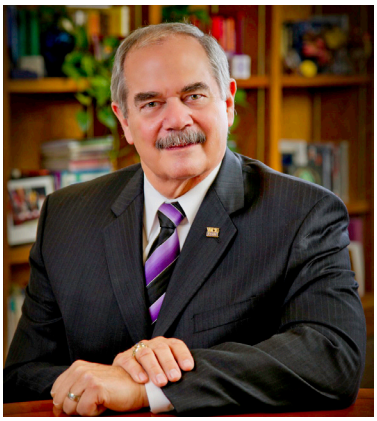
West Chester University

CLIMATE ACTION PLAN
CARBON NEUTRAL BY 2025



ON BEHALF OF WEST CHESTER UNIVERSITY OF PENNSYLVANIA, I am pleased to present our Climate Action Plan. Three years ago, West Chester became a signatory of the American College & University Presidents' Climate Commitment (ACUPCC), joining almost 700 other institutions that are exercising leadership by integrating sustainable practices into their campuses, modeling ways to minimize global warming emissions, and providing the knowledge to achieve climate neutrality.

Although West Chester University is new to ACUPCC, the university's commitment to sustainability is longstanding. In 2001, the university's first geothermal systems were installed in South Campus residence halls. Since 2005, the university has reduced air-pollutant emissions from its heating plant by more than a third, and overall energy consumption has dropped by more than a fifth. Today, West Chester University continues to move forward with one of the nation's most ambitious energy-conversion projects, with the goal of closing our coal-burning steam-generation plant by 2015.

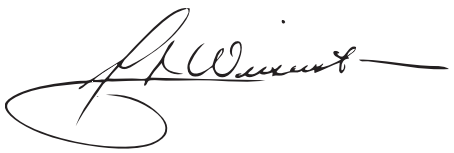
Other sustainability initiatives on our campus include rain gardens, a schoolyard habitat demonstration garden, and an outdoor classroom and demonstration garden. New facilities are designed to meet LEED standards. Earlier this year, the university was designated as a Tree Campus USA, one of only nine Pennsylvania institutions to be so recognized. 2013 also marks the 40th anniversary of the Robert P. Gordon Natural Area for Environmental Studies, a 100-acre preserve dedicated to education, outreach, research, and monitoring.

In the three years since West Chester University became a signatory of the ACUPCC, we have completed an inventory of greenhouse gas emissions (GHG) and a submission for STARS (Sustainability Tracking Assessment and Rating System). We also have included sustainability as a major theme in the university's new strategic plan.

We have much to be proud of, but we recognize there is still much do. I invite you to read our Climate Action Plan and learn about the short- and long-term strategies West Chester University has adopted with the goal of becoming carbon neutral by 2025. The plan establishes our institutional efforts in six key areas, including energy and buildings; transportation; purchasing; solid waste and recycling; dining services; and curriculum, research and public engagement. I believe it is important to note that this Climate Action Plan makes sustainability and climate change part of the educational experience of all of our students.

Much challenging work remains, but West Chester University is pleased to join other institutions of higher education in our shared responsibility to achieve climate neutrality.

Sincerely,



Dr. Greg Weisenstein
President, West Chester University of Pennsylvania

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INTRODUCTION

WEST CHESTER UNIVERSITY PRESIDENT GREG WEISENSTEIN signed the American College and University Presidents' Climate Commitment (ACUPCC) in October 2010, pledging the University to a series of actions that will ultimately reduce net greenhouse gas emissions to zero. In doing so we joined more than 600 institutions in expressing our deep concern about global warming. More importantly, we accepted the challenge to provide leadership in our own community by "modeling ways to minimize global warming emissions, and by providing the knowledge and the educated graduates to achieve climate neutrality." Since 2010 we have completed an inventory of greenhouse gas emissions (GHG), completed a submission for STARS (Sustainability Tracking Assessment and Rating System) and will be including Sustainability as a major theme in the University's next strategic plan.

In March 2011, the President approved the formation of University-wide committee to "guide the development and implementation of the comprehensive plan" required by the ACUPCC, and the Climate Action Planning Team (CAPT) was instituted in September 2011 to develop the University's Climate Action Plan (CAP) (**Appendix A:** CAPT membership). What follows is the Plan West Chester University has developed for becoming climate neutral, including efforts to make sustainability and climate change part of the educational experience of all WCU students. Much challenging work remains, but West Chester University is proud to join institutions of higher education in this important work.

GREENHOUSE GAS INVENTORY (GHG)

Prepared by Dr. Tim Lutz

INTRODUCTION

The ACUPCC requires that an initial GHG emissions inventory be prepared to guide the development of a CAP and that inventories are subsequently submitted every two years so that they can be used to assess progress toward the net-zero GHG emissions goal and to revise the CAP. A GHG inventory estimates the quantities of GHG emitted from different sources such as fuels (e.g., coal, natural gas, fuel oil, gasoline). It gives insight into the types of technology and behaviors that lead to emissions, and is a basis for prioritizing technological and behavioral changes that will reduce emissions.

Because creating change is critical for reducing emissions, the results of the GHG inventory are organized hierarchically based on the degree of control (and responsibility) the University has to influence emissions.

- **Scope 1** emissions result from operations directly under the University's management and control. For example, at WCU coal is burned in the steam plant; and gasoline and natural gas are consumed by the University's vehicle fleet.
- **Scope 2** emissions are directly linked to University operations but the sources are not directly owned or controlled by the University. For example, consumption of electricity at WCU results in GHG emissions at coal-burning power plants.
- **Scope 3** emissions are from sources that are not operated or controlled by the University but which we pay for, influence or provide encouragement. For example, emissions from commercial air flights taken by WCU faculty and administrators on University business, emissions from employees and students commuting to WCU, and emissions from landfills that accept WCU's solid waste are in Scope 3.

The organizational boundaries for the University's inventory were selected to maximize its educational and motivational value. Several on-campus residences occupied by University students are owned and managed by the West Chester University Foundation, which is an entirely separate entity. However, these residences are leased by the University and they purchase geothermal heating and cooling from the University's system. Technically, emissions should be partitioned between the University and the Foundation in some way, which would mean that students in University-owned buildings and those in University-leased buildings would have different per capita emissions and different potentials for reducing emissions via conservation or other remedial approaches. To keep all students on the same playing field, emissions from all residences are assigned to the University's inventory, regardless of ownership.

The University's Sustainability Coordinator initiated data collection from University offices and staff with the assistance of a paid student intern during the 2010-2011 academic year. A list of University personnel who provided data are in Appendix B. Although constructing an inventory for FY 2010 was the main objective, historical data were gathered if feasible. The Clean Air-Cool Planet (CA-CP) Campus Carbon Calculator (version 6.6) was used to determine GHG emissions.

This report:
1. Presents the results of the FY 2010 inventory by scope, including normalized values so that WCU's emissions can be compared to other institutions.
2. Translates the institution's footprint to a personal level and develops visualizations of GHG quantities to facilitate CAPT's goal of "making sustainability and knowledge about climate change part of the educational experience."
3. Displays historical trends for selected emissions categories to provide a context for our on-going activities that are reducing emissions.
4. Identifies results that can help give direction to WCU's CAP in planning future reductions.

THE FY 2010 INVENTORY

Most GHG emissions are carbon dioxide (CO2) but smaller amounts of methane (CH4) and nitrous oxide (N2O) are also involved. The CA-CP calculator expresses the net capacity of these gases to affect climate in terms of the metric tons of CO2 that would have the same effect as the mixture of all the gases. This equivalent amount of CO2 is abbreviated eCO2.

In FY 2010 emissions in Scopes 1, 2, and 3 were all significant GHG sources at WCU (Figure 1).

FY 2010
WCU GHG emissions (eCO_2 basis)

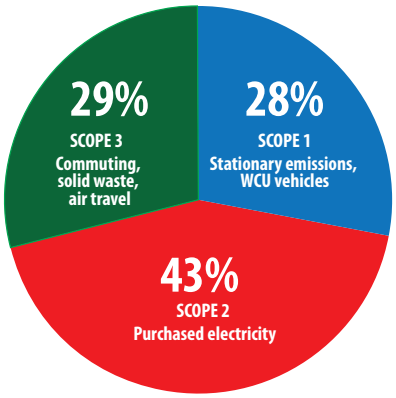


Figure 1. Scope 1, 2 and 3 emissions

Scope 1 emissions – those directly controlled by WCU – result from fuels used for vehicles and to provide heat for space and water. Within Scope 1, coal burned in the steam plant accounts for almost 2/3 of emissions (Figure 2). In contrast, emissions from University vehicles consuming gasoline, compressed natural gas (CNG), and B20 fuel (20% biodiesel; 80% petroleum-derived diesel) make up only 3% of Scope 1 emissions.

FY 2010
WCU Scope 1 emissions

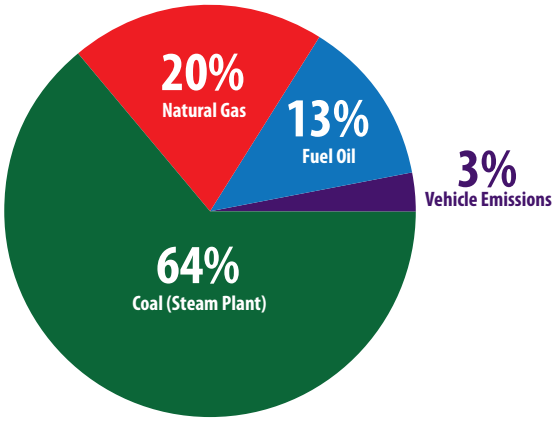


Figure 2. Distribution of GHC emissions within Scope 1

In physical units, WCU consumed:
- 4318 tons of coal;
- 166,000 gallons of fuel oil;
- 47,255,000 cubic feet of natural gas;
- 31,000 gallons of gasoline;
- 7500 gallons of B20 fuel; and
- 9400 gasoline gallon equivalents of CNG.

Scope 2 emissions at WCU resulted entirely from purchased electricity, which was used to provide lighting, energy for equipment and appliances, and to run the geothermal heating and cooling system. Electrical consumption was 38,980,000 kWh in FY 2010.

Scope 3 emissions – those over which the University has the least direct control – are dominated by faculty/ staff and student commuting (65% and 25%, respectively). All commuters traveled an estimated 29,000,000 car miles. Landfill emissions from solid waste are only 2% of Scope 3 (Figure 3.)

Surveys indicate that student commuters annually travel 21,000,000 miles by car, and employees travel 8,000,000 miles by car and 270,000 miles by bus. The University generated 1603 tons of solid waste.

Emissions from air travel are based on an analysis of University-funded trips taken during FY 2011 that indicated 1,145,075 air miles traveled.

Scope 3 emissions are sometimes considered to include the effects of energy lost during electric transmission and distribution (T&D losses) but they are not required for ACUPCC reporting purposes. If T&D losses were included they would increase Scope 3 emissions by about 14%.

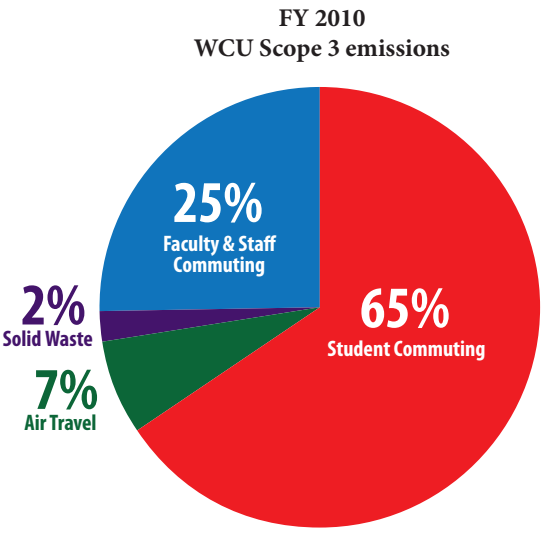


Figure 3. Distribution of GHC emissions within Scope 3

OFFSETS AND NET EMISSIONS

In addition to emissions, the University received renewable energy credits (RECs) that offset emissions. RECs are certificates that quantify investment in renewable energy in terms of the amounts of reduction in GHG emissions associated with the renewable energy investment. For FY 2010, RECs were purchased by Pennsylvania's Department of General Services and distributed to state agencies, including the State System of Higher Education. WCU's share of RECs amounted to 23% of our electricity consumption (about 8,836,000 kWh), equivalent to a reduction of 4591 metric tons (MT) eCO2.

WCU's FY 2010 emissions in all scopes before offsets was 46,827 MT eCO2. Offsets amounted to about 10% of this value and resulted in net emissions of 42,236 MT eCO2.

PUTTING GHG QUANTITIES INTO PERSPECTIVE

Because GHG emissions are formally calculated on the basis of the mass of CO2, an invisible gas, they do not correspond to any quantity we ordinarily experience. Furthermore, 42,236 MT of anything is a mass outside the understanding of most people. To put emissions into perspective they can be:

- Converted into representative materials which we can more easily visualize and understand;
- Considered over a shorter time frame, such as days, weeks, or semesters;
- Normalized on the basis of the number of students and area of building space.
- Re-expressed in terms of the activities that lead to GHG emissions.

To visibly re-express CO2 West Chester Borough's GHG emissions reduction committee (Borough Leaders United for Emissions Reduction, BLUER), used charcoal briquettes. Each standard briquette contains roughly 30 grams (g) or about 1 ounce of carbon. Burning the briquette would release about 110 g (or about ¼ pound) of CO2. A 9-lb bag of briquettes contains about 6¾ pounds of carbon, the equivalent of 25 pounds of CO2. Ninety bags of charcoal represent one metric ton of CO2.

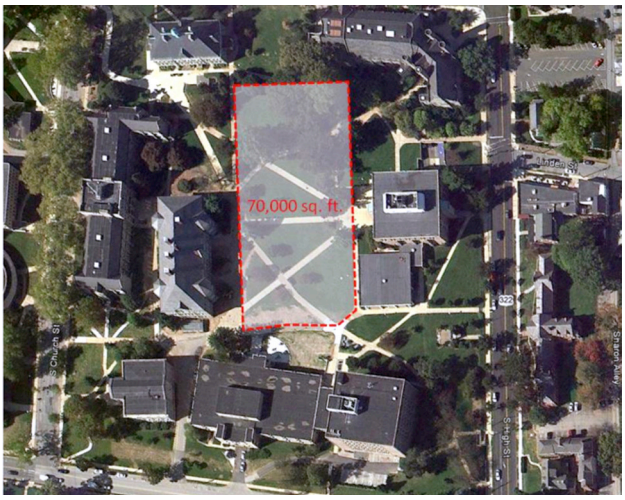


Figure 4. Reference area for visualizing annual GHG emissions. 70,000 square feet (WCU Academic Quad)

The carbon in WCU's FY 2010 annual emissions of 42,236 MT CO2 is equivalent to over 3.76 million bags of briquettes. If the bags, each 18 inches tall, 8 inches wide, and 6 inches thick, were placed on the ground in a laye,r they would cover over 86 acres. In a 70,000 square foot area within the academic quad (Figure 4), they would form a pile 400 feet long, 175 feet wide, and 26 feet high. Equivalently, there would be more than enough bags to cover all of the 3 million square feet of occupied building space in the University.

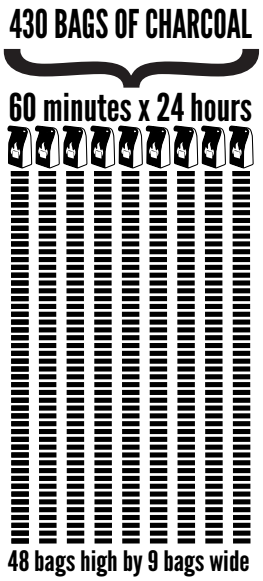


Figure 5. Wall of charcoal briquette bags representing about one hour of WCU GHG emissions

Each hour of every day throughout the year, West Chester University's emissions averaged 430 bags of charcoal. This is roughly equivalent to a "wall" of bags of briquettes 48 bags wide and 9 bags high (Figure 5).

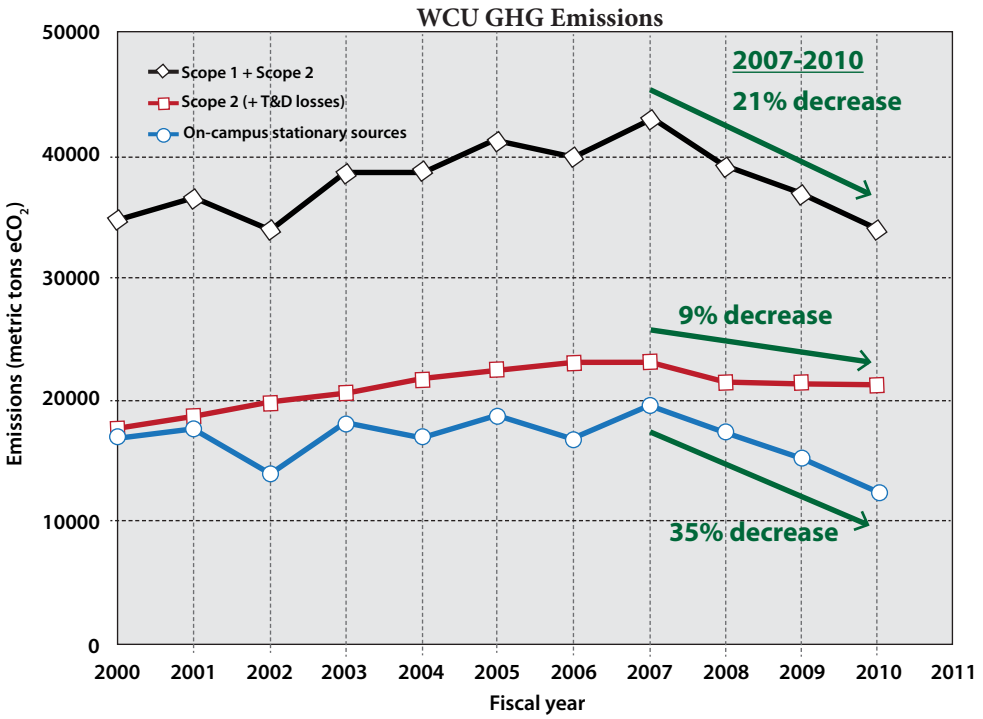


Figure 6. Majority of Scope 1 and Scope 2 emissions over time.

Based on a student population of 14,211 FTE, annual emissions were 3.0 MT eCO2 per student in FY 2010, or about 5 bags of charcoal briquettes per student per week.

