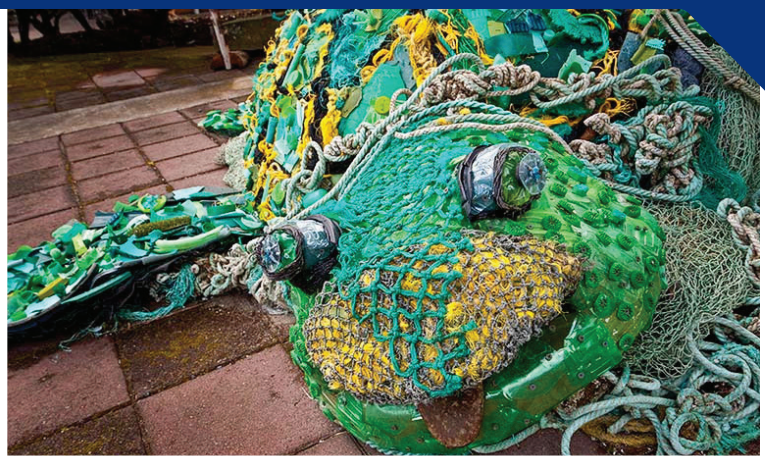
Climate Action Plan 2013



Portland Community College

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Executive Summary

Executive Summary

As a signatory of the American Colleges and Universities Presidents Climate Commitment (ACUPCC), Portland Community College (PCC) has committed to annual reporting of its sustainability progress, drafting and implementing a Climate Action Plan (CAP) every three years, and reporting on its greenhouse gas (GHG) footprint every year.

PCC is pleased to present its **2013 Climate Action Plan** with its most comprehensive GHG inventory to date, detailing the impact of the college's supply chain emissions as well as all other, pre-reported sources of emissions. With this new information, PCC has rearranged its reporting structure to reflect the largest sources of its GHG emissions.

In accordance with the 2009 CAP, PCC has committed to the following GHG reduction goals:

- Reduce GHG emissions **10%** below 2006 levels by **2012**;
- Reduce GHG emissions **40%** below 2006 levels by **2030**; and
- Reduce GHG emissions **80%** below 2006 levels by **2050**.

Following the updated reporting structure, the PCC Sustainability Council (PSC) chose to reorganize its sub-committees based on scopes of emissions. Since 2009 (unless otherwise noted), the sub-committees have achieved the following:

Scope I: **A 52.8% decrease in emissions since 2006.** Sources for this decrease include installation of boilers at the Sylvania campus and district-wide utility loop upgrades.

Scope II: **A .6% decrese in emissions despite an over 100,000sf increase in PCC**. Various actions can be attributed to this reduction, including but not limited to, installation of hand dryers and fuel cells.

Scope IIIa:

- Decrease in **single occpancy vehicle (SOVs) trips** to campuses.
- **Free shuttle service** provided between PCC campuses.

Scope IIIb:

- Improved waste reduction seeing a **decrease from 8 pounds of waste/student in 2006 to 5 pounds/ student in 2012.** This is remarkable, given that student headcount has rise 9% from 2006-2012.

PCC's Board of Directors approved the **Sustainable Purchasing Policy in 2012**, the Scope IIIb subcommittee is committed to implementing this policy starting summer 2013.

Sustainability in Education:

- Established a **Sustainability Focus Award**, implementing in fall term 2013; and
- Developed **7 Green Outcomes** to guide and encourage the development and use of new sustainability curricula in any and all courses regardless of discipline.

Community Outreach: **Instrumental in building communications focused on sustainability** in PCC's internal and external communities. Members of this committee have participated in conferences at the local, regional, state, national and international levels and provided public relations and marketing for for numerous PCC sustainability events and activities including Earth Week, the Village Building Convergence and PCC Recycles Day.

Student Leadership: Established **The Green Initiative Fund,** a student "green grant" program, which funded several projects including:

- Learning gardens on three major campuses;
- A bike rental program at the Cascade campus; and,
- Water bottle filling stations, district-wide.

As well, student government leaders from each campus serve on various sustainability committees and councils, throughout the district.

With all of these initiatives combined, along with the PCC Sustainability Council's 2016 action items, PCC is positioned to achieve its **2030 goal of reducing emissions 40% below 2006 levels**.

