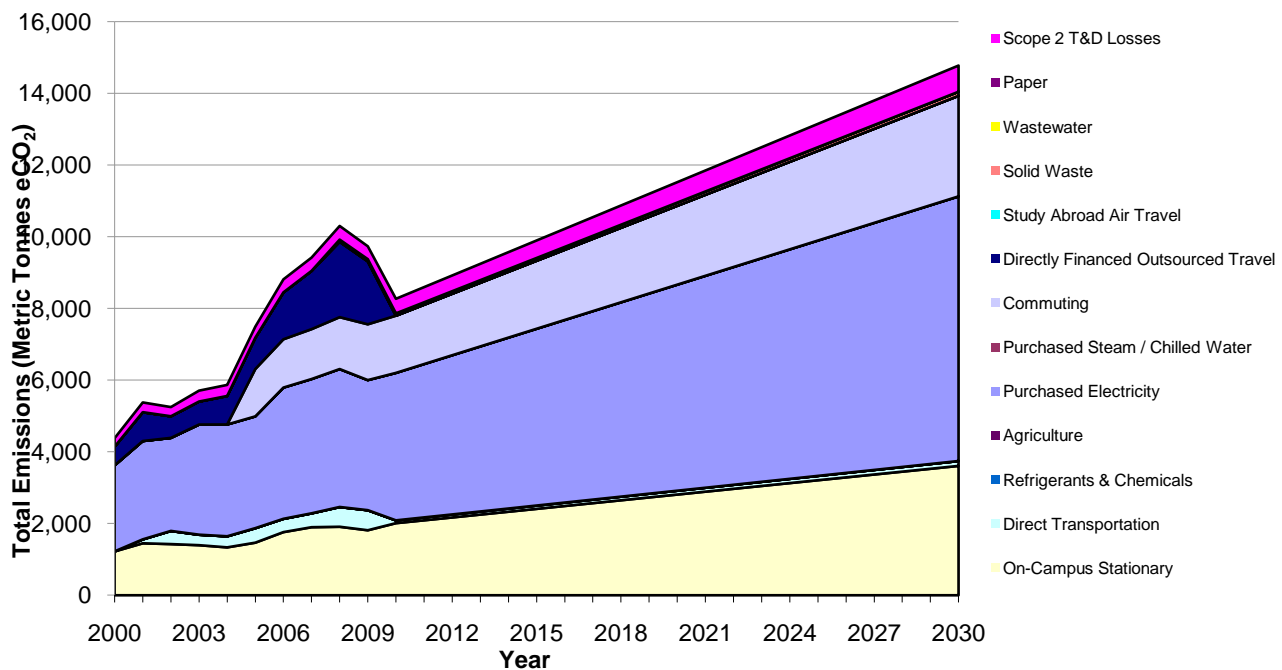




## Greenhouse Gas Emissions: Where We Are Headed

Assuming linear growth in building space and 3% growth in population annually, we can estimate future greenhouse gas emissions trends to 2030. Assuming a business as usual scenario, Westminster College will produce around **9,500 MTCDE in 2015** (slightly less than 2008 baseline due to a 6% decrease in 2009) and nearly **15,000 MTCDE in 2030**. It is important to note that these projections are simply best guesses based on historic trends in growth, and Westminster has experienced uncharacteristically rapid growth over the past decade.

**Westminster Gross GHG Emissions Projection (Business as Usual) by Source**



These projections also do not take into account any changes that local utilities may make in their fuel mix or efficiency. For example, if Utah power companies were mandated to produce at least 25% of their electricity from renewable sources by 2025, as is the case in Nevada, a substantial amount of Westminster's emissions would be eliminated. As state and federal legislation concerning carbon changes over the next many years, it may have large and unpredictable impacts on projected emissions. That does not mean the College can sit idly by and wait for state or federal legislation to save us, but this is partially why the Campus Sustainability Task Force has opted in this plan to focus on detailed strategies for reducing emissions in the near future. While the plan also establishes long-term emissions goals, it is the task force's intent that new plans will be drafted in five to ten year increments until carbon neutrality is achieved.

## Steps toward Achieving Carbon Neutrality

The Campus Sustainability Task Force has prepared a detailed five year plan for emissions reductions, including specific projects, building upgrades, and policy changes. While more general goals are listed all the way out to our target 2030 neutrality date, detailed project plans will still need to be developed at the end of the first five years.