Emissions can also be framed in terms of standardized emissions sources. For example, a vehicle with a fuel efficiency of 25 miles per gallon traveling 325,000 miles – 13 times around the Earth's equator – would consume 13,000 gallons of gasoline and release 116 MT or 255,000 pounds eCO2 (Each gallon releases about 19.4 pounds of CO2 when consumed). The University emits this much CO2 in one day. Similarly, the average household in the U.S. consumes about 30 kilowatt hours of electricity each day. In southeastern Pennsylvania, generating each kilowatt hour results in 1.1 pounds of CO2 emission, which means the University's emissions are equivalent to those from 7700 homes.

EMISSIONS TRENDS

Most emissions in Scope 1 and Scope 2 can be estimated from data sets that span several years, and about 70% of the University's total emissions can be tracked over time. These data show that emissions have been declining since FY 2007 (Figure 6), with a particularly strong decrease in on-campus stationary sources (coal, fuel oil, natural gas).

Examining the stationary sources over time (Figure 7) shows that the predominant cause of the decline in CO2 emissions over time was reduced use of coal. In 2002 and 2003, increased use of natural gas and fuel oil likely accounted for decreased coal consumption. However, from 2007 on, coal use declined as fuel oil and natural gas consumption remained nearly steady.

Declining use of coal during this time period is consistent with the effect of coal-generated steam heat being replaced by geothermal heating and cooling.

Decreased GHG emissions since 2007 (Figure 6) are especially noteworthy since the University grew during that time, as measured by both student population and building area.

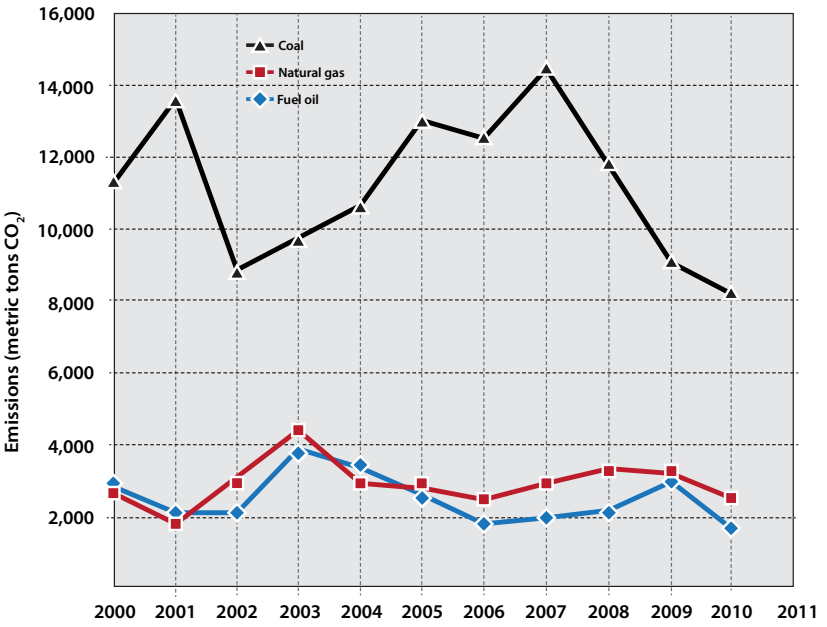


Figure 7. Fuels consumed by stationary sources over time

Student FTEs increased by 10% from FY 2007 to FY 2010; but because of a 29% decrease in Scope 1 and Scope 2 emissions per capita (Figure 8), net emissions decreased. The occupied square-footage of buildings increased by 16% from FY 2007 to FY 2010; but because of 32% decrease in Scope 1 and Scope 2 emissions per square foot (Figure 9), net emissions decreased.

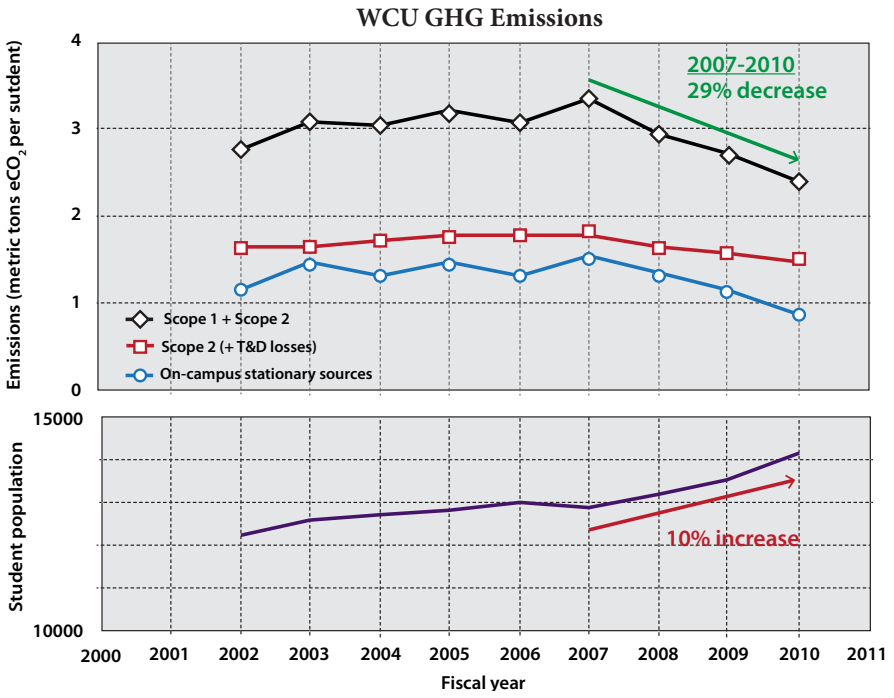


Figure 8. Emissions on a per capita basis over time

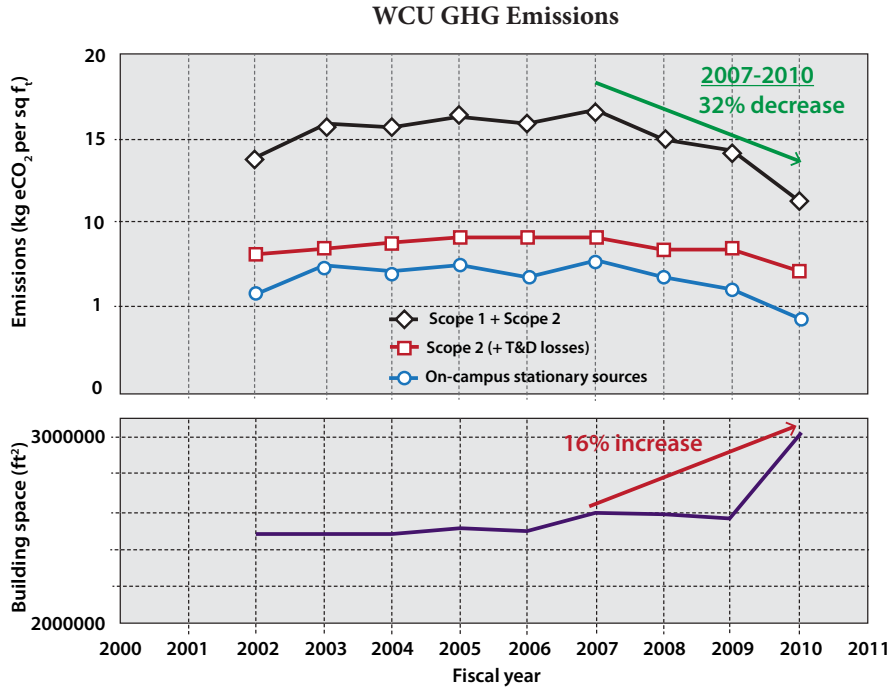
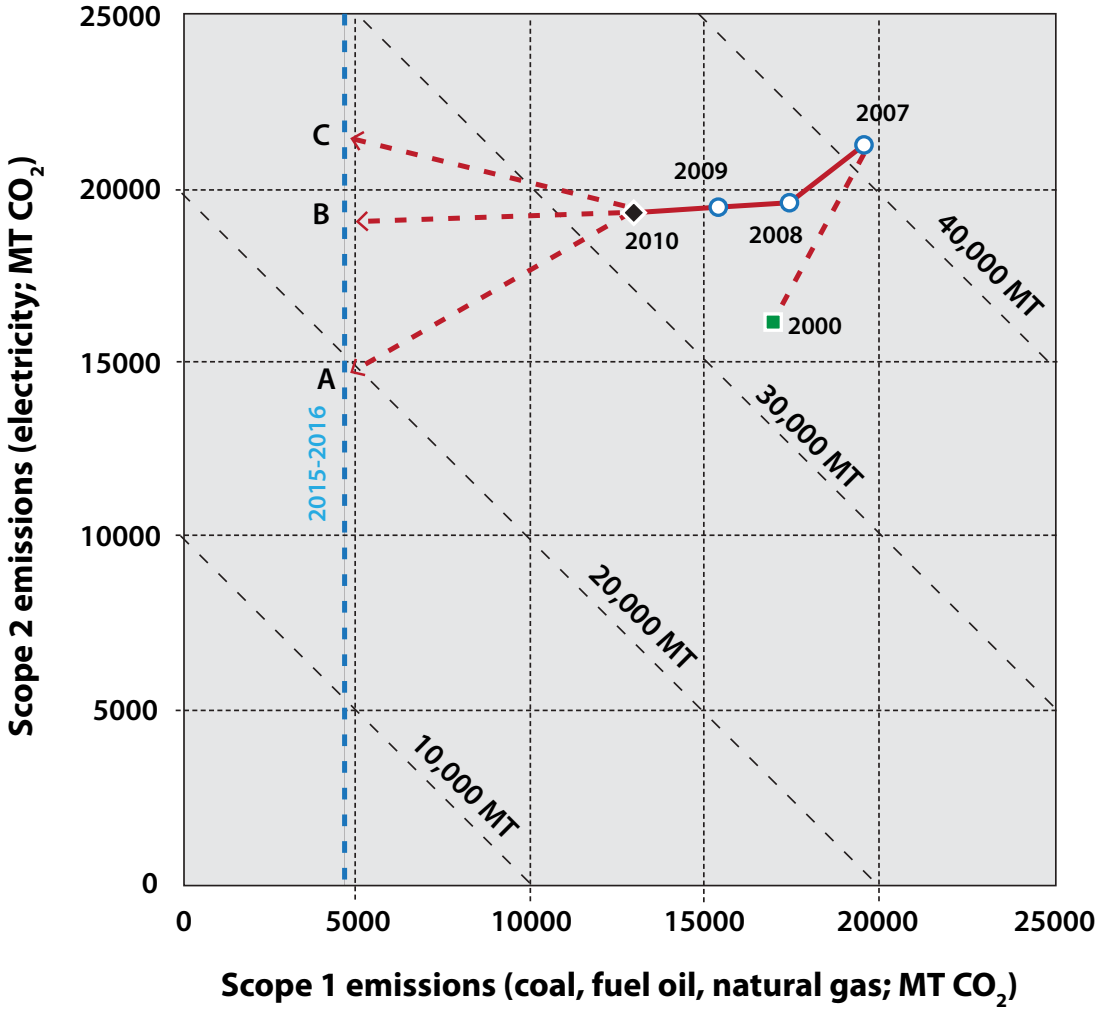


Figure 9. Emissions on a per square foot basis over time

IMPLICATIONS OF TRENDS FOR FUTURE REDUCTIONS AND OFFSETS

How much will WCU have to depend on offsetting measures? This map of past and present Scope 1 and Scope 2 emissions shows three scenarios for approximately 2015-2016 (coal burning ends at the boiler plant). The best case – aggressively reducing electricity emissions by 20-25% (arrow A) – will leave total emissions near 20,000 metric tons. Unless further reductions in fuel or electricity are possible, offsets for about 20,000 metric tons will be needed to reach carbon neutrality.



X-axis: Scope 1— Fuels used on campus; metric tons (MT) of CO2
Y-axis: Scope 2— Electricity used on campus; metric tons (MT) of CO2
Diagonal dashed lines: Lines of equal emissions in metric tons (MT) of CO2
Square symbol (2000): WCU's emissions in FY 2000
Dark red line with symbols: WCU's emissions from 2007 (peak emissions) to 2010
Vertical dash-dot blue line: Estimated Scope 1 emissions after coal burning ceases (2015-2016)
Red dashed arrows: Emissions by 2016 with

- **A** – Aggressive reduction in emissions from electricity;
- **B** – Slow reduction in emissions from electricity (following existing trend)
- **C** – Slow increase in emissions from electricity forced by more students

GHG SUMMARY

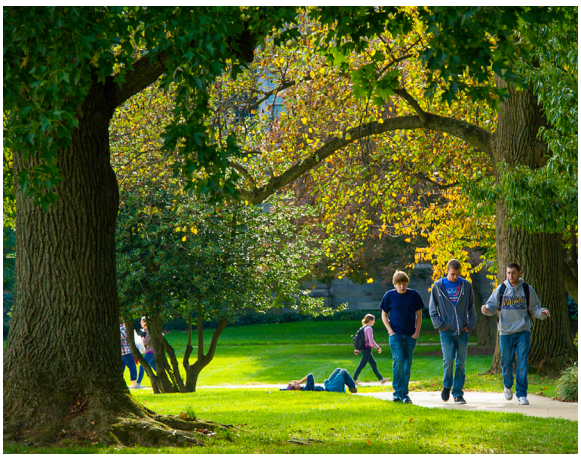
1. Scope 1 and Scope 2 emissions – those most directly under the University's control – have declined steadily since FY 2007.

2. Emissions reductions from FY 2007 to FY 2010 were collateral to efforts to reduce the University's expenditures on energy. Institutional initiatives during this time period were a steady transition toward efficient geothermal heating and cooling and a decrease in the use of the on-campus coal fired steam plant for heating. The University also benefited from a guaranteed energy saving agreement (GESA) that was 80% completed by the end of FY 2007 and which brought about savings in electrical usage.

3. Reductions in energy consumption and GHG emissions were large enough to offset increased student enrollment and increased building space. The new student recreation center, completed in Fall 2012, incorporates solar panels, green roofs, and is linked to the geothermal heating and cooling system. It remains to be seen what effect completion of this 72,575 square foot building will have on emissions and normalized emissions trends.

4. Reduced on-campus emissions were important but the purchase of RECs also increased during the same time period (roughly 7% of electrical consumption in FY 2005 to 23% in FY 2010). The effect of RECs on net emissions is not included in Figures 6, 8, and 9.

5. After the emissions reduction benefits of the transition to geothermal exchange are complete around 2016, the bulk of WCU's Scope 1 and Scope 2 emissions will be in Scope 2 – electrical consumption. Efforts to further reduce emissions will have to concentrate on conservation, efficiency, on-campus generation, and offset purchases



GLOSSARY OF ABBREVIATIONS

ACUPCC	American College and University Presidents' Climate Commitment
B20	Diesel fuel which is a mixture of 20% biodiesel and 80% petrodiesel
BLUER	[West Chester] Borough Leaders United for Emissions Reduction
CA-CP	Clean Air – Cool Planet
CAP	Climate Action Plan
CAPT	Climate Action Planning Team
CH4	Methane
CNG	Compressed natural gas
CO2	Carbon dioxide
GHG	Greenhouse gas
kWh	kilowatt hours
MT	Metric ton = 1000 kg = 2205 pounds.
N2O	Nitrous oxide
RECs	Renewable energy credits
T&D	Transmission and distribution (of electricity)

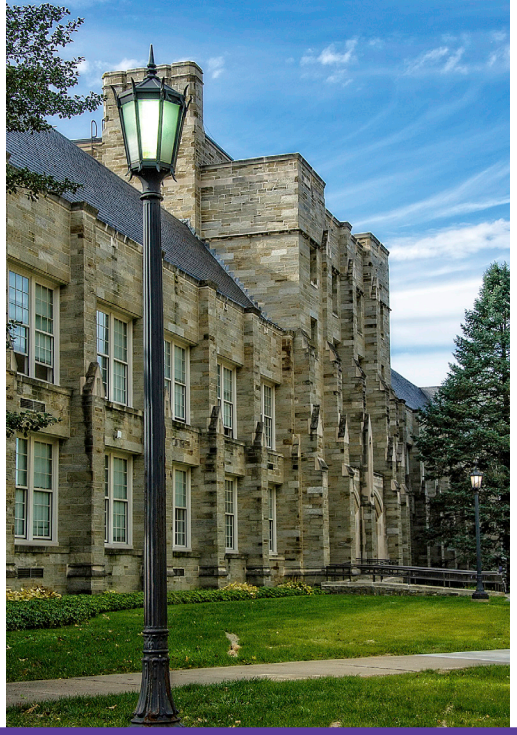
APPENDIX 1. Sources of emissions data at WCU

Scope 1
- Consumption of coal (steam plant), natural gas and fuel oil (Facilities Management, Energy Projects Manager)
- Consumption of gasoline, diesel, and CNG by University-owned vehicle fleet (Facilities Division, Motor Pool)

Scope 2
- Electricity usage billed through the University (Facilities Management, Energy Projects Manager)
- Electricity usage billed through the Village at West Chester University apartment complex (West Chester University Foundation)

Scope 3
- Land-filled solid waste (Facilities division, Grounds Manager)
- Employee commuting survey (Sustainability Coordinator; Human Resources)
- Student commuting survey (Sykes Student Union administration)
- Employee and student parking permit sales (Public Safety)

Institutional data
- Budget information; faculty, staff, and student population (Office of Institutional Research; Facilities Management, Energy Projects Manager)
- Building square footage (Facilities Management, Planning)



ENERGY AND BUILDINGS

INTRODUCTION

Scope 1 emissions – those directly controlled by WCU – result from fuels used for WCU Fleet vehicles and to provide heat for space and water. Within Scope 1, coal burned in the steam plant accounts for almost 2/3 of emissions. Excluding fuels for vehicles, WCU consumed 4000 tons of coal, 41,000 gallons of fuel oil, and 69,514,000 cubic feet of natural gas in FY 2012. Scope 2 emissions at WCU resulted from purchased electricity, which was used to provide lighting, energy for equipment and appliances (incl. air conditioning), and to run the geoexchange heating and cooling system (also known as geothermal). Electrical consumption was 35,062,000 kWh in FY 2012.

GOALS

Achieve significant annual reductions in greenhouse emissions associated with energy consumption and production by a) implementing appropriate policies, financing, and planning strategies b) reducing consumption and improving efficiency; c) producing renewable energy; c) buying green power; and d) offsetting the rest.

