Phoenix College
Sustainability Plan
FY2013 – FY2017

1. Introduction

Phoenix College (PC) is a premier institution of higher education that has been serving the community since 1920. As the flagship college of the Maricopa Community Colleges—the largest community college system in the United States—Phoenix College serves over 25,000 students annually through nationally-recognized programs.

Over the past decade, PC has proactively implemented numerous sustainable practices. However, PC is now pleased to publish its first-ever sustainability plan for the campus. A successful sustainability plan utilizes components of social and cultural diversity. It takes responsibility for ensuring every action and decision considers environmental stewardship, social equity, and social responsibility. The college plays an important role in the daily practices of sustainability, and we know how important our future is to generations to come.

PC affirms its commitment to environmental excellence and will actively promote the public’s right to a healthy, quality environment. PC acknowledges its role and responsibility to provide educational and social leadership to achieve the goals and anticipated outcomes of this plan.

As a signatory of the American College and University Presidents Climate Commitment (ACUPCC), PC has committed to three tangible commitments: Establish a policy that all new campus construction will be built to at least the U.S. Green Building Council’s LEED Silver standard or equivalent; Adopt an energy-efficient appliance purchasing policy requiring purchase of Energy Star products in all areas for which such ratings exist; Encourage use of and provide access to public transportation for all faculty, staff, students and visitors at our institution.

The Phoenix College Sustainability Plan was developed with a focus on being a Student Centered Environment, a Learning Focused Institution, and having a Community Outreach Approach. This plan provides goals, action items and measurable outcomes designed to help PC become sustainable in all operational practices, while supplying sound prescriptive strategies to achieve an aggressive goal for greenhouse gas emission reductions.
2. Sustainable Goals

Phoenix College is committed to achieving the following sustainable goals:

- Reduce greenhouse gas emissions over the next 10 years
- Support and practice sustainable and green efforts in our daily operations
- Improve the awareness and understanding of environmental issues
- Encourage faculty, staff and students to participate in sustainability efforts and practices
- Educate the campus community through programs and curriculum related to sustainable practices

3. The Phoenix College Climate Action Plan

The most popular definition of sustainability can be traced to a 1987 United Nations conference, *Our Common Future*, which defined sustainable developments as those that "meet present needs without compromising the ability of future generations to meet their needs" (World Commission on Environment and Development, 1987). Seeking sustainability, however, requires new ways of thinking about the use of our natural resources, a re-evaluation of our energy policies and practices, and changes in our daily lifestyles. It requires that we create "learning laboratories" that not only direct our attention to strategies and attitudes aimed at reducing carbon emissions but that we make opportunities available so that we may understand, experiment, and practice new and more ecological ways of living.

Phoenix College, with its 50 acre campus, 28 buildings, 25,000 students, and 400 full time employees, has a significant environmental footprint. As an official first step, in July 2007, the College joined 347 other institutions as a charter signatory to the ACUPCC in a pledge to reduce greenhouse gas emissions attributable to the operations of their respective campuses. Through this commitment, the college aims to do its part in reducing its environmental impact in measurable ways and to become a leader in the local community by developing and advocating environmentally sound values and practices among its students, faculty and staff. This document outlines the goals and strategies for achieving this ambitious but essential endeavor.

The College has already established some practices supportive of sustainable environmental standards in its operations and facilities. Individual members of the college have also demonstrated interest and commitment as reflected in a broad range of initiatives, activities and research that they have pursued. The time has come,
however, to build on those initiatives and articulate a comprehensive set of sustainability goals that call upon all members of the College community, both individually and collectively, to help the College play its role in the global effort to achieve a sustainable future for all.

We believe that we have a responsibility to look for ways to achieve environmental improvements in our own operations. By using the campus as a laboratory for the development and deployment of new technologies and practices, we will not only contribute to and exemplify the range of behaviors needed to achieve a sustainable society, but we will also involve our students in ways that will train them to be good environmental citizens.

**The Nature of the Plan**

Phoenix College must ensure that its campus and plant operations reflect, respect and contribute toward achieving sound sustainable practices.

The plan proposes aggressive but achievable goals in areas that are particular to Phoenix College and the broader Phoenix community. The plan aims to take a principled approach to sustainability by selecting specific objectives in areas in which Phoenix can achieve real and measurable progress. The plan is developed to support the college’s mission of "delivering teaching and learning experiences that inspire the lifelong pursuit of educational, professional, and personal goals for our diverse urban community.” It is also consistent with the PC Basic of Stewardship, as we are committed to prudent management of our resources.

Indeed, change on campus has already begun. The following list is a small sample of PC’s accomplishments to this point:

- Developed research strategies to reduce emissions for the purpose of fulfilling the ACUPCC commitment.
- Developed software that will automatically retrieve data from the College’s energy meters, and publicly displayed current and historical energy use.
- Encouraged more bicycle use by both campus residents and commuters.