PCC Sustainability Timeline

City of Portland Sustainability Timeline

1989 Oregon legislature first establishes carbon-reduction goal

1992 Rio Earth Summit (UN Framework Convention on Climate Change

1993 City of Portland Carbon Dioxide Reduction Strategy

1997 Kyoto Protocol

2001 Portland/Multnomah Local Action Plan on Global Warming

2005 Oregon Strategy for Greenhouse Gas Reductions

Portland signs U.S. Mayors Climate Protection Agreement

2006 PCC Board of Directors approves Board Policy B-707, Sustainable Use of Resources Policy and PCC completes its first greenhouse gas inventory

2007 PCC District President signs onto American Colleges and Universities Presidents Climate Commitment and PCC District President initiates first Climate Energy Leadership Taskforce (CELT)

2007 Multnomah County joins Cool Counties Initiative

2008 PCC completes its second greenhouse gas inventory

2008 Metro resolution to develop regional climate change plan and Carbon emissions in Multnomah County are 1% below 1990 levels

PCC Board of Directors approves PCC's first Climate Action Plan

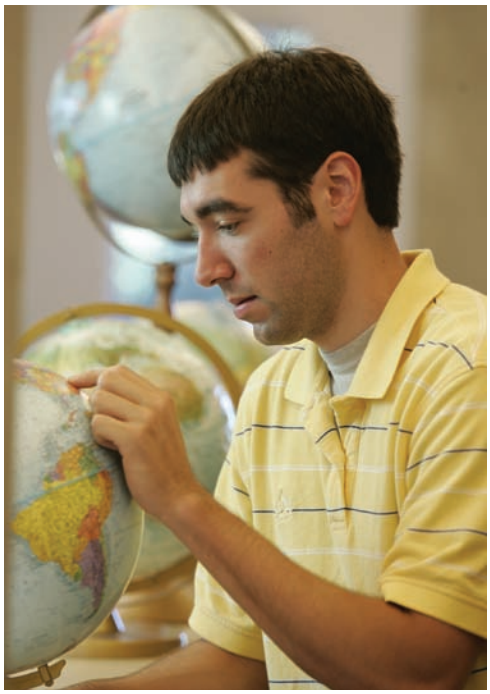
2009

2009 Portland introduces its Climate Action Plan

2010 Portland/Multnomah goal: 10% below 1990 levels

CELT transitions into the PCC Sustainability Council, making the PSC a permanent fixture of the college

2011



PCC Goal: **10%** below 2006 levels

2012

PCC completes is third greenhouse gas inventory, including emissions related to supply chain

PCC updates and completes its second Climate Action Plan

2013

PCC Goal: **40%** below 2006 levels

2030

2030 Portland/Multnomah Target: 40% below 1990 levels

PCC Goal: **80%** below 2006 levels

2050

2050 State of Oregon goal: 75% below 1990 levels

Portland/Multnomah goal: 80% below 1990 levels

Background

Background

Portland Community College (PCC) has been a leader in higher educational sustainability for over 7 years. The Portland Community College Board of Directors recognizes the college's leadership responsibilities in the arena of environmental stewardship and on December 7, 2006, adopted the Sustainable Use of Resources Policy B-707 which states:

> **Portland Community College is committed to becoming a leader in academic programs and operational practices that model the sustainable use of resources, so that the needs of current generations are met without impairing the ability of future generations to meet their own needs.**

President Preston Pulliams took an important step towards making the policy operational on June 7, 2007, by signing the American Colleges and Universities Presidents Climate Commitment (ACUPCC). Over 600 presidents of postsecondary institutions across the nation have joined him in signing this commitment. PCC committed to 6 out of the 7 tangible actions within the ACUPCC. These 6 tangible actions are:

1. Establish a policy that all new campus construction will be built to **at least LEED Silver standard**; or equivalent;
2. Adopt an **energy-efficient purchasing policy** requiring purchase of ENERGY STAR certified products in all areas for which such ratings exist;
3. Encourage use of and provide access to **public transportation** for all faculty, staff, students and visitors at our institution;
4. By June 2008, begin purchasing or producing at least 15% of our institution's electricity consumption from **renewable resources**;
5. Establish a policy or committee that **supports climate and sustainability shareholder proposals** at companies where our institution's endowment is invested; and
6. Participate in the Waste Minimization component of the national Recycle Mania competition, and adopt 3 or more measures to **reduce waste.**

Dr. Pulliams initiated the PCC Climate Energy Leadership Taskforce (CELT) and invested this group with responsibilities to research and recommend carbon emission reduction goals for the college and to develop a plan for achieving these goals. As the CELT was meeting and educating its members about climate change and sustainability during the 2007-2008 academic year, the college undertook its first greenhouse gas emissions (GHG) audit. Faculty, staff and students worked together to identify and employ valid methodologies to calculate PCC's greenhouse gas emissions. The GHG audit, reporting on 2006-2007 emissions data, was completed in June of 2008.