SUMMARY OF PROJECTS AND INITIATIVES

1. Energy & Building Policies, Planning, and Financing
    - Objective 1.1 – Develop/Implement a Campus Energy Policy & Strategy
    - Objective 1.2 – Develop/Implement a Green Building Policy
    - Objective 1.3 – Formalize an Integrative Planning Process
    - Objective 1.4 – Internalize a Price for Greenhouse Gas Emissions
    - Objective 1.5 – Establish a Green Revolving Fund
2. Reduce Consumption & Improve Energy Efficiency
    - Objective 2.1 – Transition to Lower Emission Fuel Sources for Heating & Cooling
    - Objective 2.2 – Install Web-Based Utility Dashboards in Campus Buildings
    - Objective 2.3 – Implement an Energy Use Fee/Rebate for Student Housing
    - Objective 2.4 – Implement Energy Savings Retrofits for Residence Halls
    - Objective 2.5 – Install Solar Hot Water Heating for Appropriate Buildings
    - Objective 2.6 – Install LED lighting in Parking Lots and Selected Indoor Spaces

Objective 2.7 – Continue to Implement Green Information Technology Initiatives
3. Produce Renewable Energy
Objective 3.1 – Install Small-Scale Photovoltaics on Campus
Objective 3.2 – Install Large-Scale Photovoltaic Array(s) on Campus
4. Buy Green Power
Objective 4.1 – Buy Green Power/Purchase Renewable Energy Credits (RECs)
5. Purchase & Develop Carbon Offsets
Objective 5.1 – Buy Carbon Offsets for Unavoidable Emissions
Objective 5.2 – Develop Carbon Offset Projects with Research and Educational Value

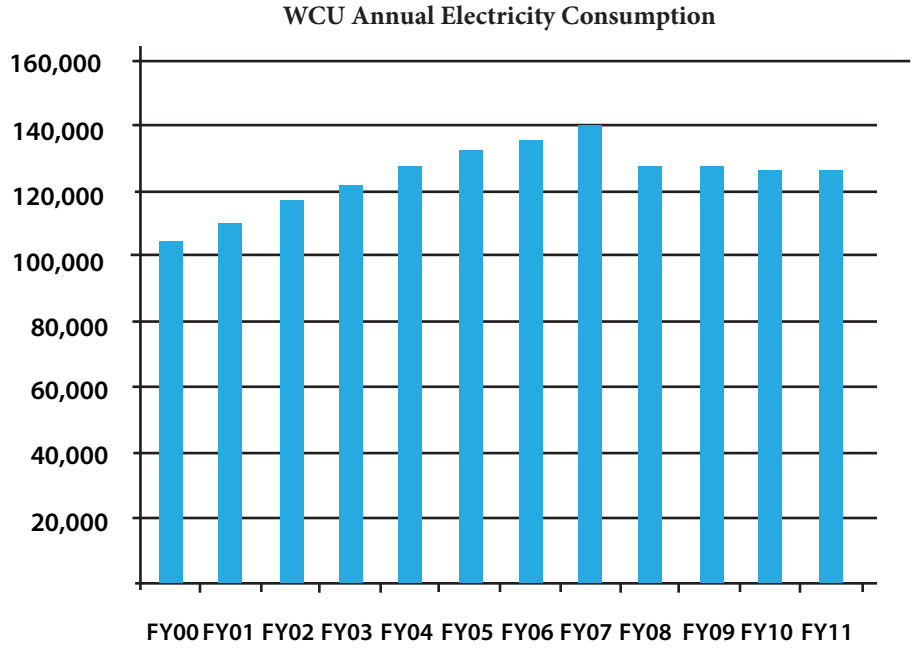
BACKGROUND

West Chester University has already taken significant steps towards energy efficiency. From 2005 to 2009, WCU's Energy Performance Project, or Guaranteed Energy Savings Plan (GSEP) led by Honeywell Building Solutions, instituted a range of measures that are currently yielding significant cost and emissions reductions. WCU also has Green Buildings on campus. The Swope music building has been awarded the Silver LEED (Leadership in Energy and Environmental Design) certification. Significant LEED features area also included in 25 University Avenue and the new Student Recreation Center. Above all, WCU is most proud of its ongoing commitment to building one of the largest district geoexchange systems in the world. Though largely hidden from view, the University's investment in geothermal wells is enabling it to significantly reduce carbon emissions while also reducing energy costs.

STATISTICS: IMPROVEMENTS AND REGRESSIONS FROM 2000 TO 2011

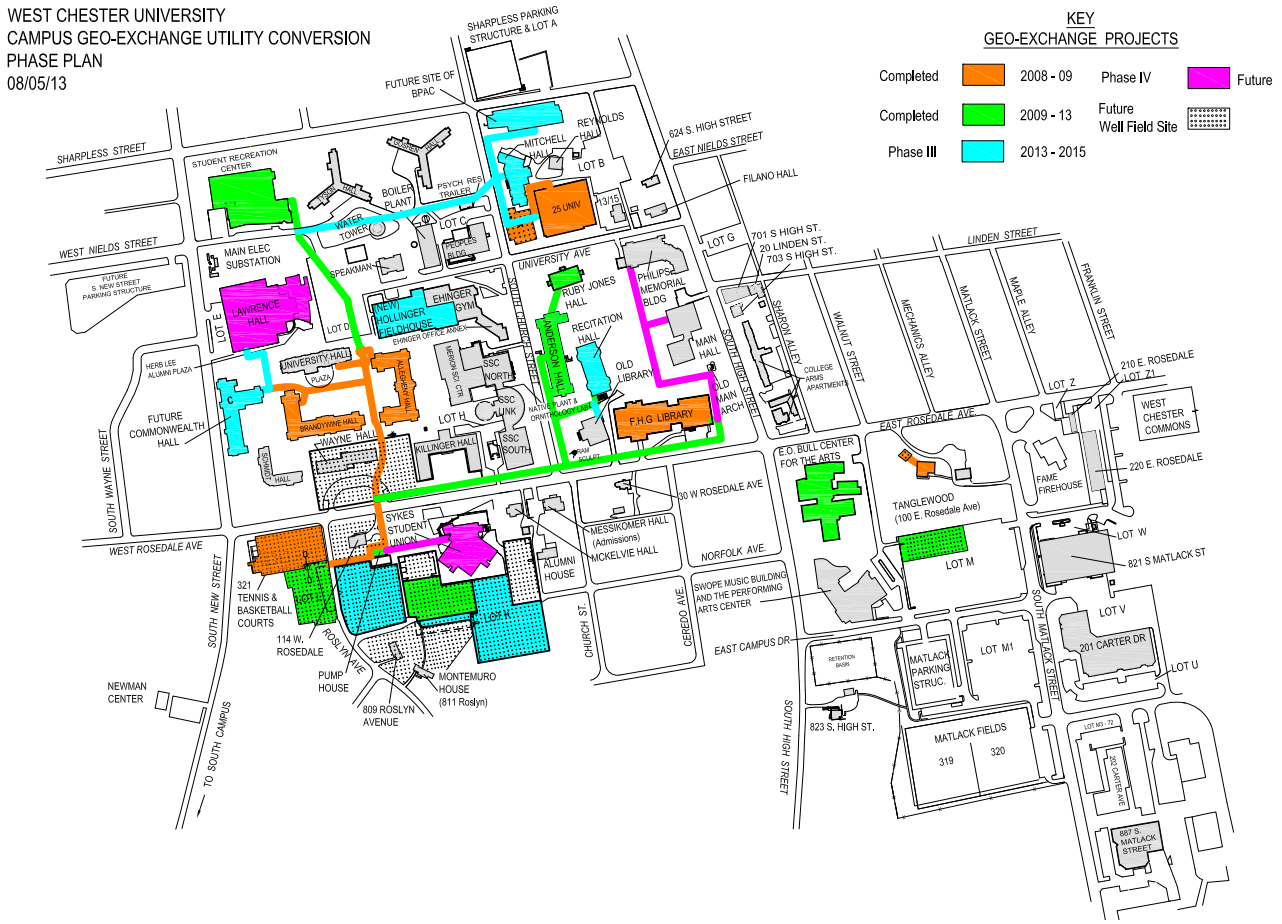
Electricity

Electricity accounts for about one-third of the University's total energy consumption (WCU Greenhouse Gas Inventory Report). Fifty nine percent of this electricity is generated from local coal burning plants (WCU Sustainability Efforts). Renewable processes produced only 34% of the electricity used by WCU in FY 2012. In FY 2012, the University consumed a total of 119,219 MMBtu (British thermal units used to measure energy) of electricity. WCU's annual electricity consumption has seen a decline of more than 15% since the peak of electrical use in 2007, even with the addition of new buildings. In FY 2007, the University consumed almost 140,000 MMBtu of electricity (WCU Facilities 2012). The chart above illustrates this pattern.



The guaranteed energy savings plan (GESP) was designed to reduce the amount of total electricity consumption as well as reduce university spending. The GESP included installing solar film on the windows of four buildings that experienced high solar heating, boiler plant controls modifications, HVAC improvements, and installation of a campus wide energy management and controls system. An earlier series of modifications to the campus high voltage distribution system, including expanding the 15kv grid to cover additional buildings, has yielded savings in electricity cost as well.

The GESP is expected to yield substantial savings over the next 15 years. By the end of the plan, the University is expected to save $36.1 million (WCU Sustainability Efforts). Annually, the plan is expected to save 12,400,000 kWh of electricity, 155,000 gallons of fuel oil, 37,000 MMBtu of steam, 20 million gallons of water and sewage, and 500 tons of coal (WCU Sustainability Efforts). Pollution emissions are expected to be reduced as well. By the end of the plan, 5300 tons of sulfur dioxide, 7800 tons of carbon dioxide, and 19 tons of nitrogen dioxide emissions will be reduced (WCU Sustainability Efforts).



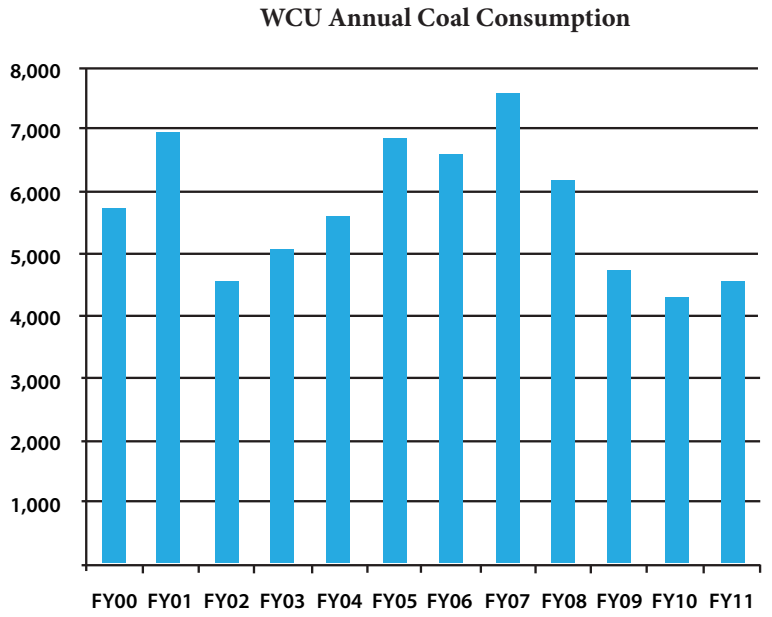
Coal

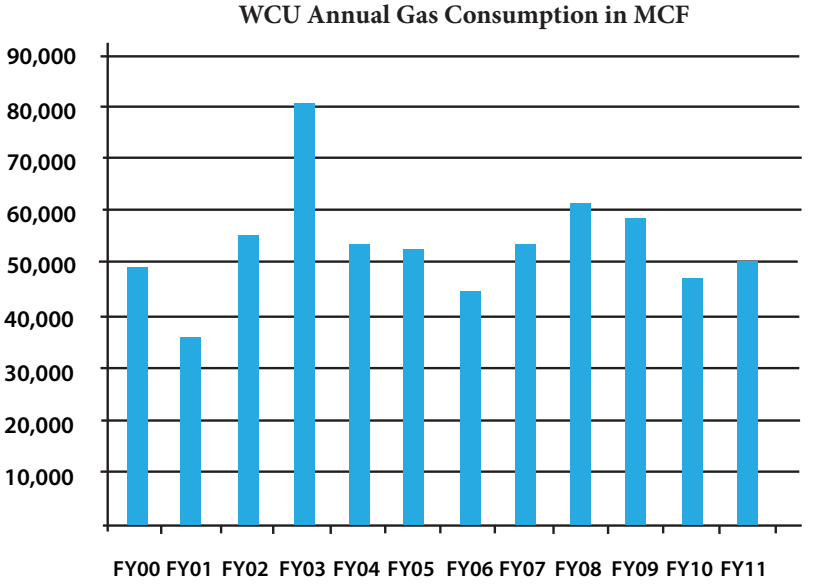
West Chester University has for many years relied on a 1960s vintage coal burning central steam heating plant, which accounts for just about half of the school's energy usage (WCU Facilities 2008). The plant is designed to burn coal in order to create steam to be used in heating of campus buildings. While the plant is reasonably efficient, it is becoming costly to maintain the outdated technology. The consistent use of this plant has led to increased environmental awareness, and the implementation of the geoexchange heating and cooling system. The University plans to shut down the central heating plant before the 2014-15 heating season.

West Chester University's system was first implemented as a stand-alone system for 25 University Avenue. Following this project, it was decided to build a district geoexchange system, with all the wells at a common location and a central pumping station supplying the geothermal water to the buildings that are added or converted, beginning with the new residence halls and a number of academic buildings across north campus that were converted to use geothermal HVAC systems such as the FHG Library, Ruby Jones Hall, and Anderson Hall (WCU Facilities 2008). Eventually it is expected there will be 24-26 buildings on North Campus served by this system. Stand-alone geoexchange systems were installed on East Campus at Tanglewood in 2009 and the E.O. Bull Center for the Arts in 2011.

Oil, Natural Gas and Biodiesel

The remaining energy consumed by West Chester University comes from oil, natural gas and biodiesel. Fuel oil and natural gas are used to create steam or hot water. Additionally, school vehicles run on gasoline, compressed natural gas, or biodiesel fuel (WCU Facilities 2008). Compressed natural gas is cheaper than gasoline and 80% more environmentally friendly. To date, the University has not implemented hybrid vehicles that run on renewable energy. Over the past decade, the university has not seen any dramatic decrease in the amount of natural gas consumed. Since 2000, the average annual natural gas consumption is 53,612 mcf (WCU Facilities 2012). In 2011, the university consumed 50,000 mcf of natural gas, only 3,000 mcf below the annual average (WCU Facilities 2012). However, the school has made slightly better progress in boiler fuel oil consumption. The average annual oil consumption since 2000 is 234,851 gallons of oil. In 2011, the school consumed only 184,189 gallons of boiler fuel oil (WCU Facilities 2012). More can be done to shift to lower emissions. The new geoexchange system decreases boiler fuel oil consumption. Buildings that will not be converted to geothermal in the immediate future are being converted from central plant steam heat to local high efficiency natural gas boilers, which will cause a planned increase in natural gas usage as coal burning is eliminated at the central plant.





SUMMARY

The University has made considerable progress. The challenge is to make even greater gains. In the year 2011, the University spent $3.3 million on electricity, $523,912 on gas, $575,332 on boiler fuel oil, and $522,523 on coal (WCU Facilities 2012). These numbers are all the lowest we have seen over the past few years. Further savings including both building project costs and lowered cost of ownership will continue to play a role in driving decision making. Nonetheless, it must be recognized that in a system that does not monetize the true costs of carbon emissions, the price of a building or renovation does not encompass the true cost to the University. To maintain leadership and progress toward climate neutrality, some decisions will have to be made (whether they be to buy offsets or to choose more expensive upfront cost items), which have long term payoffs or which are intended to demonstrate commitment to lowering the University's environmental impact.

West Chester University has in the past relied on conventional, inefficient sources of energy. However, the University has made great progress to change its fuel mix and to change the way the school consumes energy. The current plan is designed to reduce the cost of energy usage and improve energy efficiency in years to come with increased implementation of low emissions technologies.

PROJECTS AND INITIATIVES

1. Energy & Building Policies, Planning, and Financing

OBJECTIVE 1.1 – DEVELOP/IMPLEMENT A CAMPUS ENERGY POLICY & STRATEGY

Energy Policy Outcomes: Develop and implement a campus energy policy and strategy that includes the following: 1) actions to improve energy efficiency, reduce consumption, and transition to low carbon and renewable energy sources; 2) strategies to promote behavioral and cultural change on campus that further the educational mission of the University; 3) an integrative planning process that involves faculty and student researchers with all phases of facilities planning, design, and construction; 4) a process for internalizing a price for greenhouse gas emissions (i.e. carbon) associated with WCU's activities and operations; and, 5) a **Green Revolving Fund** to finance energy efficiency and renewable energy projects.

- Action Step: Establish a Campus Energy Strategy task force that is charged with developing, implementing, and assessing the University's energy strategy. The task force will include students, staff, and faculty.
- Action Step: Establish a foundation of good faith and success by implementing an Indoor Pool Cover Policy and a Campus Wide Indoor Temperature Policy *(see Addenda)*
- Implementation Time Frame: By 2015

OBJECTIVE 1.2 – DEVELOP/IMPLEMENT A GREEN BUILDING POLICY

Green Building Policy Outcomes: Develop a Green Building Policy that mandates that major renovations, new construction, and operations and maintenance achieve a minimum of LEED Silver standards.

- Action Step: Write and seek approval for the Policy.
- Implementation Time Frame: By 2015: Incorporate LEED standards in design parameters and encourage donors to support the costs associated with implementation and certification.

OBJECTIVE 1.3 – FORMALIZE AN INTEGRATIVE PLANNING PROCESS

Integrative Planning Outcome: Increase student and faculty involvement (i.e. participation and research) in facilities design and construction by formalizing a process for information sharing in early planning stages.

- Action Step #1: Establish protocols for information sharing and involvement.
- Action Step #2: Include "coordination of integrative facilities planning" in the job description of the full-time Director of Sustainability.
- Implementation time frame: By 2015 – Connections will be made between facilities and interested faculty and students (individuals and groups).

OBJECTIVE 1.4 – INTERNALIZE A PRICE FOR GREENHOUSE GAS EMISSIONS

Carbon Valuation Outcome: Many of WCU's activities and operations produce carbon emissions that are not currently accounted for in decision-making processes. Establishing policies and procedures for assigning monetary costs to carbon emissions will facilitate campus-wide adoption of low-emission projects that are currently not economically feasible. The phased process will begin with a relatively low cost for carbon, but will eventually reach voluntary carbon market rates for a ton of carbon (currently ~$20 per metric ton of CO_2).