The Campus Sustainability Task Force began the process of choosing strategies for achieving carbon neutrality with a list of more than one hundred potential mitigation approaches. The list included strategies from the following sources:

1. 1997 and 2007 campus environmental assessments
2. Utility company building audits
3. Open sustainability dialogues on campus
4. Student class projects
5. Ideas collected from students, faculty, and staff at events like Earth Day
6. Research on mitigation strategies that other institutions had included in their plans

The larger list was narrowed to a field of 25 potential strategies/projects based on feasibility, potential emissions reductions, cost and payback, and ability to enhance student learning and engagement. These 25 projects were subjected to more thorough study, including calculation of payback, net present value, internal rate of return, and cost per MTCDE avoided. They have been grouped into a set of five overall strategies for achieving carbon neutrality:

Strategy 1: Improve the efficiency of existing buildings on campus.

Strategy 2: Reduce the percentage of students, faculty, and staff commuting alone to campus.

Strategy 3: Increase the amount of campus electricity generated from renewable sources.

Strategy 4: Make low-carbon living and transportation part of campus culture.

Strategy 5: Institutionalize sustainability by incorporating it into the 2010 Master Plan.

### The First Five Years: 2010 – 2015

The following emissions mitigations actions can and should be completed during the next five years. The strategies and actions selected have good potential to reduce emissions, save money, institutionalize sustainability, and foster student learning.

All told, these steps are likely to reduce campus emissions by an estimated 10-15% compared to the business as usual projection. Because of a 6% decrease in emissions in 2009, business as usual projections predict roughly the same net GHG emissions in 2015 as in baseline year 2008. Therefore,

if campus continues to grow at the same rate it has for the past decade, the reduction measures in this plan should result in a real 10-15% reduction despite growth.

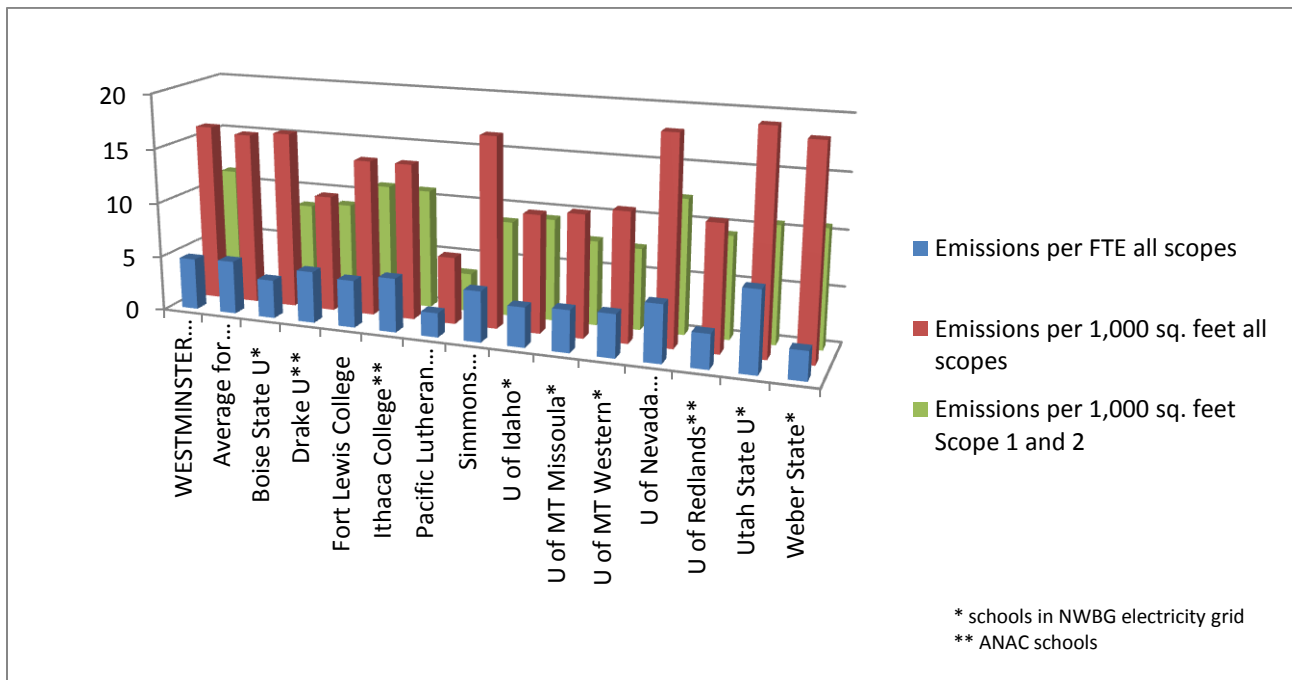
**Westminster College 2010-2015 GHG Emissions Reductions Strategies and Actions**