Faculty and staff have sponsored several sustainability initiatives to:

- Offer courses that are either focused on environmental issues or that incorporate the subject in the course syllabus.
Physical plant operations have met many components of the ACUPCC charge, including to:

- Establish a College policy that requires ENERGY STAR certification for products purchased by the College.
- Participate in activities, such as the Recyclemania Waste Minimization competition.
- Launch a campaign to reduce all campus solid waste including those materials currently being recycled.
- Earn silver level LEED (Leadership in Energy and Environmental Design) certification or equivalent for the renovation of the College’s student union.

While these projects are commendable, we have chosen to do more. As an institution of higher learning, we believe we have a responsibility to look for ways to achieve environmental improvements in our own operations through the emergence of new technologies, innovation using existing technologies, and causing behavioral change. We believe that the college can help promote a more sustainable community, but also involve our students in ways that will prepare them to be good environmental citizens.

The next section outlines goals and strategies that the College proposes for the next 10 years, as it moves toward securing a more sustainable future by the year 2022.

**Sustainability Goals and Strategies**

**Greenhouse Gas (GHG) Emissions Mitigation Strategy**
This strategy sets an Interim Goal to reduce Scope 1, 2 and 3 GHG emissions resulting from campus operations to 25% below 2011 levels by the year 2022. The strategies supporting this goal focus primarily on our buildings and the steam and chilled water plants that support them, which account for approximately 85% of the College’s emissions. Finally, the actions of students and staff will be addressed to deal with the remainder of the emissions.

The College has had a significant focus on energy conservation and GHG emissions mitigation in recent years that forms a foundation for future actions. We have experienced a steady decline in annual GHG emissions from 2007 to 2011, which is the year we first submitted a greenhouse gas inventory report as required by the ACUPCC. During this period, Phoenix College’s annual GHG emissions was reduced by 6% or 775 MTCE (Metric Tons of Carbon Dioxide Equivalent). The decline in emissions is the result of a combination of small-scale energy system retrofits, a better understanding of the campus energy use profile resulting from an ongoing project to sub-meter campus buildings, gains in efficiency as the result of various building renovations, and improved digital building control systems. Moreover, this recent reduction in emissions occurred despite a 7% increase in total campus building area. Additionally, in 2009, the College began investing an educational discount received from the regional utility company (Consumers Energy) in additional projects designed to reduce energy use and emissions. During the following fiscal year, the college realized a decline in emissions
that amounted to an additional 1.9% reduction. The most significant sources of GHG emissions are found in campus buildings, campus operations and transportation. The plan offers the following goals and strategies for GHG mitigation in those areas:

*Goals and Strategies:*

- Complete an ongoing program to install energy sub-meters in all campus buildings by the end of 2017.
- Reduce annual Scope 1, 2 and 3 emissions (as defined by the ACUPCC) by 25% below 2011 levels by 2022. Phoenix College’s GHG emissions in 2011 was 12,509 MTCE. Successful attainment of this goal will reduce GHG emissions to 9,382 MTCE in 2022 a reduction of 3,127 MTCE.
- Strategies to reduce GHG emissions and the estimated annual reduction in emissions are displayed in the table below:

<table>
<thead>
<tr>
<th>Mitigation Strategy</th>
<th>Estimated Reduction in Annual Emissions (MTCE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conventional Energy Systems Retrofits</td>
<td>1,527</td>
</tr>
<tr>
<td>On-site Renewable Energy Systems</td>
<td>200</td>
</tr>
<tr>
<td>Major Building Renovations and Replacements</td>
<td>500</td>
</tr>
<tr>
<td>Low or No Cost Energy Conservation Initiatives</td>
<td>200</td>
</tr>
<tr>
<td>Cleaner Fuel Profile for Purchased Electricity</td>
<td>700</td>
</tr>
</tbody>
</table>
4. Action Items

ENERGY AND NATURAL RESOURCES

❖ Retrofit HVAC systems for greater efficiency

Since every building serves a different purpose and every occupant has a different comfort level, our HVAC systems have to operate in the most efficient manner at all times. The systems have to be designed to accommodate flexibility and control to the greatest degree possible so the efficiency of the systems is maximized. Systems should minimize output energy and reduce costs, especially during low use (or non-use) periods.

Action Items:

- Replace old steam boilers with high efficient ho water boilers
- Replace old chillers with high efficient, 1000 ton energy units
- Replace cooling towers with high efficient units
- Minimize energy usage via computerized systems

❖ Upgrade restroom facilities

A restroom is a facility that generally has an opportunity for sustainable practices, and water is one area of focus. Because toilets and urinals can be the most water-consuming items in a facility, installing fixtures that use less water than conventional fixtures is definitely a step in the green direction. A green restroom will incorporate many more environmentally responsible features, and many of these features will likely prove to be a major cost savings as well.