- Action Step #1: Establish policy that includes a mechanism to contribute to the Green Revolving Fund (see below) with the carbon dollars set by the voluntary carbon pricing.
- Action Step #2: Build carbon costs into project budgets
- Implementation time frame: By 2015 – Establish the policy and procedure and begin the first phase
- By 2020 – Cost of carbon emissions fully integrated into planning and decision making.

OBJECTIVE 1.5 – ESTABLISH A GREEN REVOLVING FUND

Green Revolving Fund Outcome: A Green Revolving Fund invests in energy and sustainability projects that decrease resource use, thereby lowering expenses. These operational savings are returned to the fund and then reinvested in additional projects. The Sustainable Endowments Institute reports consistent annual returns ranging from 29% (Iowa State University with $3.0 million fund size and 11 projects) to 47% (Western Michigan University with $365,000 fund size and 101 projects). Other examples are Harvard University ($12 million fund size, 185 projects, ROI 30%), Oberlin College ($40,000 fund size, 9 projects, ROI 31%) and California Institute of Technology ($8 million fund size, 13 projects, ROI 33%). Funds must be "loaned" based on well-executed business cases involving measurable, trackable financial benefits. To ensure accountability, a clear baseline cost must be established (to measure post-project run rates against). The funds must revolve. Savings generated by reducing operating costs are tracked and used to repay the fund (thus providing capital for future projects). To ensure this happens, a commitment must be made to provide the required financial oversight.

- Action Step #1: Seed the fund and establish a management structure and procedures
- Resources Needed: To initiate the process, the fund needs to be "seeded" which requires commitment and belief in the concept. The identification and sourcing of funds can be seen as a fund-raising opportunity or as an endowment investment opportunity.
- Implementation time frame:
- By 2015 – Seed the Fund: Funds range in size from $5000 at the College of Wooster (OH) to $24.5 million at Stanford University, with an average size of $1.4 million.
- By 2020 – Continued development
- By 2025 – Continued development

2. Reduce Consumption & Improve Efficiency

OBJECTIVE 2.1 – TRANSITION TO LOWER EMISSION FUEL SOURCES FOR HEATING & COOLING

Lower Emission Heating & Cooling Outcomes: The transition to lower emission fuel sources for heating and cooling is completed.

- Action Step #1: Continued expansion of geoexchangel system
- Action Step #2: Replacement of central station fuel oil boilers with high efficiency gas boilers
- Implementation time frame:
  By 2015: Continued expansion of geothermal system and shut down central heating plant
  By 2020: Replacement of fuel oil boilers with natural gas boilers

OBJECTIVE 2.2 – INSTALL WEB-BASED UTILITY DASHBOARDS IN CAMPUS BUILDINGS

Building Dashboard Outcomes: "Campus building energy dashboards monitor the energy consumption of a facility. Energy dashboards can present the data to users in an interactive way. They may be physically available as touchscreens installed at kiosks in or near the facility being monitored, or made available online as a website" (AASHE).

- Action Step #1: Purchase software and displays
- Action Step #2: Install and commission software and displays
- Resources Needed: Approximately $15,000 per building
- Implementation time frame:
  By 2015 – Initial implementation in high priority buildings
  By 2020 – Campus wide adoption

OBJECTIVE 2.3 – IMPLEMENT AN ENERGY USE FEE/REBATE FOR STUDENT HOUSING

Energy Use Fee/Rebate Outcome: To ingrain low-energy-consumption behavioral patterns in students and to assist the University in achieving its energy consumption reduction objectives, an energy use fee/rebate system will be established for all students living in university accommodations. A portion of student room and board fees will be specifically denoted an energy use fee. At the end of the semester, the student will receive a rebate based on the actual energy consumption in that university residence.

- Action Step #1: Install appropriate residence hall specific metering.
- Action Step #2: Implement billing and rebate procedures.
- Resources Needed: University Energy Dashboard infrastructure, as explained above.
- Implementation time frame:
  By 2015 – Implement fees or rebates as standard room and board policy

OBJECTIVE 2.4 – IMPLEMENT ENERGY SAVINGS RETROFITS FOR RESIDENCE HALLS

Energy Savings Retrofit Outcome: Energy savings retrofits for residence halls are implemented.
- Action Step #1: Commission study
- Action Step #2: Act on study findings
- Resources Needed: Capital money to seed energy saving renovations.
- Implementation time frame:
  By 2015 – Commission study
  By 2020 – Implementation

OBJECTIVE 2.5 – INSTALL SOLAR HOT WATER HEATING FOR APPROPRIATE BUILDINGS

Explanation: "The best buildings for solar hot water systems are those with large hot water requirements, e.g. residence halls, food service, and athletic facilities. Note: indoor swimming pools require year-round heating" (AASHE).
Solar Hot Water Outcome: Install solar hot water systems on campus buildings with hot water requirements that best match the system's supply capabilities.
- Action Step #1: Commission study
- Action Step #2: Installation
- Resources Needed: Financing for the solar hot water systems.
- Implementation time frame:
- By 2015 – Commission study
- By 2020 – Installation

OBJECTIVE 2.6 – INSTALL LED LIGHTING IN PARKING LOTS AND SELECTED INDOOR SPACES

LED Lighting Outcome: LED lights are installed in parking lots as well as other selected exterior and hard to reach interior spaces.
- Resources Needed: Capital purchase LEDs.
- Implementation time frame: By 2015 – Commission study

OBJECTIVE 2.7 – CONTINUE TO IMPLEMENT GREEN INFORMATION TECHNOLOGY INITIATIVES

Background: Information Services has been in the forefront of "Green IT" programs in IT and has made great strides in the past few years. Major Labs have implemented double sided printing to cut paper waste. WCU's Data Center was designed for energy efficiency, using cold aisle cooling, blade servers, and server virtualization which reduced energy consumption by 50% in comparison to the previous data center. Digital Signage is installed in most campus buildings, thereby reducing printed information. WCU cut 100 Metric Tons of Carbon Emissions (associated with energy consumption in data network closets) by going all-wireless in new residence halls.

Green IT Goals: Reduce wasted printing resources; utilize energy efficient desktop and server computer equipment; build more energy efficient Data Centers; build more energy efficient campus networks.
- Action Step: Continue to investigate options for reducing waste and improving efficiency

3. Produce Renewable Energy

OBJECTIVE 3.1 – INSTALL SMALL-SCALE PHOTOVOLTAICS ON CAMPUS

Explanation: Rooftop solar panels can be used for both renewable energy production and for educational/awareness purposes. Note: A cost benefit analysis will help determine whether, for example, purchasing offsets may be a more cost effective method of reducing emissions than investing in solar PV. Even so, small-scale PV have significant educational and public relations benefits.
Small-Scale Photovoltaics Outcome: Install rooftop panels in several high visibility locations and increase student awareness of solar photovoltaics.
- Action Step #1: Publicize the function of the solar panels installed on the Rec Center and obtain real time and cumulative data on their function.
- Action Step #2: Identification of prime locations and installation in these areas.
- Resources Needed: Funds to purchase the photovoltaics.

- Implementation time frame:
- By 2015 – Identification of prime locations
- By 2020 – Installation in identified locations

OBJECTIVE 3.2 – INSTALL LARGE-SCALE PHOTOVOLTAIC ARRAY(S) ON CAMPUS

Explanation: Demand reduction and the purchase of RECs can only go so far in reducing the University's need for low emission/ renewable energy. At some point WCU will have to either sign up to a project such as Keystone Solar or build its own large-scale solar arrays. Covering a parking lot rather than a field would be a better use of land area as the area would have a double use (parking and electricity generation).

Large-Scale Photovoltaics Outcome: Install large-scale photovoltaic arrays.

- Action Step #1: Undertake implementation study.
- Action Step #2: Installation
- Resources Needed: Initial capital for solar array installation.
- Implementation time frame:
  - By 2015 – Report feasibility study
  - By 2020 – Installation

4. Buy Green Power

OBJECTIVE 4.1 – BUY GREEN POWER/PURCHASE RENEWABLE ENERGY CREDITS (RECS)

Background: WCU has been purchasing renewable energy credits for several years. These RECs offset the kwh we purchase that come from conventional fuel power plants.

Explanation: "Producing on-campus carbon-free, renewable electricity is difficult and producing enough of it to make a real difference is even harder. That is why many campuses have begun purchasing green power. Institutions striving for carbon neutrality will eventually need to generate electricity on-site with carbon-free sources and shift purchased electricity to green power purchases, or buy carbon offsets to mitigate the carbon emissions embodied in continued conventional power generation and purchases. Green power purchasing typically involves buying renewable energy credits or certificates, referred to as "RECs" or "green tags." These are purchased in increments of 1,000 kilowatt hours (1 REC = 1,000 kWh or 1 megawatt hour) and represent the "environmental attribute" associated with renewable power. RECs are certified by an independent agency (e.g. Green-e) to guarantee their actual production from a qualifying renewable energy source and to insure that they are not double-counted. Qualifying sources include solar electric, wind, geothermal, and certain types of hydro, biomass and hydrogen fuel cell-derived power."

Green Power Outcome: Renewable energy credits (RECs) will be purchased to offset emissions associated with Scope 2 (purchased electricity). These RECs will be purchased at the state level, thereby supporting the development of a clean energy economy in Pennsylvania. All purchased RECs will meet the criteria for offsets defined by the ACUPCC. Specifically, offsets must be "real, additional, transparent, measurable, permanent, verified, synchronous, account for leakage, registered, not double-counted, and retired" (ACUPCC 2008).

- Action Step #1: Compare RECs with the existing price for electricity or gas plus the added cost of carbon pricing (Objective 1.4) to determine which is less expensive.
- Action Step #2: Purchase RECs
- Resources Needed: Agreed upon price of carbon (Objective 1.4), percentage of carbon in source energy, existing fuel source pricing.

5. Purchase & Develop Carbon Offsets

OBJECTIVE 5.1 – BUY CARBON OFFSETS FOR UNAVOIDABLE EMISSIONS

Explanation: Ultimately, WCU may achieve climate neutrality by generating energy from renewable sources on its own land. Until this is economically feasible, we can sponsor projects at other locations that will eliminate as many GHG emissions as we emit at WCU. This is "offsetting." From an atmospheric perspective, offsetting is a viable strategy because a net reduction in GHG emissions to the atmosphere will have the same effect, regardless of where on the Earth's surface the reduction occurs. However, as we consider purchasing carbon offsets (as they are known in the marketplace), it is critical that these offsets are consistent with the ACUPCC guidelines and within WCU's vision for sustainability.

WCU will target offset purchases toward projects that store carbon through biological activity (i.e., forest protection, reforestation, etc.). No carbon offsets will be purchased in support of global development activities such as clean energy generation (i.e., solar, wind) in the developing world. This decision has been made because with development comes a risk of increased future GHG emissions as demand for consumer goods rises. By targeting "biological offsets" WCU will have a higher likelihood of meeting the "real" criterion specified by ACUPCC, in that the University's purchase of offsets will lead to a net reduction in global GHG emissions. One of the greatest challenges WCU will face in purchasing carbon offsets is the issue of verification. In other words, WCU must determine whether offsets meet the ACUPCC standards.

Carbon Offset Outcome: Reduce WCU's GHG emissions to zero following efforts outlined above.

- Action Step #1: Establish a committee and/or charge courses/students with researching viable offset purchase options.
- Action Step #2: Make a small-scale purchase to get a better understanding of how the offset market works. This will require some seed funding. It could also be tied into a large class project if there's interest.
- Resources Needed: Seed funding for an initial small-scale purchase. More funds as we approach our carbon neutral date of 2025.
- Implementation Time Frame: By 2015 establish committee and make small-scale purchase. By 202 make commitment to offset strategy

OBJECTIVE 5.2 – DEVELOP CARBON OFFSET PROJECTS WITH RESEARCH AND EDUCATIONAL VALUE

Explanation: This objective is aligned with the research and education values of Objectives 2.2, 2.3, and 3.1. In effect, by installing metering for data collection and the means of disseminating this data to researchers and the WCU community, we can bolster the value of Carbon Offset Projects by aligning them with our educational and research objectives.

Carbon Offset Outcome: Implement the Objectives in sections 2 and 3 with data collection and the means to disseminate these data.

- Action Step #1: Implement Objectives in sections 2 and 3 with data collection in mind.
- Implementation time frame:
- By 2025 – All projects will have appropriate means of data collection.

ADDENDA

FACILITIES POLICIES AND PROCEDURES

NUMBER: 110

DISTRIBUTION: Facilities Administrators

ISSUED BY: Executive Director of Facilities Management

EFFECTIVE:

SUBJECT: Temperature Policy

A. Introduction:

West Chester University in FY 2011 spent about $6 million on energy and utilities. This cost is down from a peak of $7 million in FY 2009, largely due to conservation measures recently implemented, including our campus geothermal system. Further conservation of these resources and the corresponding reduction in expenditures then allows the University to reallocate the savings to other University programs. Additionally, conservation helps to reduce our environmental footprint and improves our stewardship of natural resources. West Chester University has established a campus temperature policy to provide conditions that support the University's educational mission while at the same time supports WCU's sustainability efforts. The objective is to balance customer service/ comfort, cost-efficiency and environmental concerns. An identical temperature policy has already been implemented in all Commonwealth-owned buildings by the Governor's Office Management Directive 720.5, implemented in 7/25/2008.

B. Why Conserve Energy:

Energy conservation has been called the "least-cost" energy strategy, and for good reason. Energy conservation measures in 2011 are saving WCU $2 million in energy costs annually and help reduce our exposure to rising energy costs. But energy conservation does more than just save money. It reduces environmental and social costs as well.

Energy conservation mitigates the numerous adverse environmental and social impacts associated with energy production and consumption. These include air pollution, acid rain and global warming, oil spills and water pollution, loss of wilderness areas, construction of new power plants, foreign energy dependence and the risk of international conflict over energy supplies. Energy cost savings of approx. 2% can be achieved with each 1o F change in temperature set-point. A 2o F degree change will result in 4% savings- for FY 2011- this change would represent a cost savings of approximately $120,000.

C. WCU's Heating Policy:

Room Temperature

The University is pursuing increased energy conservation, which will result in both cost savings and decreased environmental impact associated with energy production and consumption.

Target (optimum) Temperature - 67°F (currently 70° F)
Acceptable Operative Temperature Range - 65 to 69° F

- Offices will be heated to a target temperature of 67°F from 8:00am to 5:00pm Monday through Friday and classrooms will be heated to this target temperature from 8:00am to 10:00pm Monday through Friday. For off-hours including weekends and holidays, the temperature will be allowed to drop to 55°F before heating occurs.

- Heating can be provided on weekends and off-hours as needed, see section E.
- Due to an inability to precisely control temperatures, some spaces may be warmer/cooler than others, or it may be that limitations in a particular building's central controls will not permit Facilities to control the temperature in a particular room to the acceptable range of 65-69°F. In those situations where an occupied temperature cannot be maintained at 65° or above, Facilities may consider the use of portable space heaters.
- Portable heaters not authorized by Facilities will be removed.
- Please report overheated or under-heated areas to Facilities Work Control (dial x2444 from any campus phone).

Portable Heaters

Historically, portable heaters have been used to offset problems with the effectiveness of the University's heating and cooling systems. Because the use of such equipment offsets the benefits of the University's energy savings, our goal is to eliminate the need for supplementary heat. As a matter of policy only portable heaters authorized and provided by Plant Operations are to be used on campus – this is a matter of fire safety. Use of space heaters will be considered when occupied temperatures of a space are typically below 64°.

D. WCU's Air Conditioning Policy

Room Temperature

The University is pursuing increased energy conservation, which will result in both cost savings and decreased environmental impact associated with energy production and consumption.

Target (optimum) Temperature - w75° F (currently 74° F)
Acceptable Operative Temperature Range - 73 to 77° F

- Offices will be cooled to a target temperature of 77°F from 8:00am to 5:00pm Monday through Friday and classrooms will be cooled to this target temperature from 8:00am to 10:00pm Monday through Friday. For off-hours including weekends and holidays, the temperature will be allowed to reach 85°F before cooling occurs. In areas controlled by the same thermostat there may be an acceptable temperature variance in the range of 73-77 °F.
- Cooling can be provided on weekends and off-hours as needed, see section E.
- Due to an inability to precisely control temperatures, some spaces may be cooler than others, or it may be that limitations in a particular building's central controls will not permit Facilities to lower the temperature in a particular room to the acceptable range of 73-77°F. In those situations, University Facilities will monitor these spaces as well as special purpose spaces and facilities to determine if modification to the policy is warranted.
- An exception to this policy is granted for rooms containing temperature sensitive instrumentation, as temperatures in these rooms will be maintained in accordance with instrument specifications.

Please report overcooled or under-cooled areas to Facilities Work Control (dial x2444 from any campus phone).

E. Off-hours Temperature Control

Our Energy Management and Control System cover many of our campus buildings and allow occupied and unoccupied times to be set according to each building/room's unique use pattern. During off-hours, spaces are placed in unoccupied mode which reduces the supplied air conditioning or heating. To meet University needs/special events that occur during off-hours, unoccupied times can be adjusted either temporarily or permanently. Requests for off-hour heating/cooling should be made to Work Control by a work request (via iServiceDesk) 12:00 pm on the preceding business day.

Many office and classroom thermostats are equipped with a "Manual On" (override) feature that allows occupants who need to use a space during off hours to temporarily reset the controls to occupied mode for up to 90 minutes (which can be repeated to extend the time if needed). For off hour users of these spaces, it is unnecessary to make a request to Work Control to adjust the occupied time of

the concerned space. Buildings with "Manual On" thermostats are:

13/15 University Ave	114 W. Rosedale Ave	201 Carter Drive
210 E. Rosedale Ave	220 E. Rosedale Ave	809 Roslyn Ave
811 Roslyn Ave	850 S. New Street	Anderson Hall
Farrell Stadium	Filano Hall	Lawrence Hall
FHG Library I & II	McCoy Farm House	McKelvie Hall
Messikomer Hall	Phillips	Reynolds Hall
Sturzebecker HSC	Sykes Student Union	

F. Please Help Us

If you see any opportunities for energy savings or wish to suggest an energy conservation project, please contact our Energy Projects Manager, Bruce Wilson (dial 2713 from any campus phone), (bwilson@wcupa.edu). Any questions regarding this policy should be directed to The Executive Director of Facilities Management, Greg Cuprak (dial 3200 from any campus phone), gcuprak@wcupa.edu .