| STRATEGY/ACTION  | Annual Emissions |                    |
|--|------------------|--------------------|
|  | Avoided (MTCDE)  | % of 2008 Baseline |
| Strategy 1: Improve the efficiency of existing buildings on campus.                          |                  |                    |
| ACTION: Complete lighting and controls modifications in Giovale Library.                     | 70               | 0.7%               |
| ACTION: Replace old HVAC equipment with most efficient models possible.                      | unknown          |                    |
| ACTION: Reduce lighting in over lit areas.   | 83               | 0.9%               |
| ACTION: Start a Building Performance Audit and Readjustment Program.                         | 168              | 1.8%               |
| ACTION: Install computer Power Save software.  | 199              | 2.1%               |
| Strategy 2: Reduce the percentage of students, faculty, and staff commuting alone to campus. |                  |                    |
| ACTION: Implement parking fee to discourage single occupancy vehicle use                     | 156              | 1.6%               |
| Strategy 3: Increase the amount of campus electricity generated from renewable sources.      |                  |                    |
| ACTION: Create voluntary Wind Power My Room/Office campaign.                                 | 190              | 2.0%               |
| Strategy 4: Make low-carbon living and transportation part of campus culture.                |                  |                    |
| ACTION: Incorporate Sustainability in New Student and Faculty/Staff Orientations.            | unknown          |                    |
| ACTION: Launch annual Residence Hall Energy Challenge.                                       | 4                | 0.1%               |
| Strategy 5: Institutionalize sustainability by incorporating it into the 2010 Master Plan.   |                  |                    |
| ACTION: Incorporate sustainability goals and guidelines into 2010 Master Plan.               |                  |                    |
| <b>TOTAL</b>   | <b>870</b>       | <b>9.2%</b>        |

**STRATEGY 1: Improve the efficiency of existing buildings on campus.**

Energy use in campus buildings accounts for roughly 64% of total Westminster greenhouse gas emissions. The choices we make in how we build, operate, and upgrade these buildings have perhaps the largest implications for our future climate impact. For our baseline year (FY 2008), Westminster emitted 11.2 MTCDE per 1,000 square feet of building space. That is somewhat high compared to peer institutions and other campuses in Utah. That may mean there is significant room for improving the efficiency of our buildings, or it may be because the space is used more intensively (more students per square foot). Westminster’s emissions (4.7 MTCDE) per student FTE is in the high-middle range when compared to other institutions.

**Comparison of GHG Emissions per Full Time Equivalent and Square Feet (MTCDE)**



Improving the energy efficiency of existing buildings is a critical component of achieving climate neutrality, and steps to do so over the next five years make up a significant part of this plan. Campus Facilities has done an excellent job improving efficiency through lighting and systems upgrades over the past decade. Below are specific steps targeted for implementation between 2010 and 2015.

***ACTION: Complete lighting and controls modifications in Giovale Library.***

In 2009, as part of their FinAnswer program, Rocky Mountain Power evaluated three campus buildings for potential electricity saving upgrades. With over \$17,000 in utility rebates, less than a four year payback, a net present value of \$186,000, and a 26% internal rate of return, the projects identified in Giovale Library are a good investment and should be completed as soon as possible. They will reduce total GHG emissions by 0.9% (of 2008 baseline) and have significant benefits for occupant comfort. Some of these changes are included in the 5 year equipment replacement plan below.

***ACTION: Replace old, inefficient HVAC equipment with more efficient models.***

Campus Facilities has identified inefficient heating, ventilation, and air conditioning equipment across campus that is well past operational life expectancy. The replacement plan below outlines specific equipment that should be replaced with more efficient models when they break, if major remodels are underway to those buildings, or as funding is available. Replacing these outdated elements with new, high efficiency models will not only save electricity and natural gas, but it will also prevent interrupted service to buildings during the school year. The

Facilities Department is currently working with energy specialists to determine the exact energy savings of the proposed upgrades. Most or all upgrades will be eligible for utility incentives.