Action Items:

- Install touchless faucet devices with sensors
- Install auto and low flush toilets
- Further installation of touchless paper towel saving devices
- Further installation of touchless soap dispensing devices
**Enhance energy conservation and sustainable practices**

Energy conservation is the practice of decreasing the quantity of energy used while achieving a similar outcome. As direct consumers of energy, we want to conserve energy in order to reduce energy costs and promote economic, political and environmental sustainability.

**Action Items:**
- Auto shut down (or sleep mode) of computerized equipment and technology
- Install motion sensors for lighting where possible
- Campus closures; review of facility usage
- Consolidate instructional schedules and classroom usage
- Expand and install document imaging systems in offices
- Continue to install sustainable print systems
- Install a desktop fax solution
- Review water usage; upgrade irrigation system on athletic fields
- Increase usage low VOC paints and cleaning products
- Create a comprehensive and informative website
- Procure apparel and other products that are made in environmentally correct ways

**Support initiatives for alternate transportation**

Transport systems are major emitters of greenhouse gases. Alternative Transportation promotes and encourages the use of alternative modes of transportation (e.g. bicycling, walking, vanpooling, carpooling, riding transit) to get to, from, and around campus instead of using a single occupancy vehicle.

**Action Items:**
- Encourage and promote alternative transportation
- Add more bicycle racks on campus
- Incentives for participation such as designated carpool parking spaces
- Increased availability of bus subsidiaries and at a lower cost
- Purchase more hybrid vehicles for campus usage
- Install recharging stations in parking lot for electric vehicles
RECYCLING AND WASTE

❖ Enhance recycling efforts, minimize waste, and utilize online resources

Campus operations and activities can generate waste. However, we are committed to a philosophy of reducing and minimizing waste.

Action Items:
- Provide recycling containers in exterior areas across campus
- Provide recycling containers for common areas in departmental offices
- Recycle used toner cartridges and computers
- Increase usage of E-books and online resources
- Increase availability of textbooks in the bookstore’s rental program
- Conduct quarterly hazardous waste pick ups
- Recycle commonly used items such as batteries, lamps, ballasts, and metals

CAMPUS EDUCATION AND PARTICIPATION

❖ Increase the campus awareness and the understanding of sustainability and environmental issues

Sustainability provides the opportunity to enhance and educate the community on the understanding of sustainability and its application to personal life, professional careers, and community engagement. When people feel connected to (and are knowledgeable about) their environment, they will tend to take better care of it.

Action Items:
- Develop and offer courses that focus on sustainable efforts and practices
- Engage students in sustainable initiatives and practices on campus
- Offer educational sessions; work with student government and clubs
- Confirmation of adherence to the sustainability plan by PC Green committee
Increase student awareness through adopted classroom practices and motivate them to seek and adopt environmentally sustainable practices

Sustainability provides an opportunity for academic institutions to educate students on the understanding of environmental degradation and motivate them to seek and adopt environmentally sustainable practices. Education (in whatever form) and/or adopted classroom practices are one commitment to sustainability within instructional areas.

**Action Items:**

- Increase online and hybrid offerings
- Integrate technology into the classroom via teaching delivery and class activities
- Encourage alternative transportation
- Reduction of paper usage
- LED lighting
- Encourage and reward for recycling
- Create and sustain PC garden and food program
- Cultivate and increase an individual’s capacity to understand nature as a model for sustaining healthy living
- Assisting students in the development of an appreciation of the concept of global communities

5. **ACUPCC**

As a signatory of the American College and University Presidents Climate Commitment (ACUPCC), PC has committed to three tangible commitments: Establish a policy that all new campus construction will be built to at least the U.S. Green Building Council’s Silver LEED standard or equivalent; Adopt an energy-efficient appliance purchasing policy requiring purchase of Energy Star products in all areas for which such ratings exist; Encourage use of and provide access to public transportation for all faculty, staff, students and visitors at our institution.
6. Anticipated Outcomes

The following outcomes will result based on the college’s plan:

- Engage and maintain active participation in national and local organizations involved in sustainability
- Documented figures on the number of sustainable initiatives and units that were implemented or installed across campus
- Installation of higher efficient HVAC systems with technology utilization
- Creation of a comprehensive and informative website on sustainability
- Developed curriculum or certificate program related to sustainability
- High efficient buildings which adhere to many of the aspects required for LEED certification
- Demonstrated adherence with the Presidents' Climate Commitment
- Percentage of next bond dedicated to renovation and retrofitting of old buildings to support green and sustainable practices
- Development of a Greenhouse Gas Emissions plan

Sustainable development plays an important role in the college’s overall effort to become environmentally sustainable. While this plan focuses on implementing sustainable measures for campus development, it is recommended that all college departments and offices implement sustainable measures in their daily operations.

Overall, it is important that the action items and anticipated outcomes (contained in this plan) should be reviewed every year by the President’s Executive Team and the PC Green committee to determine their effectiveness and progress. The establishment of benchmarks is recommended, so results can be tracked over time. In addition, PC should always focus on new ways to increase sustainable efforts.