G. Some Additional Energy Conservation Tips

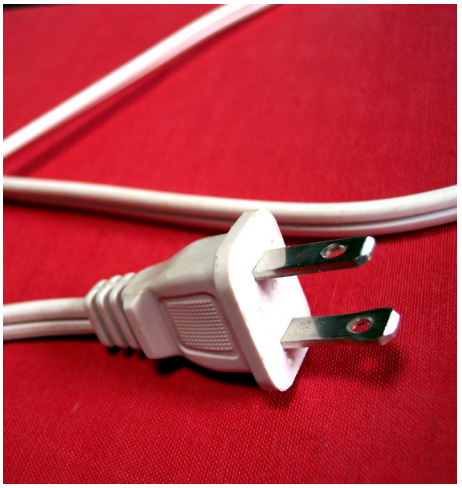
Lights
- Turn off unused or unneeded lights.
- Use natural lighting instead of electric lighting.
- Do not use incandescent and halogen fixtures.

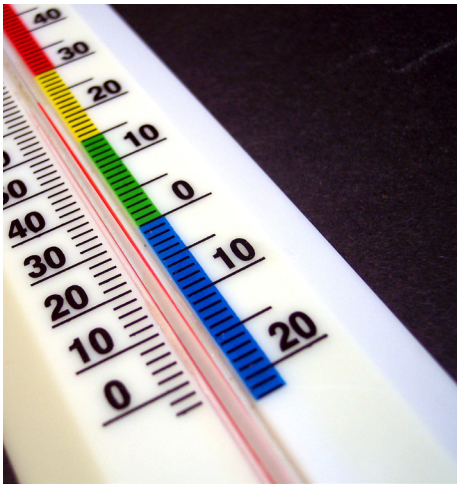
Heating and Cooling
- Keep thermostats at 67°F in the winter and 76°F in the summer.

Windows and Doors
- Keep air conditioned and heated areas closed in.
- Use automatic door switches for handicap use only.

Computers, Monitors, and Printers
- Keep off unless in use.
- Enable power management "sleep mode" features.

Other Equipment
- Electric hair dryers are among the most energy-intensive personal items; minimize their use
- Purchase only energy-efficient models.
- Keep off unless in use.
- Unplug idle charging devices.





APPENDIX -- GREEN REVOLVING LOAN FUND

Concept:

Simply stated, a Green Revolving Loan Fund invests in sustainability projects that decrease resource use, thereby lowering expenses. These operational savings are returned to the fund and then reinvested in additional projects.

Who is forming Green Revolving Loan Funds in Higher Education?

Of the 52 colleges and university with Green Revolving Loan Funds, 24 are public and 28 are private. *Note: Among public institutions, most are the flagship campus within the system.*

How big ($) are Green Revolving Loan Funds in Higher Education?

Funds range in size from $5000 at the College of Wooster (Ohio) to $24.5 million at Stanford University, with an average size of $1.4 million.

What level of ROI can be expected on these funds?

The Sustainable Endowments Institute reports consistent annual returns ranging from 29% (Iowa State University with $3.0 million fund size and 11 projects) to 47% (Western Michigan University with $365,000 fund size and 101 projects). Other examples are Harvard University ($12 million fund size, 185 projects, ROI 30%), Oberlin College ($40,000 fund size, 9 projects, ROI 31%) and California Institute of Technology ($8 million fund size, 13 projects, ROI 33%).

Important Considerations

- Funds must be "loaned" based on well-executed business cases involving measurable, trackable financial benefits. To ensure accountability, a clear baseline cost must be established (to measure post-project run rates against).

- The funds must revolve. Savings generated by reducing operating costs are tracked and used to repay the fund (thus providing capital for future projects). To ensure this happens, a commitment must be made to provide the required financial oversight.

- To initiate the process, the fund needs to be 'seeded" which requires commitment and belief in the concept. The identification and sourcing of funds can be seen as a fund-raising opportunity or as an endowment investment opportunity. University funds have been "seeded" by one or a combination of:
    - Administrative and Departmental budgets
    - Student Fees
    - Utilities
    - Pre-existing efficiency savings
    - Rebates, payments or discounts for demand curtailment
    - Donations or Foundation Grants
    - When new capital funds are introduced into an area that historically has been working within tight budget constraints, the capacity of the staff to complete the additional projects may be limited.

- Project business cases are best written by, and project champions are best sourced from within, the most-impacted organizational unit to prevent the perception of needless intrusion and concomitant resentment-driven dysfunction.

ADDITIONAL BENEFITS OF GREEN REVOLVING LOAN FUNDS:

- **Reduction in energy consumption, resource use, waste generation, and pollution levels.**
- **Increased tracking of energy and water use plus other sustainability data on campus.**
- **Increased collaboration among the offices of Finance, Sustainability and Facilities.**
- **Opportunities for interdisciplinary education and research on sustainability and institutional assessment.**

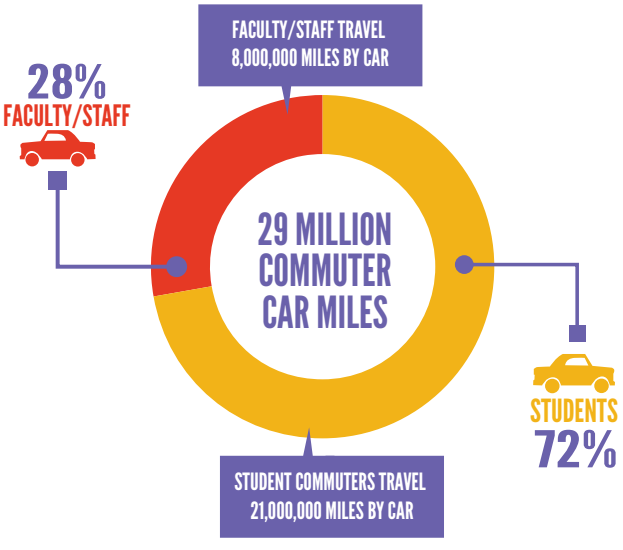
TRANSPORTATION

INTRODUCTION

Based on WCU's GHG inventory, emissions from University vehicles consuming gasoline, compressed natural gas (CNG), and B20 fuel (20% biodiesel; 80% petroleum-derived diesel) make up 3% of Scope 1 emissions. Scope 3 emissions – those over which the University has the least direct control – are dominated by faculty/staff and student commuting (65% and 25%, respectively). All commuters traveled an estimated 29,000,000 car miles. Surveys indicate that student commuters annually travel 21,000,000 miles by car, and employees travel 8,000,000 miles by car and 270,000 miles by bus.

GOALS

Achieve significant annual reductions in greenhouse emissions associated with a) the operation of university vehicles; b) faculty, staff, and student commuting, and c) university-related employee travel.



SUMMARY OF PROJECTS AND INITIATIVES

1. Transportation Planning & Financing
- Objective 1.1 – Establish a Campus Transportation Committee
- Objective 1.2 – Finance Transportation Initiatives with a Price on Carbon (Increased Parking Fees)

2. University Fleet
- Objective 2.1 - Complete the Transition to Alternative Fuels

3. Commuting & Telecommuting
- Objective 3.1 – Promote the e Rideshare Program
- Objective 3.2 – Offer Discounts for Hybrid & High Fuel Efficiency (HFE) Vehicles
- Objective 3.3 – Develop Electric Vehicle (EV) Charging Stations on the Campus
- Objective 3.4 – Expand the Subsidized SEPTA Bus Token Program
- Objective 3.5 – Pilot an Alternative Work Week for Office Staff

Objective 3.6 – Develop a Telecommuting Policy & Pilot Program
Objective 3.7 – Investigate Alternative Course Scheduling

4. Bicycling
Objective 4.1 – Improve and Expand Bicycling Infrastructure
Objective 4.2 – Initiate a Bicycle Rental/Sharing Program
Objective 4.3 – Promote Walking and Biking among Faculty, Staff, and Students

5. Air Travel
Objective 5.1 – Reduce, Consolidate, and Offset Air Travel

6. Regional Transportation
Objective 6.1 – Expand access to SEPTA Rail Service via Shuttles to/from Campus
Objective 6.2 – Provide Public Transportation Passes for Students & Employees
Objective 6.3 – Work with TMACC & SEPTA to Optimize Bus/Train scheduling
Objective 6.4 – Work with SEPTA to (re)Open the Train Route to West Chester

PROJECTS AND INITIATIVES

1. Transportation Planning & Financing

OBJECTIVE 1.1 – ESTABLISH A CAMPUS TRANSPORTATION COMMITTEE:

Transition the current Parking Committee into the WCU Transportation Committee with a new, comprehensive, integrated mission to reduce parking demand, promote transportation alternatives, mitigate traffic congestion, develop and maintain commuter programs, promote health and safety, improve campus aesthetics, and reduce the University's carbon footprint. It will accomplish these goals in part through the implementation of Transportation Demand Management (TDM) strategies/policies that reduce travel demand of single occupancy vehicles.

Transportation Committee Outcome: The Climate Action Plan Implementation committee develops the mission of the new Campus Transportation Committee in collaboration with the VP for Finance and Administration and other designated representatives.

- Resources Needed: Funding for a Transportation Committee Coordinator/Intern
- Implementation Time Frame: By 2015

OBJECTIVE 1.2 – FINANCE TRANSPORTATION INITIATIVES WITH A PRICE ON CARBON

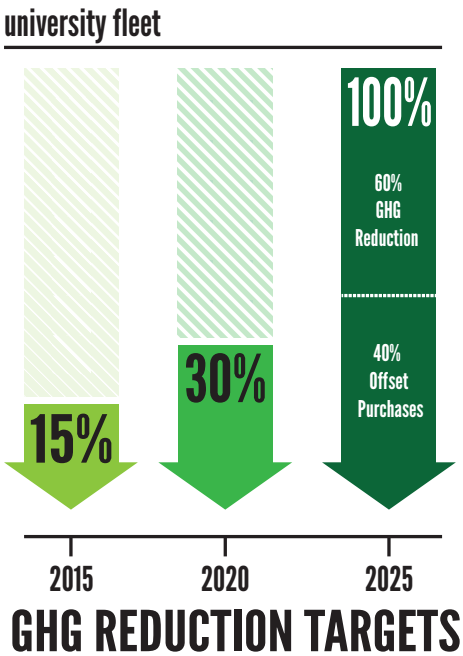
Transportation Finance Outcome: Increase parking fees and use revenue to finance transportation initiatives that are consistent with the mission of the new Transportation Committee and with the goals of the Climate Action Plan. Increased parking fees can be one manifestation of WCU's commitment to value carbon in decision-making and purchasing.

2. University Fleet

OBJECTIVE 2.1 - COMPLETE THE TRANSITION TO ALTERNATIVE FUELS

University Shuttle Bus Outcomes: The University Shuttle Bus will operate all of its buses on alternate energy and target a 100% reduction in GHG emissions by 2025. This will be accomplished through a strategy of 75% GHG reduction and 25% Offset purchases.

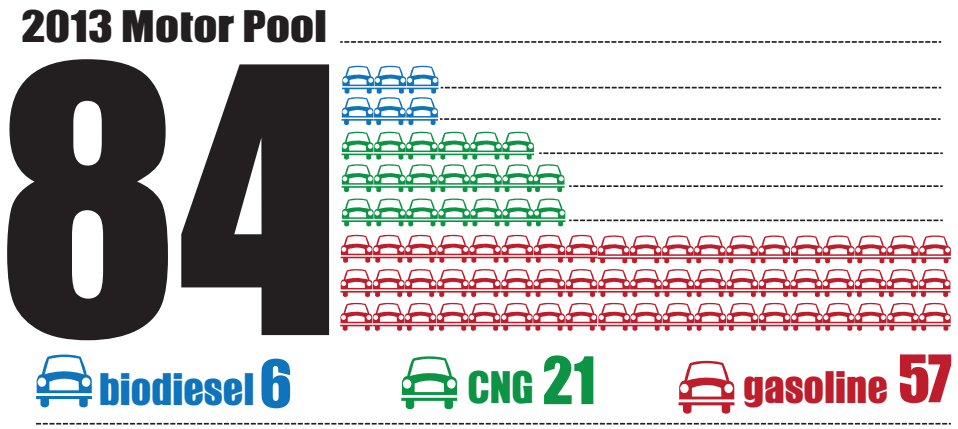
- Implementation Time Frame (% of buses): 2015 – 25%; 2020 – 50%; 2025 – 100%
- Primary Responsibility: Director of Facilities Financial & Support Services
- Resources: Funding for the University Shuttle comes from student fees. A fractional share is provided by University Student Housing for transporting students at the Village.



- GHG Reduction Targets:
  - 2015 – 15% GHG Reduction
  - 2020 – 30% GHG Reduction
  - 2025 – 100% GHG Reduction (60% GHG Reduction & 40% Offset Purchases)

University Motor Pool Fleet Outcomes: The University Motor Pool Fleet will operate all of its fleet on alternate energy or high fuel efficiency vehicles and target 100% reduction in GHG emissions by 2025. This will be accomplished through a strategy of 60% GHG reduction and 40% Offset purchases.

- Implementation time frame: 8% of the fleet per year with completion by 2025
- Resources: The University Motor Pool is self-funded. Income is solely from user fees. Assigned vehicles are charged a flat monthly fee plus a charge per miles driven. Daily rental vehicles are charged a daily fee plus mileage. The monies received are used for gas, maintenance, repairs, salaries, and set asides for eventual replacement vehicles.
- GHG Reduction Targets
  - 2015 – 20% GHG Reduction
  - 2020 – 50% GHG Reduction
  - 2025 – 100% GHG Reduction (75% GHG Reduction & 25% Offset Purchases)



University Motor Pool Fleet Notes: The University operates a fleet of 84 vehicles. Of these, 27 presently run on alternate fuels (21 CNG & 6 Biodiesel). Each year, an estimated 8% of the fleet vehicles will be replaced. Selection of vehicles shall be either alternate energy or among the top 90% of fuel efficiency with the category of vehicle types. An ongoing analysis of need for vehicles can determine if the fleet can be downsized in numbers and physical vehicle size. Following these guidelines, the fleet fuel economy will increase and pollutants produced will decrease each year. By 2025, the percentage of the fleet reliant on alternate energy is hoped to be 60%. This will reduce the carbon emissions for the University fleet to as close to zero as technology permits. The Climate Action Plan policy for new fleet vehicles must be multifaceted. Various categories of vehicle types need to be established: Long distance passenger transport, local passenger transport, on-campus passenger transport, light duty cargo, heavy duty cargo, and specialty vehicles. Requirements in each grouping need to be evaluated. Each department reliant on fleet vehicles needs to assess the vehicle's genuine use and demonstrate the necessity for the desired specifications. This evaluation may include the actual need for a vehicle. When feasible, a reduction in size class should be adopted for replacement vehicles. Selection of replacement vehicles should be either an alternate fuel powered engine or at least among the top 90% fuel efficient models for the purchase year for the vehicle's classification. In 2025 carbon offset purchases will be made to bring the GHG emission reduction to 100%.

3. Commuting & Telecommuting

OBJECTIVE 3.1 – PROMOTE THE E RIDESHARE PROGRAM

E Rideshare Outcomes: Sell carpool spaces each year to groups of two or more students, faculty and/or staff who agree to car pool to campus each year. The goal in year 1-3 is to sell 25 car pool tags; for years 4-6 double the number to 50 tags sold per year; and years 7-9 regularly sell 100 tags each year.

- Action Steps: a) Inform all commuting students, faculty and staff about this program during years 1-3 using email, electronic brochures, and an advertising campaign promoting the web link for **commuter students** or **for faculty and staff** (available at **www.eRideShare.com**); b) Sell car pool decal to two or more individuals who register for designated Ride Share spaces on various campus car pool lots. The designated areas reserved for Ride Share would require car poolers to place the parking decals for both riders on the dashboard of the automobile. Only cars with two or more individuals tags prominently displayed would be allowed

in the designated spot. As the success of the program grows, more spaces in parking garages and lots can be added.
- Areas Responsible: Human Resources Department, Department of Public Safety, and Off Campus and Commuter Services.
- Resources Needed: Most of the resources are in place to promote the e Rideshare Program and to sell the decal to interested campus members.

OBJECTIVE 3.2 – OFFER DISCOUNTS FOR HYBRID & HIGH FUEL EFFICIENCY (HFE) VEHICLES

Provide incentives for campus commuters to reduce carbon emissions by using a hybrid or high fuel efficient [HFE] vehicle. HFE cars will qualify for discounted parking decal passes in selected parking locations.

Hybrid & HFE Discount Outcomes: Years 1-3: Sell 50 HFE vehicle tags annually. Years 4-6: Sell 100 HFE vehicle tags annually. Years 7-9: Sell 100 HFE vehicle tags annually.
- Action Steps: During annual parking decal sign-ups, promote the specially discounted HFE vehicle parking pass for owners of qualifying cars. The new WCU Transportation Committee will be responsible for defining the miles per gallon requirement needed for a vehicle to be designated a High Fuel Efficiency vehicle.
- Areas Responsible: Primary responsibility for this project will fall on the Public Safety Department (Parking Enforcement), with support from the University Transportation Committee.
- Resources Needed: The program can be implemented using resources and processes already in place. Information regarding the purchase of this discounted tag can be included in promotional materials sent out each year during parking decal sales. Lost revenue from the 50% discount will need to be offset by increased parking fees, but using the goals of 100-200-300 in sales as described above can be managed.

OBJECTIVE 3.3 – DEVELOP ELECTRIC VEHICLE (EV) CHARGING STATIONS ON THE CAMPUS

Charging Station Outcomes: Install five Electric Vehicle (EV) charging stations on the campus in years 1-3, add five more EV charging stations on the campus in years 4-6, and during years 7-9 add another ten EV stations. Over a nine year period, a total of twenty EV charging stations will be located on the campus and available for faculty, staff and student use.
- Action Steps: Facilities personnel will be asked to review the various EV charging station models available for commercial use and recommend a preferred system for phase I (1-3 years). The Facilities Department, Department of Public Safety's Parking Enforcement Unit, and University Transportation Committee will identify sources of electricity readily available for EV charging station installation and the preferred locations for EV stations. Charging locations will be promoted during parking decal sign-ups and a formula to recoup energy costs – preferably through a new parking fee structure – will need to be developed by Facilities personnel and members of the Transportation Committee.
- Areas Responsible: Department of Facilities, Department of Public Safety Parking Enforcement Unit, and University Transportation Committee.
- Resources Needed: Costs will vary depending on the technology selected. As colleges and universities begin to install the EV Charging Stations on campus, they are passing along the direct costs to the user. In September of 2012, the University of California at San Diego installed several charging stations with the user being billed through a network interface at a cost of $3.0 for an 80% charge. The charging station can be reserved for a maximum of four hours, and users are required to have a campus permit or pay for visitor parking. In 2012 Temple University joined Drexel and the University of Pennsylvania in hosting EV Charging Stations on campus.