**Westminster HVAC Equipment Identified for Replacement**

| Priority   | Building    | Items to replace                      | Cost                | Service years left |
|------------|-------------|---------------------------------------|---------------------|--------------------|
| Priority 1 | Malouf      | Chiller                               | \$25,000.00         | -16                |
|            | Malouf      | 4 pumps, VFD fan (\$1700 each)        | \$6,800.00          | -16                |
|            | Malouf      | 35 VAV boxes (\$3500 each)            | \$122,500.00        | -21                |
|            | Carleson    | Boiler                                | \$35,000.00         | -28                |
|            | Carelson    | 2 Air handlers (\$20,000 each)        | \$40,000.00         | -23                |
|            |             |                                       | <b>\$229,300.00</b> |                    |
| Priority 2 | Jewett      | Roof top A/C unit                     | \$20,000.00         | -6                 |
|            | Jewett      | 4 pumps (\$1700 each)                 | \$6,800.00          | -1                 |
|            | Payne Gym   | 2 Air handlers (\$25,000 each)        | \$50,000.00         | -21                |
|            | Shaw Center | Air Handler                           | \$25,000.00         | -23                |
|            | Shaw Center | 5 pumps (\$1700 each)                 | \$8,500.00          | -23                |
|            | Giovale     | HVAC controls                         | \$70,000.00         |                    |
|            |             |                                       | <b>\$180,300.00</b> |                    |
| Priority 3 | Gore        | Roof top A/C unit (1 of 4)            | \$25,000.00         | -7                 |
|            | Nunemaker   | 2 condenser units (\$3500 each)       | \$7,000.00          | -15                |
|            | Bamberger   | 30 fan coil units (\$3500 each)       | \$105,000.00        | -25                |
|            | Bamberger   | 2 heat pumps (\$1700 each)            | \$3,400.00          | -25                |
|            |             |                                       | <b>\$140,400.00</b> |                    |
| Priority 4 | Hogle Hall  | 65 Window AC/heat units (\$1100 each) | \$71,500.00         | -1                 |
|            | Houses      | 5 furnace/AC units (\$3000 each)      | \$15,000.00         | double the life    |
|            |             |                                       | <b>\$86,500.00</b>  |                    |
| Priority 5 | Carleson    | 62 Window AC/heat units (\$1100 each) | \$68,200.00         | 3                  |
|            | Walker      | Roof top A/C unit for mail room       | \$18,000.00         | -20                |
|            | Bamberger   | Boiler burner                         | \$9,000.00          | -2                 |
|            |             |                                       | <b>\$95,200.00</b>  |                    |

***ACTION: Reduce lighting in over lit areas.***

A 2008 student study assessed the lighting levels in classrooms and common spaces across campus. The study found that 49% of spaces measured were over lit, and 33% of spaces were significantly over lit (more than 10 foot candles). The easiest and most cost effective solution for these spaces (most of which rely on T8 fluorescent overhead lamps) is to remove one or more lamps from some of the fixtures. Assuming the study’s findings are representative, 33% of the lighting on campus could be reduced by 20% or more. Lighting accounts for

approximately one third of total electricity use in commercial/institutional buildings. At Westminster, that equals just over three million kWh per year. Bringing lighting levels across campus into the 44-55 foot candle range could save an estimated 200,000 kWh, \$12,000, and 83 MTCDE annually with little to no upfront investment.

***ACTION: Start a Building Performance Audit and Readjustment Program.***

Many other campuses have had great success with basic building recommissioning. This process, in which an energy expert assesses the performance of building systems and readjusts them to optimize occupant comfort and efficiency, can result in significant emissions and cost reductions (5-30% of total building energy costs<sup>1</sup>). The CSTF recommends Westminster College recommission at least one building (not slated for renovation) per year and invest in any changes with less than a five year payback. The recommissioning of five existing buildings by 2015 (assuming approximately 100,000 square feet of building space at the campus scopes 1 and 2 average of 11.2 MTCDE/1,000 sq.ft ) and achieving a fifteen percent reduction would eliminate 168 MTCDE annually at the end of the five year period.

***ACTION: Install computer Power Save software.***

In the summer of 2008, Information Services and the Environmental Center completed a one month study of the potential savings associated with installing power saving software on campus computers. The study revealed high potential savings (particularly in computer classrooms where units are often not powered down overnight or on weekends) and less than a year payback on investment. The average savings per computer was \$3.05 or roughly 50 kWh per month. Assuming a steady savings throughout the year, the 800 or so computers on campus have the potential to save over \$29,000 in electricity each year. The upfront investment in the technology is \$6,000 with an additional \$1,000 per year to maintain the license. This option has a payback time of only a few months, and avoids 199 MTCDE of scope two emissions per year.

**STRATEGY 2: Reduce percentage of students, faculty, and staff commuting alone to campus.**

A 2006 survey completed by the Utah Transit Authority (UTA) showed a 77% drive alone rate among Westminster students, faculty, and staff. As part of the master planning process currently underway at the College, transportation consultants are evaluating ways to reduce the demand for parking on campus. The Campus Sustainability Task Force has recommended a goal of reducing the drive alone rate on campus by 25% by 2020. Part of this may be achieved by meeting the 2005 Strategic Plan goal of having 1,000 students living on or adjacent to campus by 2015. Currently, around 500 students live in campus housing. More students living close by will reduce commuter miles, as will the continuation

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<sup>1</sup> [http://www1.eere.energy.gov/femp/pdfs/OM\\_7.pdf](http://www1.eere.energy.gov/femp/pdfs/OM_7.pdf)

of the free transit pass, free bike program, improved bicycle and pedestrian access to campus, and the recent addition of a city car share program.