OBJECTIVE 3.4 – EXPAND THE SUBSIDIZED SEPTA BUS TOKEN PROGRAM

Bus Program Outcomes: Currently, the SSI Ticket Office in Sykes Union sells SEPTA token packs (5 per pack) at a cost of $7.75, or $1.55 per trip, which is a savings of 23% over the normal $2.00 ride. Between July 2011 and July 2012, the SSI Ticket Office sold 1,950 SEPTA Token packets, the equivalent of 9,750 rides. The goal will be to increase tokens sales to students, faculty, and staff by 30% over next three years (10% per year).
- Action Steps: Promote and market the discounted SEPTA tokens through campus wide email, electronic flyers, and social media. Create and maintain Transportation website with a prominent link to the SEPTA website for trip planning. Use GIS to map clusters of employees and students located around mass transit routes.
- Areas Responsible: Off Campus and Commuter Services, Off Campus Commuter Association, members of the CAP Implementation Committee, and relevant courses (e.g. Marketing). The SSI Ticket Office staff will continue to sell the tokens at a reduced rate.
- Resources Needed: Funds for advertising and promotion.

OBJECTIVE 3.5 – PILOT AN ALTERNATIVE WORK WEEK FOR OFFICE STAFF

Alternate Work Week Outcomes: Develop a four day work week for 25% of the campus staff over three years (5% year one, and an additional 10% percent in year two and three) in order to reduce employee vehicle trips to the campus. The offices will remain open five days per week in order to serve student needs, but staff will have a staggered work week schedule in order to complete the required 40 hours over a four day work week.

- Action Step: Identify five percent of the offices on campus that have sufficient staff to "pilot" a four day work week schedule. Based on a positive evaluation and assessment of the pilot program, expand the program by an additional 10% of the offices in year two and another ten percent of the offices in year three.
- Areas Responsible: Divisional Vice Presidents will work with their departmental managers to identify the initial group of offices for the pilot program. The Office of Human Resources will also work closely with bargaining units and area supervisors on campus on the establishment of this program.
- Resources Needed: No significant additional resources are needed provided there is employee support for this program, with agreements that no overtime will be paid.

OBJECTIVE 3.6 – DEVELOP A TELECOMMUTING POLICY AND PILOT PROGRAM

Telecommuting Outcomes: Draft and implement a telecommunicating policy that encourages staff to work four days a week in the office and one day a week from home. The goal is to identify 25% of the administrative staff over three years (5% year one, and an additional 10% percent in years two and three) in order to reduce employee vehicle trips to campus. All offices will remain open five days per in order to serve student needs, but staff will have a staggered work week schedule in order to cover the telecommuting schedule.

- Action Step: Identify five percent of the offices on campus during 2013 that have sufficient staff to "pilot" the telecommuting plan, with four days of work in the office and the fifth day from home. Based on a positive evaluation and assessment of the pilot program, expand the telecommuting program by an additional 10% of the offices in year two and another ten percent of the offices in year three.
- Areas Responsible: Divisional Vice Presidents will work with their departmental managers to identify the initial group of offices for the pilot program. The Office of Human Resources will also work closely with bargaining units and area supervisors on campus on the establishment of the telecommuting policy and actual phased-in program.
- Resources Needed: Beyond potential IT equipment (Laptops and connections) no significant additional resources are needed provided there is employee support for this program, with agreements that no overtime will be paid.

OBJECTIVE 3.7 – INVESTIGATE ALTERNATIVE COURSE SCHEDULING

Alternative Course Scheduling Outcomes: Conduct a study of alternative course scheduling and methods of instruction to reduce the number of days per week that students commute to campus. Specific outcome measures and targets would be developed depending on final recommendations of the study.

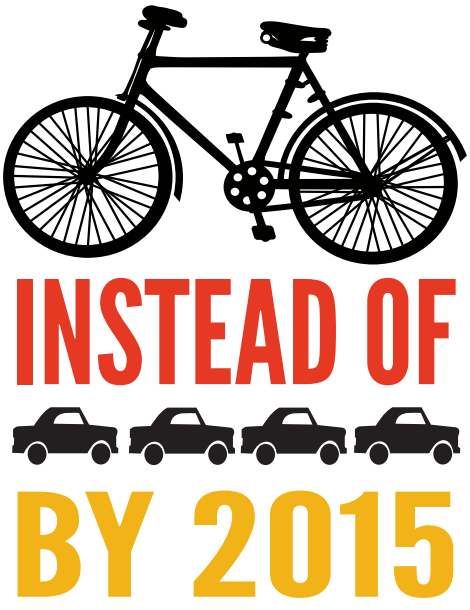
- Action Step: Form a University wide committee to explore three hour time block courses during evenings and on Saturday mornings and afternoons. Once a week courses would appeal to commuter students as well as individuals with full-time employment. Other areas for review would include the expansion of hybrid courses where students spend a certain amount of time each week in class with the remainder of instruction via Distance Education, as well as the continued development of the Distance Education Program. Such a program will be strictly voluntary, dependent on the needs and opportunities of/for the individual departments.
- Areas Responsible: University faculty, Department Chairpersons, and Academic Deans will all need to be involved in the process. Additional input from Facilities and related key administrative offices would also need to provide support information.
- Resources Needed: Based on collective bargaining payment schedules and/or incentives needed, additional compensation may be required to encourage Saturday teaching and Distance Education initiatives. Additional housekeeping and support personnel will also need to be estimated to staff Saturday hours.

4. Bicycling

OBJECTIVE 4.1 – IMPROVE AND EXPAND BICYCLING INFRASTRUCTURE

Bicycle Infrastructure Outcomes: Increase availability of bicycle racks, lockers and pathways for bikes on campus and through the university community.

- Action Step #1: Assess needs and begin collecting funds for infrastructure through increased parking fees and other sources. Establish working relationships with the Borough of West Chester, **BLUER**, and the **Chester County Cycling Coalition**.
- Action Step #2: Work with Borough to identify pathways and develop bike lanes. While bicycle routes have already been identified by the Borough, increasing the bike-friendliness of these routes will make them more attractive and more frequently used.
- Action Step #3: Close Church Street but maintain a bike lane that highlights bike culture and can be a starting place for a bike lane that connects directly to South Campus (per the University's campus master plan).
- Action Step #4: Increase availability of bicycle racks and outdoor bike lockers by purchasing additional bicycle racks and installing them in the parking lots especially on South Campus near Q lot to promote bicycle riding. Purchase lockers that can be strategically placed on North and South campus.
- Areas Responsible: Transportation Committee, Facilities Department, Student Affairs, Climate Action Plan Implementation Committee.
- Resources Needed: Average costs from the **Bicycle Information Center**
    i. Bicycle Rack: $1000-1200
    ii. Bicycle Locker: $1,000-4,000
    iii. Pathways: (relative) >$10,000
    iv. Bike air pumps
    v. Fully Furnished Workshop: >$10,000 (See 4.2 for possible business partnership)
        1. Building (including showers, lockers, racks and classrooms)
        2. Staff
        3. Bicycle repair/maintenance tools and supplies (private company)
- Implementation time frame:
- By 2015 – Identify funding areas: Action Step #1; buy racks/lockers (#4)
- By 2020 – Completion of retooled bike paths: Action Step #2. As demand increases, increase bike racks and lockers (#4)
- By 2025 – Close Church Street (#3)



OBJECTIVE 4.2 – INITIATE A BICYCLE RENTAL/SHARING PROGRAM

Bicycle Rent/Share Outcomes: Identify and contract with a bike rental company (e.g., **Fuji University**) who would be willing to establish a branch at WCU. This company would also open a fully furnished workshop for bicycle repairs and maintenance, and provide a free air pump.

- Areas Responsible: Campus Facilities Department and Student Affairs to identify space/create contract private vendors.
- Resources Needed: the space; contract with the bicycle company

OBJECTIVE 4.3 – PROMOTE WALKING AND BIKING AMONG FACULTY, STAFF, AND STUDENTS

Biker/Pedestrian Outcomes: Significantly increase the percentage of faculty, staff, and students who bicycle or walk to campus.

- Action Step: Provide incentives for faculty, staff, and students who bike to campus instead of driving. (e.g. annual drawing for a fitness center membership)
- Implementation Timeframe: By 2015

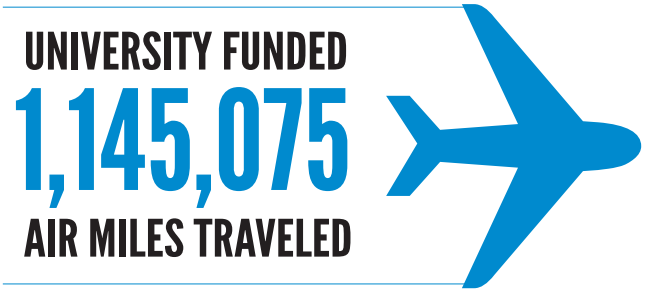
5. Air Travel

Background: Emissions from air travel are based on an analysis of University-funded trips taken during FY 2011 that indicated 1,145,075 air miles traveled.

OBJECTIVE 5.1 – REDUCE, CONSOLIDATE, AND OFFSET AIR TRAVEL

Air Travel Outcomes: Reduce the number of air miles travelled per year and the impact of the miles travelled by

- Increasing the use of webinars. Evaluate the feasibility of including incentives for participating in webinars or video conferencing rather than physically attending those conferences with these options. Exceptions to such a policy should be available as necessary, but the default should be remote attendance.
- Refining the approval process for air travel to eliminate unnecessary trips.
- Centralizing booking of flights. Identify or devise a system for on-line (campus-wide or PASSHE-wide) flight reservations that make it mandatory that individuals going to the same destination be on the same flight. If multiple stops are required, this might be feasible even for different destinations on the same day. The same idea should be instituted for travelers using ground travel.
- Identifying the most environmentally conscious airlines.
- Carbon-offsetting. Require departments to purchase carbon offsets for flights, which is an increasingly common practice, and a small outlay relative to the price of the ticket. A 5,000 mile round trip flight from Philadelphia to San Francisco, for instance, would generate just under a ton of CO2, and would cost $9.36 in offsets according to carbonfund.org. In addition, carbon offsetting for student study abroad programs can be built into program costs.
- Implementation timeframe:
  - By 2014: System in place to track miles
  - By 2020: All air travel miles offset



6. Regional Transportation

OBJECTIVE 6.1 – EXPAND ACCESS TO SEPTA RAIL SERVICE VIA SHUTTLES TO/FROM CAMPUS

Expanded Rail Access Outcomes: Have regularly scheduled shuttle buses synchronized with train and class schedules that will run between the Exton and/or Downingtown SEPTA train stations and the WCU campus.

- Action Step #1: Use campus-wide survey data to ascertain the need and potential impact of implementing shuttles and/or expanding bus service to campus. Include Cheyney University in any discussions with SEPTA.
- Action Step #2: Develop a relationship with and become a member of the Transportation Management Association of Chester County (**TMACC**)
- Action Step #3: Identify whether to use a WCU shuttle, additional SEPTA bus service, or a private contractor (e.g. Paradise Transit).
- Action Step #4: Actively review additional needs or services every other year.
- Resources Needed – Fulltime Sustainability Officer to monitor progress.
- Implementation time frame:
  - By Fall 2014: Action Step #2 and limited ("closed system") shuttle service at highest traffic times for train travel.
  - By 2015 – Action Step #1 & #3
  - By 2020 – Action Step #4: Continued expansion of public transportation options

OBJECTIVE 6.2 – PROVIDE PUBLIC TRANSPORTATION PASSES FOR STUDENTS & EMPLOYEES

Public Transportation Pass Outcomes: Provide free or subsidized public transportation passes for all faculty, staff, and students. Some colleges and universities offer pre-tax transit pass purchases which can save the employees significant and can provide the incentive to purchase the pass. At some schools, public transportation passes for students are built into student fees and arranged with the transit system at a discount because of the large spike in ridership and income this offers. Subsidies can also be covered through stepped increases in parking fees.

- Action Steps: Evaluate the cost, propose that the University and SEPTA both subsidize; evaluate potential benefit of **WageWorks.com's** services and implement.

OBJECTIVE 6.3 – WORK WITH TMACC & SEPTA TO OPTIMIZE BUS/TRAIN SCHEDULING

Bus/Train Scheduling Outcomes: To make the use of public transportation more attractive, work with TMACC, SEPTA and our campus community to identify the optimal schedule for trains, buses and shuttles.

- Action Step #1: Identify/appoint WCU/SEPTA liaison; permanent member Transportation Committee
- Action Step #2: Once our survey and GIS data and other evaluation allows us to estimate potential increase in ridership, our WCU SEPTA liaison will map out possibilities and corroborate with SEPTA and updated scheduling.
- Areas Responsible: Director of Sustainability to oversee: WCU/SEPTA liaison, HR and Public Safety having a voice; Larry Dowdy

OBJECTIVE 6.4 – WORK WITH SEPTA TO (RE)OPEN THE TRAIN ROUTE TO WEST CHESTER

Train to West Chester Outcome: The SEPTA R3 West Chester line is re-established, linking West Chester with Philadelphia and points in-between.

- Action Steps: Continue advocacy efforts directed at encouraging SEPTA to re-think train routes.
- Resources Needed: SEPTA buy-in; statistics gathered from initial Transportation Survey; WCU/SEPTA liaison
- Implementation time frame:
- By 2025 – Have the train route established and the train running

PURCHASING

GOALS

Support and facilitate the purchase of products and materiel that minimize embodied greenhouse gas emissions and other harmful environmental and social effects from their production, transportation, use and disposal.

- Educate all West Chester University employees on sustainable purchasing, their role in the process, and opportunities to purchase socially and environmentally preferred goods and services.
- Increase purchases of environmentally preferred goods and services consistent with the mission of West Chester University while still remaining cost-effective and in compliance with procurement policy.
- Reduce consumption of energy and natural resources.
- Increase the use of recycled content products where possible.
- Create a model program for successfully purchasing environmentally preferable products that encourages other PASSHE universities and the local community to adopt similar goals.

SUMMARY OF PROJECTS AND INITIATIVES

1. Purchasing Policies & Planning
Objective 1.1 – Establish a Sustainable Purchasing Task Group
Objective 1.2 – Develop a Sustainable Purchasing Policy

2. Sustainable Purchasing Tracking, Reporting, and Promotion
Objective 2.1 – Track and Report Sustainable Purchasing Efforts
Objective 2.2 – Produce and Update a Campus Guide to Sustainable Purchasing
Objective 2.3 – Educate the Campus Community about Sustainable Purchasing

PROJECTS AND INITIATIVES

1. Purchasing Policies & Planning

OBJECTIVE 1.1 – ESTABLISH A SUSTAINABLE PURCHASING TASK GROUP

Sustainable Purchasing Committee Outcome: Establish a Sustainability/Environmentally Preferred Purchasing Task Group charged with researching attributes of current campus purchasing patterns, identifying alternatives, and making recommendations for a comprehensive WCU Sustainable Purchasing Policy.

- Action Step 1: Form the Task Group during Fall 2013

OBJECTIVE 1.2 – DEVELOP A SUSTAINABLE PURCHASING POLICY

Purchasing Policy Outcome: The Sustainable Purchasing Task Group develops and secures approval for a WCU Sustainable Purchasing Policy that, at minimum, a) recognizes that sustainable purchasing is a critical component of preserving natural resources and lowering operating costs and minimizing waste; b) specifies whenever possible and reasonable, the use of sustainable, environmentally friendly systems, equipment and materials; c) ensures that supplies, materials, equipment and services are procured at the lowest possible monetary and environmental costs; d) incorporates a commitment to purchasing Energy Star certified appliances and products; e) promotes business with design firms, consultants, contractors, manufacturers and suppliers that consistently demonstrate sustainable and socially conscious business practices; f) gives preference to locally owned businesses or produced products where possible; and g) provides clear guidance to staff on protocols required for achieving social and environmental goals.

- Action Step: Evaluate the current **Environmentally Preferred Purchasing Program**

2. Sustainable Purchasing Tracking, Reporting, and Promotion

OBJECTIVE 2.1 – TRACK AND REPORT SUSTAINABLE PURCHASING EFFORTS

Tracking and Reporting Outcome: The WCU Purchasing Department, in conjunction with other University departments, tracks and records sustainable purchasing efforts, and prepares a report highlighting performance on an annual basis.

- Action Step: Establish baseline product inventory data and social and environmental impact indicators.
- Action Step: Set goals for the procurement and use of socially and environmentally responsible goods and services.

OBJECTIVE 2.2 – PRODUCE AND UPDATE A CAMPUS GUIDE TO SUSTAINABLE PURCHASING

Campus Guide to Sustainable Purchasing Outcome: The Sustainable Purchasing Task Group produces and annually updates a guide to sustainable purchasing that provides a list of recommended environmentally friendly products or services. The Guide shares lessons learned and encourages adoption of sustainable practices.

- Action Step: Develop and maintain a database of suppliers and materials complying with University's sustainable purchasing policy

OBJECTIVE 2.3 – EDUCATE THE CAMPUS COMMUNITY ABOUT SUSTAINABLE PURCHASING

Sustainable Purchasing Education Outcome: The Sustainable Purchasing Task Group offers regular information sessions for campus purchasers to educate them about Sustainable and Environmentally Preferred Purchasing and helps secure the resources necessary to ensure compliance with the University's Sustainable Purchasing Policy.

SOLID WASTE & RECYCLING

INTRODUCTION

Based on WCU's 2012 STARS Report, 306 tons of materials were recycled, composted, reused, donated, re-sold or otherwise diverted while 1,417 tons of materials were disposed in a solid waste landfill or incinerator. The next step is for WCU to join other colleges and universities that are striving to become Zero Waste campuses.

GOALS

Achieve significant annual decreases in embodied carbon by reducing solid waste and increasing rates of recycling and composting, with the ultimate goal of becoming a 'Zero Waste' campus where more than 90% of "waste" is diverted from landfills and incinerators through materials education, reduction, re-use, recycling, and composting.

SUMMARY OF PROJECTS AND INITIATIVES

1.Solid Waste Policies and Planning
- Objective 1.1 – Establish a Campus Zero Waste Working Group
- Objective 1.2 – Develop/Implement a Campus Zero Waste Policy & Strategy
- Objective 1.3 – Require Construction/Demolition Waste Management Plans

2. Zero Waste Education
- Objective 2.1—Add a Zero Waste Program to New Student Orientation
- Objective 2.2—Include West Chester University's Zero Waste Policy in all Syllabi

3. Reduce (and Refuse)
- Objective 3.1 – Transition to Paperless Courses and Offices
- Objective 3.2 – Ban Single-Use Water Bottles and Encourage Reusables

4. Reuse (and Repurpose)
- Objective 4.1— Reuse, Donate, and Sell Move-Out Waste on and Off Campus
- Objective 4.2— Reuse "Waste" Cooking Oil to Generate On-Site Electricity

5. Recycle
- Objective 5.1—Formally Participate in the Annual RecycleMania Competition
- Objective 5.2—Provide each Residence Hall Room with a Recycling Bin
- Objective 5.3 – Donate, Reuse, and Recycle Electronic Materials

6. Compost

Objective 6.1 — Initiate Composting of Food Waste
Objective 6.2—Place Compost Bins throughout Campus and at Catered Events
Objective 6.3 — Investigate the Feasibility of On and Off-Site Composting
Objective 6.4 – Create Additional Composting Sites for Educational Purposes

PROJECTS AND INITIATIVES

1. Solid Waste Policies and Planning

OBJECTIVE 1.1 – ESTABLISH A CAMPUS ZERO WASTE WORKING GROUP

Zero Waste Working Group Outcomes: The Climate Action Plan Implementation committee develops the composition and mission of the Working Group in consultation with the VP for Finance and Administration and other university staff as needed. The Working Group will be charged with developing, implementing and monitoring a Zero Waste Policy at WCU.

- Resources Needed: Funding for a Working Group Coordinator/Intern
- Implementation Time Frame: By 2014

OBJECTIVE 1.2 – DEVELOP/IMPLEMENT A CAMPUS ZERO WASTE POLICY & STRATEGY

Zero Waste Policy Outcomes: Develop and implement a policy and strategy for achieving zero waste by a target date established by the Zero Waste Working Group. For the purposes of this effort, a Zero Waste Campus is defined as one that consistently diverts more than 90% of material from landfills and/or incinerators. The Policy will include targets for a) reducing waste at the source; b) increasing recycling rates; c) diverting waste toward reuse; d) diverting biodegradable waste toward composting, plus other reduction and diversion strategies identified by the Working Group. The plan will make provisions for an annual waste stream audit; designate staff responsible for implementing the plan; outline proposed actions for reducing waste; articulate tracking and review procedures; and include deadlines for achieving targets and goals. (See, for instance, American University's **Zero Waste Policy**).

- Action Step: Charge the Campus Zero Waste Working Group with developing, implementing, and assessing the University's Zero Waste strategy.
- Implementation Time Frame: By 2014

OBJECTIVE 1.3 – REQUIRE CONSTRUCTION/DEMOLITION WASTE MANAGEMENT PLANS

Construction/Demolition Waste Management Outcome: Establish a protocol for contractually requiring that all West Chester University bid projects include a construction and demolition waste management plan. Such plans, when implemented, reduce the amount of site debris waste going to landfills and are thus financially and environmentally responsible.

- Implementation Time Frame: By 2014.

2. Zero Waste Education and Training

OBJECTIVE 2.1—ADD A ZERO WASTE PROGRAM TO NEW STUDENT ORIENTATION

Zero Waste in New Student Orientation Outcome: Starting in 2014, new WCU students will be introduced to critical sustainability initiatives via the **Awakening the Dreamer Symposium**. The presentation will also include an explanation of the University's Zero Waste Policy and other campus sustainability initiatives.

- Implementation Time Frame: Beginning with August Part II or Welcome Week 2014
- Action Steps: The Office of New Student Programs will collaborate with the Office of Sustainability to create a council to oversee the program. WCU Eco-Reps will organize a presentation that includes the Symposium, the Zero Waste Policy, and other critical sustainability topics.

OBJECTIVE 2.2—INCLUDE WEST CHESTER UNIVERSITY'S ZERO WASTE POLICY IN ALL SYLLABI

Zero Waste Policy in Syllabi Outcome: All professors will include West Chester University's Zero Waste Policy in all syllabi, along with other important information such as the ADA policy.

3. Reduce (and Refuse)

OBJECTIVE 3.1 – TRANSITION TO PAPERLESS COURSES AND OFFICES

Paperless Courses and Offices Outcome: Include in the University's Zero Waste Policy a commitment to transition to paperless courses and offices.

OBJECTIVE 3.2 – REDUCE SINGLE-USE WATER BOTTLES AND ENCOURAGE REUSABLES

Reduce Water Bottles and Encourage Reusable Containers Outcomes: Set targets for significantly reducing (and possibly banning) the sale of single-use bottled water at WCU, promote the use of refillable, reusable containers, and install additional water filling stations throughout the campus.

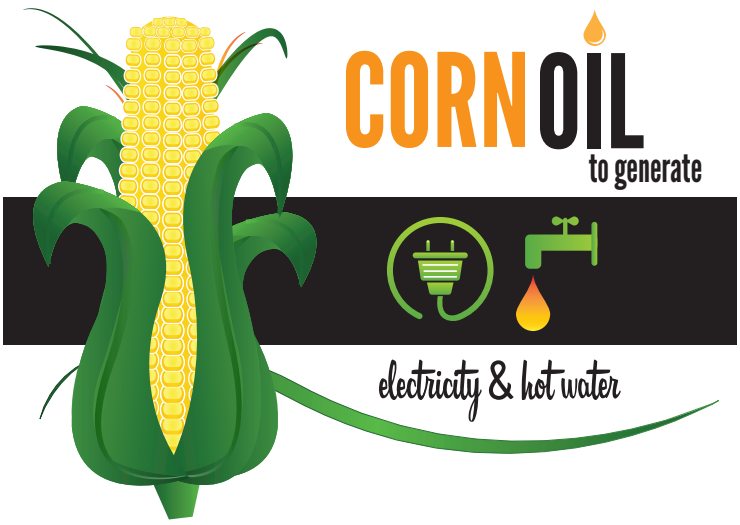
- Action Step: Include in WCU's Zero Waste Policy a commitment to reducing and possibly banning the sale of single-use water bottles on the WCU campus.
- Action Step: Provide reusable cups/mugs during New Student Orientation.
- Incentive the use of reusable containers through discounts.
- Action Step: Purchase Elkay water filling stations ($634.00 each plus installation)
- Implementation Time Frame: By 2015

4. Reuse (and Repurpose)

OBJECTIVE 4.1— REUSE, DONATE, AND SELL MOVE-OUT WASTE ON AND OFF CAMPUS

Reduce Move-Out Waste Outcome: Establish a process for collecting, reusing, donating and/or reselling move-out "waste" both on and off campus. Collections are made in May and items are then immediately sold via a "yard sale" and proceeds donated, or stored for resale to incoming students in August.

- Action Step: Continue to formalize a relationship with the Borough of West Chester (Public Works), Goodwill, and other community-based organizations to establish an off-campus waste collection and resale process.
- Action Step: Establish an on-campus move-out committee charged with studying the feasibility of implementing an annual collection in May and resale in August.
- Implementation Time Frame: Fall 2013 with the objective of collecting in May 2014.



OBJECTIVE 4.2— REUSE "WASTE" COOKING OIL TO GENERATE ON-SITE ELECTRICITY

Waste Cooking Oil to Electricity Outcome: Purchase the **Vegawatt** system, which uses waste cooking oil as a source of fuel to generate on-site electricity and hot water. The Vegawatt's size is comparable to that of a refrigerator and will be installed adjacent to the outside wall of its respective building and will operate using a single-line connection. It also ties into existing electricity and heating systems for easy implementation.

- Action Step: Initiate conversations with Aramark about the feasibility of installing a Vegawatt system in Lawrence.
- Resources Needed: $20,000 plus installation
- Implementation Time Frame: Begin discussions in Fall 2013.

5. Recycle

OBJECTIVE 5.1—FORMALLY PARTICIPATE IN THE ANNUAL RECYCLEMANIA COMPETITION

RecycleMania Participation Outcome: West Chester University will be a formal participant in **RecycleMania**, which seeks to motivate students and staff to increase recycling efforts and reduce waste generation while encouraging colleges to measure and benchmark recycling activity in an effort to improve their programs over time. It takes place in the spring and lasts for 8 weeks. Campuses all across the nation compete to have the highest rate of recycling.

- Goal: Exceed the Commonwealth of PA recycling goal of 35% of the campus waste
- Implementation Time Frame: Beginning in Spring 2014

OBJECTIVE 5.2— INCREASE THE NUMBER OF RECYCLING BINS PLACED ON CAMPUS

Recycling Bin Outcome 1: Recycling bins will be purchased for every residential room on campus. According to the Gettysburg College Climate Action Plan, "a study in 2006 found that when first-year dorm rooms were supplied with recycling bins and garbage bins, recycling increased because students were not using their recycling bin for garbage."

- Implementation Time Frame: By 2015
- Action Step: Resources: Approximately $14,000 for recycling bins

Recycling Bin Outcome 2: Place a recycling container next to all existing trash containers on campus.

- Action Step: Purchase and place the recycling containers
- Resources Needed: Unit cost: $1,000. Unit count: 50.

Total cost = $50,000.

Recycling Bin Outcome 3: Add a mini-bin recycling program for all offices. The mini-bin program replaces large trash cans using plastic liners with a mini-bin with no liner, and replaces 14 quart recycling containers with larger 28 quart containers. The program encourages office occupants to use their recycling bin more frequently than their trash bin, thereby increasing the recycling rate and eliminating 250,000 trash can liners yearly from the waste stream.

- Action Step: Begin implementing the mini-bin program throughout campus.

OBJECTIVE 5.3 – DONATE, REUSE, AND RECYCLE ELECTRONIC MATERIALS

Background: Electronics are classified as the fastest growing source of solid waste as well as the most dangerous. Recyclers recover more than 100 million pounds of materials from electronics each year, and much of it is exported to developing countries where the components are inefficiently broken down and toxins are released into the environment.

Electronic Materials Outcome: Establish a donation, trade, and disposal system that uses electronics flea markets and e-waste drop boxes. Work with Environmental Health and Safety to expand their battery disposal contract to all electronic devices.

- Action Step: Consult with JT Singh in Academic Computing about prospects for continuing to dispose of electronic waste in the safest and most effective way.
- Implemented Time Frame: By 2015

6. Composting

OBJECTIVE 6.1 — INITIATE COMPOSTING OF FOOD WASTE

Composting Food Waste Outcome: Compost receptacles will be placed in the dining halls and the food court. Collected material will be placed in **Earth Tubs**, which are "fully enclosed composting vessels featuring power mixing, compost aeration, and biofiltration of all process air." One Earth Tub handles up to 100 lbs. of biodegradables per day.

- Action Step: Investigate the feasibility of purchasing and using Earth Tubs at WCU
- Action Step: Consult with Aramark about the feasibility of collecting and composting food waste.
- Resources Needed: $11, 475 per unit plus installation and labor costs.

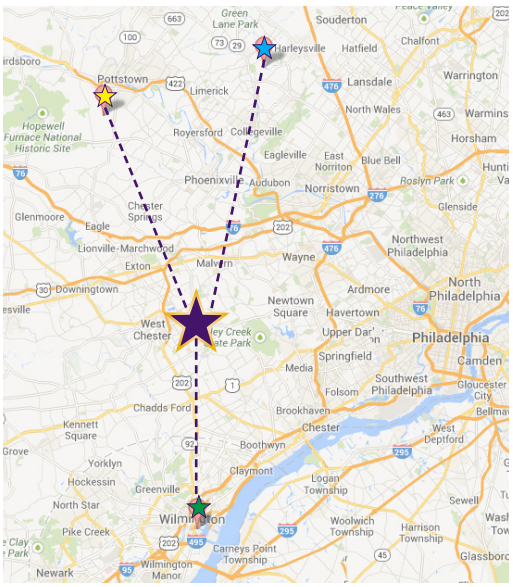
OBJECTIVE 6.2—PLACE COMPOST BINS THROUGHOUT CAMPUS AND AT CATERED EVENTS

Compost Bin Placement Outcomes: Compost bins are placed through the University – primarily in the dining areas, residence halls, and at all catered events. This objective is modeled after the University of North Carolina, Chapel Hill's successful **food waste composting initiative.**

- Action Step: Investigate feasibility of including compost collection among staff duties

OBJECTIVE 6.3 — INVESTIGATE THE FEASIBILITY OF ON AND OFF-SITE COMPOSTING

Composting Feasibility Outcome: A study is conducted to determine the feasibility and relative merits of using regional, off-campus composting sites versus establishing a large-scale composting operation on campus. The site would be responsible for accepting compostable waste from WCU's dining and grounds operations. Regional options include the **Peninsula Compost Group** in Wilmington, DE (approximately 18 miles), Barnside Mulch and Compost in Schwenksville, PA (approximately 37 miles), and **Arborganic Acres** in Pottstown, PA (approximately 24 miles).



REGIONAL OPTIONS FOR OFF-SITE COMPOSTING

★ BARNSIDE MULCH AND COMPOST (37 MILES)

★ ARBORGANIC ACRES (24 MILES)

★ PENINSULA COMPOST GROUP (18 MILES)

OBJECTIVE 6.4 – CREATE ADDITIONAL COMPOSTING SITES FOR EDUCATIONAL PURPOSES

Small Educational Composting Site Outcomes: Build and maintain at least two more education-oriented composting sites on the West Chester University campus. These sites would be similar in size and design to the current composting area in the Outdoor Classroom & Demonstration Garden outside of Merion. These sites would be coordinated by the Outdoor Classroom Intern, and maintained by students in courses and clubs, with the aim of providing educational benefit as well as usable compost for campus garden projects. Implementation Time Frame: By 2015

DINING SERVICES

INTRODUCTION

University food and dining services is one area that can have a significant impact on carbon emissions, the environment, human health, labor and animal welfare. Through the creation, promotion and implementation of sustainable and responsible food procurement, energy and water conservation, waste stream management, and education, West Chester University food service can actively support the American College & University Presidents' Climate commitment through the reduction of greenhouse gas emissions associated with current food procurement practices. WCU currently contracts with ARAMARK for dining services. ARAMARK employs a full-time sustainability coordinator at WCU and, as a corporation, is committed to a number of general sustainable food service goals.

GOALS

Reduce greenhouse gas emissions associated with dining services through the creation, promotion, and implementation of sustainable and responsible food procurement, energy and water conservation, waste stream management, and education. Develop solutions, incentives, and resources to lower the environmental burden of the University's food service operations while maintaining and/or improving nutritional quality, product appeal, and the requirements of sustainable food standards.

SUMMARY OF PROJECTS AND INITIATIVES

1. Dining Services Planning & Policies
- Objective 1.1 – Establish a Sustainable Food Service Working Group
- Objective 1.2 – Develop and Implement a Sustainable Food Production and Purchasing Policy

2. Sustainable Dining Education and Outreach
- Objective 2.1 – Develop Outreach and Educational Instruments

PROJECTS AND INITIATIVES

1. Dining Services Planning & Policies

OBJECTIVE 1.1 – ESTABLISH A SUSTAINABLE FOOD SERVICE WORKING GROUP

Food Service Working Group outcomes: The Climate Action Plan Implementation committee develops the mission of the Sustainable Food Service Working Group in collaboration with the Assistant Vice President for Student Affairs. The Working Group will be charged with developing, implementing and monitoring a Sustainable Food Policy at WCU.

- Resources Needed: Funding for a Working Group Coordinator/Intern
- Implementation time frame: By 2014

OBJECTIVE 1.2 – DEVELOP AND IMPLEMENT A SUSTAINABLE FOOD POLICY

Background: WCU currently has no written Sustainable Food Policy. Without a policy that clearly states WCU's goals, objectives, procurement strategies, targets and timelines, there is no standard by which to measure success, evaluate progress, or make necessary changes.

Sustainable Food Policy outcomes: The Sustainable Food Service Working Group develops and implements a **Sustainable Food Purchasing Policy** that does at least the following:

1. Fosters a sustainable food service program that contributes to the economic vitality, environmental sustainability, and quality of life in the region.
2. Maintains variety, quality, and availability of vegetarian, vegan, and organic options.
3. Establishes sustainability standards for contracted food service providers in the areas of pesticide reduction, soil and water conservation, wildlife habitat conservation, care for livestock, non-GMO products, and safe and fair working conditions to the maximum extent feasible during the performance of the contract.

- Action Step: Establish a definition of "sustainable food" and create a mission statement for a Sustainable Food Policy that is consistent with the mission of the University, its Strategic Plan, and the Climate Action Plan.
- Action Step: Use the **Charting Emissions from Food Services** (Chefs) tool to produce a baseline, full life cycle analysis of current food procurement that includes GHG emissions as well as current water, waste and recycling data.
- Action Step: Develop an action plan that establishes goals to measurably improve carbon emissions and other sustainability objectives associated with the purchase of food used by dining services. Among the goals is a set of guidelines for institutional purchasing that (1) increases food procurement from local and regional food producers; (2) increases the percentage of foods purchased with third-party certification (USDA certified organic, Certified Humane Raised, etc).
- Action Step: Produce quarterly and/or annual reports to evaluate and document compliance, percentages, improvements and goals in meaningful and measurable ways.
- Action Step: Establish procedures to communicate efforts and accomplishments with the campus and the community.

2. Sustainable Dining Education & Outreach

OBJECTIVE 2.1 – DEVELOP OUTREACH AND EDUCATIONAL INSTRUMENTS

Dining Education and Outreach Outcomes: Develop outreach and educational instruments to coordinate and encourage educational efforts to promote awareness and understanding of sustainable food systems and nutrition.

- Action Step: Determine appropriate educational tools for the target audiences (food service staff, students, campus community, and local community).
- Action Step: Establish Longer-term goals of developing more course offerings on food and sustainability, as well as the infusion of food and sustainability into current courses.

CURRICULUM, CO-CURRICULAR EDUCATION, RESEARCH, AND PUBLIC ENGAGEMENT

INTRODUCTION

As an institution of higher education, West Chester University's primary roles in meeting the challenges of sustainability and climate change are to educate, conduct research, and provide public service. Through these efforts we have an opportunity to instill the knowledge and values of sustainability within our campus and community. At West Chester University, we promote the stewardship of an Earth on which life flourishes into a future of increasing prosperity and opportunity, without reducing the capacity of the environment to provide for future generations of humans and other life. Sustainability requires an understanding of the inter-connected relationship of environmental, societal, and economic issues and resources at both the local and global levels. West Chester University graduates will be prepared to transform their understanding of those connections into a life-long commitment to environmental sustainability and responsible local and global citizenship.