***ACTION: Implement parking fee to discourage single occupancy vehicle use.***

Currently, parking on the Westminster campus is free, and the main disincentive to single occupancy vehicle use is the limited availability of parking stalls during peak times. While the exact fee amount and structure will be determined as part of the master planning process, the CSTF recommends a fee of \$50/semester or \$100/year for all students, faculty, and staff. A study done by the University of Colorado at Boulder showed that parking demand decreases by one percent for every ten dollar increase in a parking fee. Thus, a \$100 increase should result in approximately ten percent reduction in parking demand.

*This would represent a nearly two percent reduction in overall campus GHG emissions.*

Moreover, the program has the potential to generate over \$200,000 per year in income and prevent the need for significant investment in additional parking spaces. It also has an estimated net present value of over \$3 million and a more than 300% internal rate of return. A portion of parking fees may also be reinvested into other emissions reductions measures through a revolving loan fund (see section on Financing).

**STRATEGY 3: Increase amount of electricity from renewable sources.**

Currently, approximately 10% of Westminster's total electricity consumption is generated from renewable sources. The vast majority of this (900,000 kWh per year) comes in the form of Renewable Energy Credits (RECs) through Rocky Mountain Power's Blue Sky program. A small amount of renewable energy is also generated on campus from the 8 kW photovoltaic system on top of the Dolores Dore Eccles Health Wellness and Athletic Center (roughly 13,000 kWh/year). In the spring of 2010, the new LEED certified Meldrum Science Center will come online with a 21 kW photovoltaic array, generating an expected 93,000 kWh/year. However, the potential to generate significant electricity from solar on campus is limited by both economics and tree cover. Instead, Westminster should consider catalyzing an increased amount of renewable power generation off campus by increasing the total amount of RECs purchased.

***ACTION: Create voluntary Wind Power My Room/Office campaign.***

Some universities have been successful at securing voluntary student, faculty, and staff contributions to purchase renewable energy credits (RECs). The proposed campaign will allow the campus community to voluntarily purchase RECs in an amount equivalent to the electricity consumption of their residence hall room or office. They will receive a sticker to place on their door to identify their participation in the program. If 200 people chose to spend \$20 toward renewable energy credits through the college's Blue Sky commitment annually (\$0.87 per 100

kWh block) an additional 460,000 kWh of Westminster's electricity would be generated by renewable sources and GHG emissions reduced by two percent. If Westminster would match individual contributions, the same number of participants could yield a 4% total reduction.

#### **STRATEGY 4: Make low-carbon living and transportation part of campus culture.**

Students, faculty, and staff from across campus have participated in making Westminster more sustainable. Economics students made the case for purchasing RECs through the local utility. Information Services consolidated and rebalanced server loads to cut energy use. The Copy/Print Shop switched to recycled paper. A Graphics Design class developed a "Lights Out" campaign. Students from various disciplines turned an unused back yard into a productive organic vegetable garden. The examples go on and on, from offices and departments across campus. There is no doubt that sustainability is already part of who we are as an institution; however, expanding our campus population's understanding of and sense of responsibility for emissions reductions can yield both savings and learning.

##### ***ACTION: Incorporate Sustainability in New Student and Faculty/Staff Orientations.***

New students and employees currently receive information on Westminster's free transit pass and bike program, but more comprehensive information linking these to the College's overarching sustainability goals is needed. The Westminster College Environmental Center will work with the START Center and Human Resources to develop simple, appropriate materials and training programs to be delivered at new student orientations, as well as to new employees. This will help establish a strong culture of sustainability on campus and increase use of emissions reducing programs like the free transit pass and bike program.

##### ***ACTION: Launch annual Residence Hall Energy Challenge.***

Many campuses have found success in reducing emissions from energy consumption through friendly competitions between student residence halls. In March 2010, Westminster will launch its first such challenge in all five of the on-campus residence halls. Electricity use in these five buildings accounts for an estimated 15 to 20 percent of total campus scope two emissions. In the three newer residence halls, a Rocky Mountain Power FinAnswer audit revealed little potential for cost-effective energy upgrades, meaning the best chance for reducing energy use in those buildings will be with occupant behavior changes.

A survey of similar campus competitions showed energy savings of around 10% percent during challenges. Applied to the Westminster challenge, a 10% reduction in use for only *one month* in all five residence halls would save 10,000 kWh, \$600, and 4 MTCDE. The main motivation for the challenge is to establish energy saving as a norm for residential students, and the hope is



that behaviors adopted during the challenge continue through the student's time at Westminster. As a peer-to-peer program, the potential for student learning is significant.

**STRATEGY 5: Institutionalize sustainability by incorporating it into the 2010 Master Plan.**

The master planning process for 2010-2015 is underway as this climate plan is being completed. Sustainability is one of the main goals of the master plan, and the CSTF has proposed the following for incorporation into that plan.

***ACTION: Incorporate the following sustainability goals and guidelines into 2010 master plan.***

**GOAL: Westminster College will be a sustainability leader in our community, integrating sustainable learning throughout the Westminster experience and into all facets of campus life. Behavioral changes, student learning, and operational actions will all prioritize sustainability in order to graduate students that are well-prepared to understand and act in a dynamic, green, and global society.**

Steps toward achieving goal:

- Complete and adopt a Campus Climate Plan in accordance with the American College and University Presidents' Climate Commitment.
- Offer opportunities for student engagement and career development in sustainability.
- Support inclusion of sustainability in curriculum from multiple disciplines.
- Use campus buildings and landscape as tools for student learning.
- Establish a revolving loan fund to finance efficiency upgrades, building assessment, and behavioral programs.
- Complete remaining water wise landscape conversion outlined in 2005 Landscape Master Plan.
- Create sustainable purchasing policy.

**GOAL: Improve the resource efficiency of existing campus buildings.**

Steps toward achieving goal:

- Include assessment for potential efficiency upgrades and utility rebates in all renovation activities.
- Assess potential for efficiency improvements in at least one building per year that is NOT slated for major renovation.
- Achieve Gold LEED-NB certification for renovations that exceed 50% of original building.
- Use the most water and energy efficient technologies feasible in all renovations.
- Include recycling bins on each floor of renovated buildings.
- Describe sustainable features wherever possible in renovated buildings.

**GOAL: New construction projects on the core and extended campus will demonstrate leading sustainable design.**

Steps toward achieving goal:

- All new construction will be LEED Gold certified.
- All standards for existing building renovation above apply to new construction as well.
- New buildings will include monitoring and display elements required to use the building as a teaching tool.

**GOAL: Consider the environmental, social, and economic factors of all major college purchasing and operations.**

Steps toward achieving goal:

- Establish campus purchasing policy which includes efficiency standards for appliances and electronics and supports STARS 1.0.
- Require food service and custodial providers to help achieve campus sustainability goals.
- Reduce total solid waste sent to landfill.
- Use campus operations as a learning tool for students.

**GOAL: Reduce campus drive alone rate by twenty five percent by 2020.**

Steps toward achieving goal:

- Increase student housing on and near campus.
- Continue to offer a free or discounted access to transit.
- Provide adequate bicycle parking and infrastructure.
- Continue Westminster Wheels free bike program.
- Provide incentives for using low carbon commuting options and/or disincentives for single occupancy vehicle commuting.

**GOAL: Achieve widespread student, faculty, staff, and community awareness of the college's sustainability efforts and ways for them to be involved in creating a more sustainable Westminster.**

Steps toward achieving goal:

- Provide students with many and various curricular and co-curricular opportunities to develop knowledge and skills around sustainability.
- Ensure campus sustainability goals represent efforts from across the campus community.
- Maintain a campus Environmental Center to catalyze campus sustainability efforts and student involvement.
- Make the Sustainability Task Force a permanent campus committee, with representation from students, faculty, and staff.
- Provide space and support for the Organic Garden Program on or adjacent to campus.

- Aid ASWC and Environmental Center in hosting events where the student body can participate in sustainable actions.
- Work with community partners to achieve campus and community sustainability goals.
- Include sustainability in new student, faculty, and staff orientations.
- Always give students opportunities to participate in campus sustainability decisions and planning.

### **Long Term Vision: 2015-2030**

By meeting the goals to reduce emissions by 3% annually and 10-15% by 2015, Westminster would be on track to reduce emissions by 30% by 2020. However, that leaves a remaining 70% to be addressed between 2020 and 2030. At that point, if not before, Westminster will need to begin to secure offsets. The College will not be able to reduce emissions to zero, and will have to look at offset options at some point. The task force has not yet recommended significant investments in offsets because of the uncertainty of future carbon markets and the number of emissions reductions measures still in need of funding on campus. However, the reductions strategies remaining after 2020 will likely be the most expensive and difficult to implement, and offsets may be a more cost effective option at that time.