GOALS

Curriculum: Ensure that all WCU students develop a deep understanding of sustainability and climate change. We will foster systems thinking through an integrated curriculum that makes connections across colleges and programs. We will provide an experiential education that develops in all students the practical knowledge and skill to address the challenges of sustainability and climate change in their personal, civic, and professional lives.

Co-Curricular Education and Training: Engage the entire West Chester University community in learning about climate change and sustainability. We will involve all students, staff, faculty, and administrators in learning about and creating a sustainable future. We will integrate sustainability into the campus culture by providing WCU students with co-curricular sustainability learning experiences that enable them to deepen and apply what they have learned in the formal curriculum. We will also provide training opportunities for administrators and staff to deepen their understanding of sustainability and support their ability to become sustainability and climate change leaders in their own departments.

Research: Expand research and creative work that address the challenges of climate change and sustainability. We will promote interdisciplinary and multidisciplinary perspectives and collaborations to develop and implement solutions in our local, regional, and global communities.

Public Engagement: Advance sustainability within the larger society. We will fulfill West Chester University's public mission by pursuing, developing, and promoting partnerships that respond to the needs of our community, region, and Commonwealth.

SUMMARY OF PROJECTS AND INITIATIVES

1. Curriculum
   - Definitions: Sustainability-Focused and Sustainability-Related
   - Objective 1.1 – Incorporate Sustainability into General Education
   - Objective 1.2 – Create Sustainability Majors, Minors, and Certificate Programs
   - Objective 1.3 – Adopt Sustainability and Climate Change Learning Outcomes
   - Objective 1.4 – Develop Opportunities for Experiential Sustainability Learning
2. Co-Curricular Education and Training
   - Objective 2.1 – Establish a Student Sustainability Educators Program (Eco-Reps)
   - Objective 2.2 – Establish an Earth Ally Program
   - Objective 2.3 – Incorporate Sustainability into New Student Orientation
   - Objective 2.4 – Produce Campus-Wide Sustainability Events
   - Objective 2.5 – Develop Campus Sustainability Tours
   - Objective 2.6 – Create a Model Sustainable Room in a Residence Hall
   - Objective 2.7 – Create Sustainability Themed Housing
   - Objective 2.8 – Establish a 'Sustainability' House
3. Research
   - Objective 3.1 – Increase Incentives for Sustainability Research/Creative Activity
   - Objective 3.2 – Create a Center for Sustainability Studies & Research
4. Public Engagement
   - Objective 4.1 – Increase Formal Sustainability Partnerships
   - Objective 4.2 – Increase Sustainability-Related Student Internships
   - Objective 4.3 – Increase Sustainability-Related Service Learning & Volunteering
   - Objective 4.4 – Increase Sustainability Collaborations with Colleges/Universities
   - Objective 4.5 – Increase Sustainability-Focused Adult/Continuing Ed Courses

PROJECTS AND INITIATIVES

1.Curriculum

DEFINITIONS

Sustainability-Focused: A course is sustainability-focused if the main goals and objectives of the course include any of the following topics:

- The impact of human activities (e.g., energy, agriculture, manufacturing, transportation, development, recreation) on natural systems (e.g., biodiversity loss, air and water pollution, soil erosion, etc.)
- The relationship of population, consumption, culture, social equity, and the environment
- Technical, design, and scientific strategies that foster sustainable development, e.g., promote energy efficiency, conserve natural resources, prevent and control the generation of pollution and waste, remediate environmental problems, and preserve biological diversity
- Social, cultural, legal, and governmental frameworks for guiding environmental management and sustainable development
- The causes, consequences, and severity of climate change
- How to apply principles of sustainable development in the context of professional and personal activities.

Sustainability-Related: A course is sustainability-related if any of the following topics are addressed in the course, but were not part of the main goals or objectives in the course:

- The impact of human activities (e.g., energy, agriculture, manufacturing, transportation, development, recreation) on natural systems (e.g., biodiversity loss, air and water pollution, soil erosion, etc.)
- The relationship of population, consumption, culture, social equity, and the environment

- Technical, design, and scientific strategies that foster sustainable development, e.g., promote energy efficiency, conserve natural resources, prevent and control the generation of pollution and waste, remediate environmental problems, and preserve biological diversity
- Social, cultural, legal, and governmental frameworks for guiding environmental management and sustainable development
- The causes, consequences, and severity of climate change
- How to apply principles of sustainable development in the context of professional and personal activities

OBJECTIVE 1.1 – INCORPORATE SUSTAINABILITY INTO GENERAL EDUCATION

Sustainability in General Education Outcome: By 2017 sustainability will be incorporated into General Education with course identifiers. Require all students to complete, at minimum, a "sustainability" approved course or sequence of courses.

- Action Step: Formalize a definition of sustainability in the curriculum that distinguishes 'sustainability-focused' courses from 'sustainability-related' courses and 'sustainability immersive' courses. Make the sustainability course inventory publicly available on-line.
- Action Step: Conduct a sustainability literacy assessment of students focused on knowledge of sustainability topics and climate change.
- Resources Needed:
  1. A 6-Credit AWA for an Education for Sustainability Coordinator Note: WCU's Sustainability Coordinator is currently a half-time position (6-credit AWA) and is responsible for overseeing sustainability initiatives across the entire campus. Successful implementation of this goal and objective will require a position focused exclusively on curriculum, co-curricular education, research, and public engagement.
  2. Stipends for seven college-based Faculty Sustainability Ambassadors. Note: This is the continuation of a proven program. CAS will have two Ambassadors, one from the sciences, one from the humanities; CBPA will have two Ambassadors, one from the public affairs/social sciences and one from business; COE, CVPA, and CHS will have one Ambassador each.
  3. Incentives for course and program creation: Secure funding from the Dean to conduct Ponderosa model workshop training in May of 2014. The Ponderosa model is a summer program that allows faculty members in any department to develop detailed plans explaining how they will integrate Sustainability into their classes. Faculty who develop a successfully approved proposal receive a stipend.
- Implementation time frame: By 2017
  2013: Initiate discussion among faculty, CAPC, and academic affairs administrators about the prospects and timeline for changes in general education
  2013-2014: Continue General Education discussions with an emphasis on incorporating sustainability, climate change, and systems thinking (aka integral thinking) in any reformulation of General Education. Reconfirm/identify Sustainability Ambassadors and charge them with tasks to assess and encourage faculty interest in and motivation towards sustainability goals.
  2015-16: Establish college-based forums/workshops that draw faculty to integrate sustainability into the curriculum, especially into introductory courses.

OBJECTIVE 1.2 – CREATE SUSTAINABILITY MAJORS, MINORS, AND CERTIFICATE PROGRAMS

Sustainability Programs Outcome: Create and implement sustainability-focused undergraduate majors, degree programs, minors, and/or certificate programs; Create and implement sustainability-focused graduate degree programs and certificates. Note: The nature and number of new programs created will depend on the interest of faculty, departments, and colleges, and on the availability and effectiveness of incentives.

- Action Step: Initiate discussion among faculty, CAPC, departments, and academic affairs administrators about the prospects and timeline for developing new sustainability-focused majors, minors, and certificates (2013-14)
- Action Step: Establish targets in consultation with faculty, departments, et al: By (date) X new degree programs, minors, and certificates will be created. (2014)
- Action Step: Pursue the targets for new programs, minors, and certificates.
- Action Step: Identify curricular areas that would benefit from new hires in areas of sustainability and pursue those hires.
- Resources Needed: 6-Credit AWA for Education for Sustainability Coordinator
- Incentives for program creation: Institute an ongoing program that offers incentives for faculty in multiple disciplines and departments to develop new sustainability programs or to incorporate sustainability into existing programs

OBJECTIVE 1.3 – ADOPT SUSTAINABILITY AND CLIMATE CHANGE LEARNING OUTCOMES

Learning Outcomes: WCU will establish targets and dates for ensuring that all students graduate from programs with climate neutrality and sustainability learning outcomes. The number of programs that adopt sustainability and climate neutrality learning outcomes will depend on the interest of faculty, departments, and colleges, and on the availability and effectiveness of incentives.

- Action Step: Initiate discussion among faculty, departments, colleges, CAPC, and academic affairs administrators about the prospects and timeline for incorporating climate neutrality and sustainability learning outcomes into programs (2013-14).
- Action Step: Continue discussions with an emphasis on incorporating sustainability and climate change learning outcomes in all programs. (2014-15)
- Resources Needed: Funding for sustainability course development and for programs in related training for faculty.

OBJECTIVE 1.4 – DEVELOP OPPORTUNITIES FOR EXPERIENTIAL SUSTAINABILITY LEARNING

Experiential Sustainability Learning Outcome: Increase opportunities for sustainability-related experiential learning among students, faculty, staff, and administrators.

- Action Step: Build on WCU's successful 2012 sustainability curriculum and pedagogy conference by providing leadership for an annual experiential learning conference aimed at students, faculty, staff, and administrators.
- Action Step: Investigate sustainability-related Alternative Spring Break experiences
- Resources Needed: Establish a planning committee for the annual conference, and provide faculty with resources for incorporating sustainability-related experiential learning.

CO-CURRICULAR EDUCATION AND TRAINING

OBJECTIVE 2.1 – ESTABLISH A STUDENT SUSTAINABILITY EDUCATORS PROGRAM (ECO-REPS)

Eco-Reps Outcome: WCU will select students to serve as peer sustainability educators, provide formal training in peer-to-peer sustainability outreach, and provide faculty, staff, and/or financial support for the program.

- Action Step: Begin planning during the 2013-14 academic year.
- Action Step: Charge the first cohort of Eco-Reps with 1) developing sustainability-related outreach campaigns (directed at students) that yield measurable, positive results in advancing sustainability, and 2) integrating sustainability immersive experiences into all residence halls (e.g. energy conservation).
- Resources Needed: Stipends for Student Sustainability Educators

OBJECTIVE 2.2 – ESTABLISH AN EARTH ALLY PROGRAM

Earth Ally Program Outcome: WCU will develop an Earth Allies program, modeled after the LGBTQA Allies program. Professors, staff, and students will be able to participate in a training program facilitated by qualified students, faculty, and staff. Participants will learn about sustainability efforts on campus, the progress and projects of the climate action plan, as well as how they can play their part to reduce West Chester University's carbon footprint and environmental impact. Those who complete the training will designated an Earth Ally and will be encouraged to promote sustainability efforts on and off campus.

OBJECTIVE 2.3 – INCORPORATE SUSTAINABILITY INTO NEW STUDENT ORIENTATION

New Student Orientation Outcome: By Fall 2014 WCU will incorporate sustainability themes into New Student Orientation
Action Step: Investigate the feasibility of including the Awakening the Dreamer Symposium during the Year One component of new student programming.

OBJECTIVE 2.4 – PRODUCE CAMPUS-WIDE SUSTAINABILITY EVENTS

Campus-Wide Events Outcome: WCU will develop and/or highlight common events that bring together students, faculty, and staff to explore themes in sustainability that correlate with academic objectives.

- Action Step: Establish a committee within the Sustainability Advisory Council to explore options. (Year or Semester of Sustainability; Poetry Conference Sustainability Day; Frederick Douglass and Environmental Justice; Everybody Reads program; Arts Festival; Integrative Health Conference, etc.)

OBJECTIVE 2.5 – DEVELOP CAMPUS SUSTAINABILITY TOURS

Sustainability Tour Outcomes: Create campus tours that highlight "WCU's Green Infrastructure" and "Getting to Know your Bioregion". The tours will be made available to faculty to include in their courses.

- Action Step: Select and train students to conduct tours for classes each semester.

OBJECTIVE 2.6 – CREATE A MODEL SUSTAINABLE ROOM IN A RESIDENCE HALL

Model Room Outcome: Create an occupied, formally designated model room in a residence hall that is open to students during regular visitation hours and demonstrates climate neutral and sustainable living principles.

OBJECTIVE 2.7 – CREATE SUSTAINABILITY THEMED HOUSING

Themed Housing Outcome: Build on the Freshmen Interest Group program (FIG) to create sustainability-themed housing (residential hall or floor or theme house) where residents learn about sustainability together and to which residents must apply.

OBJECTIVE 2.8 – ESTABLISH A 'SUSTAINABILITY' HOUSE

Sustainability House Outcome: WCU establishes a 'Sustainability House' designed to provide immersing learning experiences for its full-time residents.

3. Research

OBJECTIVE 3.1 – INCREASE INCENTIVES FOR SUSTAINABILITY RESEARCH/CREATIVE ACTIVITY

Sustainability Research & Creative Activity Incentives Outcome A: Increase faculty and student incentives to conduct sustainability-related research and creative activity through creation of a competitive annual award and a "science and design fair."

- Action Step: Append to mission of an existing competitive award or grants committee
- Action Step: Establish a venue for research presentations akin to Research Day (with students as sole authors and faculty to participate) or append to Research Day

Sustainability Research & Creative Activity Incentives Outcome B: Submit at least three proposals annually to external funders to support sustainability research.

- Resources Needed: Up to three 3-credit AWAs awarded as matched funds for successful externally funded research projects in sustainability

Sustainability Research & Creative Activity Incentives Outcome C: Create an incentive system in order to increase the level of Sustainability Research.

- Action Step: Provide incentives for faculty-student collaborative projects
- Action Step: Work with current internal grants systems (Faculty Development Grants, CASSDA, etc.) to highlight sustainability as a criterion for awards
- Action Step: Align WCU incentives with accreditation mandates.
- Resources Needed: Summer funding to serve as seed grants in developing sustainability-related external research proposals, and awards/recognition for faculty research on sustainability – associated with the independent sustainability "research day"

OBJECTIVE 3.2 – CREATE A CENTER FOR SUSTAINABILITY STUDIES & RESEARCH

Center for Sustainability Outcome: Creation of a Sustainability Research and Study Center with appropriate facilities, designated faculty and staff, and resources to support courses, programs, and multi- and interdisciplinary research in sustainability.

4. Public Engagement

Objective 4.1 – Increase Formal Sustainability Partnerships

Sustainability Partnerships Outcome: Increase the number of formal partnerships with the local community, including school districts, government agencies, non-profit organizations, higher education institutions, and other entities to advance sustainability within the community.

- Action Step: (2013) Identify and seek input from staff and faculty who have already developed partnerships with sustainability oriented entities in the community/region
- Action Step: Compile an inventory of current partnerships.
- Action Step: Make the inventory of sustainability partnerships available on WCU's sustainability website.
- Action Step: Develop a strategy to deepen existing partnerships and target new areas/organizations for growth.
- Action Step: Contact school districts, government agencies, non-profits, businesses, higher education institutions, and other entities currently devoted to critical sustainability issues. Determine willingness and ability to collaborate: faculty research; student internships, volunteer opportunities; joint initiatives.
- Action Step: Establish a WCU-Community Coalition (consortium) to address critical sustainability issues. Seek external funding as a goal of the collaboration. (By 2015)

OBJECTIVE 4.2 – INCREASE SUSTAINABILITY-RELATED STUDENT INTERNSHIPS

Sustainability Student Internship Outcome: WCU will increase the number of interns placed with businesses, government and non-profit organizations devoted to sustainability issues.

- Action Step: Convene a meeting of the "Internship Best Practices" group in Fall 2013. Address Internship aspects of the Strategic Plan, including definition of sustainability-related internships. (2013)
- Action Step: Identify and seek input from faculty and students who have already developed internships with sustainability oriented entities in the community/region. Distinguish sustainability-related organizations from sustainability job roles. (2013-14)
- Action Step: Work with Departments/Faculty that offer internship credits to expand the list of internship opportunities to include groups that are focused on sustainability.
- Action Step: Set targets for % of departments offering sustainability internships.
- Action Step: Develop a system to track internships by type, credit or not, etc. Establish baseline data and then seek to increase numbers.
- Action Step: Utilize Career Center database to help facilitate awareness about sustainability-related internships.
- Action Step: Develop a strategy/plan to promote the value of voluntary internships and practicums (including sustainability-related) among the student body.
- Resources Needed: Evaluate staffing needs and consider the possibility of dedicated Internship office and staff.

OBJECTIVE 4.3 – INCREASE SUSTAINABILITY-RELATED SERVICE LEARNING & VOLUNTEERING

Sustainability Service Learning and Volunteering Outcome: Increase the number of service learning courses and volunteer service opportunities for students in the realm of sustainability.

- Action Step: Compile an inventory of current sustainability-related service-learning courses and volunteer service opportunities. (2013)
- Action Step: Work with the Office of Service Learning and Volunteer Programs to modify the list of service learning sites available to students to include more sustainability oriented groups. Work with the Office to set targets for increases in the number of courses and volunteer opportunities offered. (2013-14)
- Action Step: Establish targets for annual increases in service-learning courses and volunteer opportunities.
- Action Step: Make the sustainability service-learning inventory available on WCU's sustainability website
- Action Step: Work with Departments/Faculty to offer courses that include service learning and that would promote partnerships with sustainability oriented groups.

OBJECTIVE 4.4 – INCREASE SUSTAINABILITY COLLABORATIONS WITH COLLEGES/UNIVERSITIES

Higher Education Sustainability Collaboration Outcome: Develop formal collaborations with other colleges and universities in the region to help build campus sustainability broadly.

- Action Step: Compile an inventory of colleges and universities in the region that are currently engaged in campus sustainability efforts.
- Action Step: Develop a plan to formalize collaborations with regional campuses.
- Action Step: Identify and contact colleges and universities in the region to determine willingness and ability to collaborate: Facili-

ties; Academic Affairs; Student Affairs;
- Action Step: Formalize opportunities for regional colleges and universities to establish working relationships among faculty, staff, and students. (e.g. through regional sustainability conferences and a regional sustainability consortium)
- Resources Needed: Incentives and funding to host a regional conference on campus sustainability and curriculum for faculty from WCU and area colleges and universities.

OBJECTIVE 4.5 – INCREASE SUSTAINABILITY-FOCUSED ADULT/CONTINUING ED COURSES

Adult Education for Sustainability Outcome: Increase the number of courses and workshops targeted at community members that are sustainability-focused or sustainability-related.
- Action Step: Compile an inventory of courses currently offered via Adult Education that are sustainability-focused or sustainability-related
- Action Step: Make the inventory available on-line via WCU's Sustainability website.
- Action Step: Initiate discussion among faculty, departments, CAPC, and Graduate Studies on the prospects and timeline for offering more sustainability oriented adult education offerings
- Action Step: Institute an ongoing program that offers incentives for faculty in multiple disciplines and departments to offer adult education courses, to develop new sustainability programs, or to incorporate sustainability into existing courses and programs.
- Resources Needed: Honoraria or a salary agreement for faculty offering sustainability-focused or sustainability-related adult education courses and workshops.

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