### **Financing Climate Neutrality**

Identifying ways to pay for emissions reductions measures or offsets is challenging. Indeed, a survey of climate plans submitted to ACUPCC reveals that many plans offer little or no information in this area. However, progress toward climate neutrality is not possible without a financial commitment from the signatory institution. *Westminster will not be able to make significant progress on its climate commitment without designated funding from the College.*

Below is a list of possible funding strategies to be used where appropriate and in combination to finance the reductions steps outlined in this plan. The task force feels that the most promising funding mechanism is the investment of parking fee revenue into a revolving loan fund.

1. Parking Fee Revenue
2. Revolving Loan Fund
3. Building Endowments
4. Utility Incentives and Rebates
5. Grants and Donations
6. Voluntary Student Contributions or Fees
7. Institutional Operating Budget

## Parking Fee Revenue

Few institutions still allow everyone to park for free on campus. Westminster is rare in this regard. Charging for parking will not only discourage driving to campus, relieve parking pressure, and send a positive message about Westminster's commitment to sustainability, but it will also generate a significant amount of revenue each year. If only 50% of our projected 2015 population pays \$100 per year to park, it will still generate \$184,000 per year. While a portion of these funds will need to be used for increased enforcement and infrastructure, a portion could be used to fund free transit passes and other emissions reductions projects.

***ACTION: Start mandatory parking fee and evaluate capacity to use the revenue to fund sustainability improvements.***

## Revolving Loan Fund

Many efficiency upgrades have associated financial savings, particularly when coupled with utility rebates or other incentives. The CSTF recommends establishing a revolving loan fund to capture these energy savings and translate those dollars into a funding source for additional efficiency projects. For example, \$10,000 invested from the revolving loan fund over five years toward the proposed computer power saving software will generate over \$25,000 per year or \$125,000 total in energy savings. These savings would then be reinvested into other energy and money saving projects on campus or used to fund renewable energy development or offsets.

The best potential revenue source to start a revolving loan fund is a mandatory parking fee. Even if a \$100 parking fee reduces demand by 10% in 2011, the fee will still generate over \$250,000 that year. Beyond the costs associated with implementing and maintaining a parking fee (stickers, additional patrol, and infrastructure), revenue should be invested in the revolving loan fund. This allows funds to be leveraged, creating carbon and money savings on campus and yielding a return. This is the best potential funding strategy for reaching carbon neutrality.

***ACTION: Assess feasibility of a revolving loan fund for campus sustainability projects.***

## Building Endowments

Some buildings on Westminster's campus have their own endowments for ongoing building maintenance. These funds can be used to help replace equipment or do recommissioning. Moreover, it is a good way to leverage those funds, generating savings for the college.

***ACTION: Use building endowments, where applicable, to improve building efficiency.***

## Utility Incentives and Rebate Programs

Both Rocky Mountain Power and Questar Gas offer an assortment of financial incentives for energy saving projects. Rocky Mountain Power, as part of their FinAnswer program, has already audited three campus buildings and identified electricity rebates totaling over \$14,000. Self-directed campus projects may also qualify for rebates and surcharge waivers. Westminster currently pays a 4% surcharge on electricity totaling around \$24,000 per year. Rocky Mountain Power will void that charge in exchange for the College making electricity saving upgrades on campus. Questar Gas offers rebates for efficient equipment as well.

***ACTION: Identify and apply for Rocky Mountain Power and Questar rebates for eligible projects that have already been completed. Place the rebate money in revolving loan fund.***

***ACTION: Identify and implement one or more self-directed projects in order to avoid 4% surcharge on electricity bill.***

***ACTION: Identify and apply for all Rocky Mountain Power and Questar incentives for new construction and renovation.***

## Grants and Donations

Westminster has had some success in securing funding from government entities, corporations, and private donors to support projects advancing our climate neutrality goal. Grants and donations have been used to install solar panels, launch the free bike program, monitor residence hall electricity use, plant the organic vegetable garden, and pay for additional costs associated with the LEED Gold features of the new science building. As part of our Environmental Initiatives Fund Campaign, the Environmental Center, Institutional Advancement, and Board of Trustees will continue to work toward the goal of raising \$100,000 in support of our ACUPCC efforts.

***ACTION: Continue to seek grants and donations in support of ACUPCC efforts.***

## Voluntary Student Contributions or Fees

Students on several campuses have voted to voluntarily increase student fees in order to fund sustainability initiatives. Often called “green fees,” these funds can be used as revolving loan funds or simply as a direct funding source for campus projects. Students may also choose to make the senior class gift something that supports climate neutrality efforts. They may even choose to voluntarily pay a little extra to make sure the electricity used in their residence hall room comes from renewable sources, as the in the proposed Wind Power My Room campaign. While none of these funding

mechanisms are currently in place at Westminster, all of them have been or are being talked about among students and student government.

***ACTION: Student leaders and ASWC work together to identify what voluntary student contribution programs are appropriate for Westminster.***

**Institutional Operating Budget**

Some projects that reduce campus emissions should simply be paid for from the college’s operating budget. These may be projects the campus would do regardless (like replacing a broken chiller with a more efficient model), projects that are directly linked to the educational mission of the college (i.e. happen as part of a class), projects that represent a good fiscal investment for the college, or projects that the college wants to do but have no other source of funding. Some of the behavioral projects can be completed using existing Environmental Center funding (a combination of external funding and operating budget).

**Summary of Funding Mechanisms for Climate Plan Actions**

| <b>ACTION</b>  | <b>POTENTIAL FUNDING SOURCES</b>   |
|--|--|
| Complete lighting and controls modifications in Giovale Library          | Utility rebates, revolving loan fund, building endowment, operating budget |
| Replace old HVAC equipment with more efficient models                    | Utility rebates, revolving loan fund, building endowment, operating budget |
| De-lamp overhead fixtures in over lit areas                              | No cost  |
| Start a Building System Performance Audit and Readjustment Program       | Utility rebates, revolving loan fund, building endowment, operating budget |
| Install computer Power Save software                                     | Revolving loan fund, operating budget, grants and donors                   |
| Implement campus parking fee to discourage single occupancy vehicle use  | Parking fee  |
| Create voluntary Wind Power My Room/Office campaign                      | Student contributions  |
| Incorporate Sustainability in New Student and Faculty/Staff Orientations | Environmental Center budget  |
| Launch annual Residence Hall Energy Challenge                            | Grants and donations (Already funded)                                      |
| Incorporate sustainability goals and guidelines into 2010 Master Plan    | No cost.   |

## **Sustainability in the Curriculum and Co-Curriculum**

One of the five college-wide learning goals is to ensure all Westminster graduates demonstrate “Global consciousness, social responsibility, and ethical awareness.” Understanding sustainability is essential to students’ achieving this goal.

Westminster College offers an interdisciplinary major and minor in Environmental Studies. Students choose to focus in the sciences, social sciences, or humanities and take courses in each regardless of specialization. Since it began in 2006, the Environmental Studies major has grown exponentially. Environmental Studies students receive the most in-depth and multi-faceted coursework in sustainability, but many departments include sustainability in some way.

During the next two years, the Campus Sustainability Task Force will create an inventory of courses focusing on sustainability and/or including it in some part of their curriculum. The goal is to increase the number of courses including sustainability over the next five years. This will be achieved through faculty leadership and support of the Environmental Center.

Co-curricular endeavors like student clubs, the campus Environmental Center, lectures, and events focusing on sustainability are already part of campus life. With dozens of things already happening on campus, the goal for the next five years is to increase participation in existing offerings rather than creating new programs. The ultimate goal is to reach all students through some form of sustainability programming and to provide more student leadership opportunities around sustainability. Many of the actions proposed in this plan will help meet that goal: the residence hall challenge, inclusion of sustainability in student orientation, wind power my room campaign, educational building displays, and even a parking fee if it is designed appropriately. Moreover, with the cooperation of Facilities and the Environmental Center, building efficiency projects and financing options can also be used as student learning tools.

## **Tracking Progress**

The Westminster College Environmental Center and CSTF will continue to produce annual GHG emissions inventories. These are and will continue to be critical in determining how the college is doing overall on emissions goals. In addition, the CSTF will produce a brief document updating progress toward carbon neutrality every other year. The update should include the following:

- Total gross and net greenhouse gas emissions
- Emissions per built square foot

- Emissions per capita and per student
- Progress on actions outlined in this plan
- Total dollars raised and/or invested in emissions reductions projects
- New curricular and co-curricular offerings related to climate neutrality
- Recommended modifications to this plan

## **Conclusion**

Westminster College took a bold and important step in signing the ACUPCC. With that commitment, comes both challenges and great potential to become a leader in our community. The decisions the College makes about how to move forward on climate neutrality will impact our students, our community, and ultimately our planet. This plan has identified realistic steps toward reducing the College's emissions over the next five years and financing this progress, as well as ways to enhance student learning about sustainability. By adopting this plan, Westminster College takes the next critical step in addressing the challenge of climate change.