From September 2008 through July 2009, the CELT involved a broad cross-section of the college community in discussing ideas for reducing GHG emissions and in determining the feasible emission reduction goals for the college. The taskforce completed and submitted the PCC Climate Action Plan (CAP) to President Pulliams in August 2009. PCC's GHG reduction goals incorporated into this plan are:

- Reduce GHG levels **10%** below 2006 levels by **2012**;
- Reduce GHG levels **40%** below 2006 levels by **2030**; and
- Reduce GHG levels **80%** below 2006 levels by **2050**.

The 2009 Climate Action Plan was broken down into seven major areas:

1. Buildings and Energy;
2. Transportation;
3. Consumption and Solid Waste;
4. Food and Agriculture;
5. Sustainability in Education;
6. Community Outreach; and
7. Tracking Progress and Financing.

This organizational method was developed in partnership with the City of Portland Bureau of Planning and Sustainability. The 2009 CAP was adopted and set forth broad objectives and specific strategies for achieving the college's GHG emissions reduction goals. The plan was submitted to the American Colleges and Universities Presidents Climate Commitment (ACUPCC) by President Pulliams on September 15, 2009.

Students from the Sylvania Environmental Center work in the Sylvania Learning Garden.

In 2012, PCC completed its third and most comprehensive-to-date GHG inventory. The inventory was completed with assistance from Community Environmental Services at Portland State University and Good Company, a sustainability consulting firm. **2012 GHG inventory** details PCC's emissions within three Scopes: Scope I, Scope II and Scope III emissions.

Scope I emissions are defined as direct GHG emissions occurring from sources that are owned and controlled by the college, including emissions from PCC's district fleet and all natural gas, refrigerants and stationary fuels such as aviation fuel for the college's Aviation program.

Scope II emissions are defined as indirect greenhouse gas emissions generated in the production of electricity, including emissions generated by the college's electricity consumption.

Scope III emissions are defined as all other indirect emissions that are a consequence of the college. PCC's Scope III emissions include emissions from solid waste, supply chain, air travel, and commuting by employees and students to/from the college.

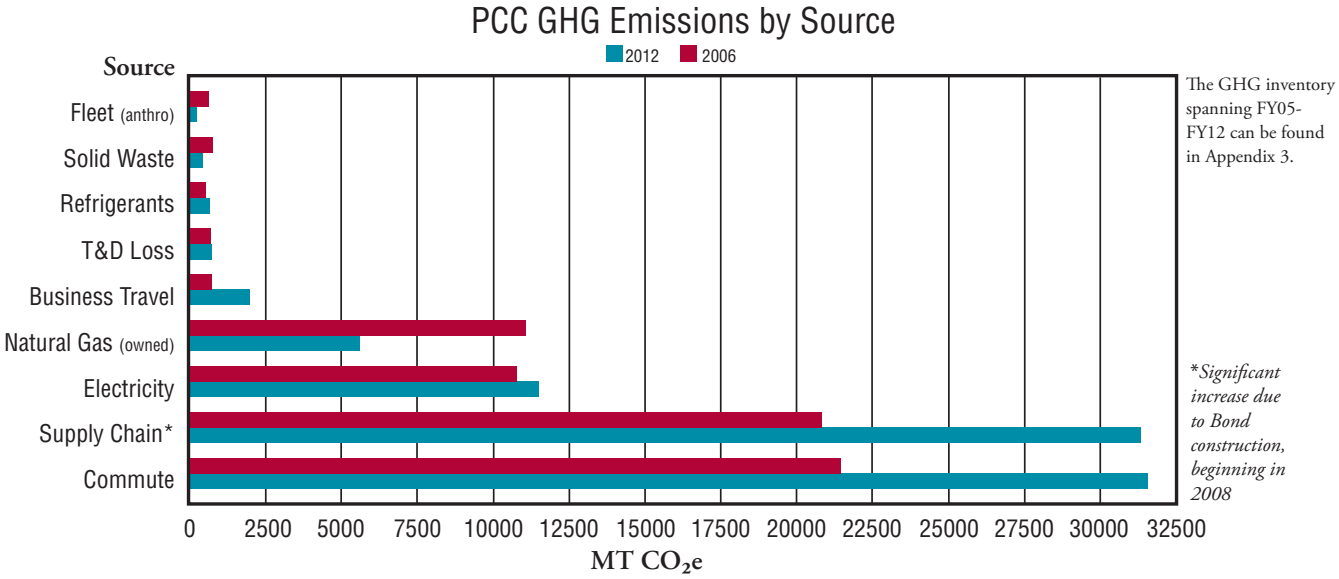
We would like to compare GHG audit results from 2006 and 2012. The 2009 CAP was based on the 2006 GHG inventory. Results from the 2006 GHG audit found the following for PCC's carbon emissions:

- 62% from Commuting by employees and students
- 20% from Electricity consumption
- 14% from Natural Gas consumption
- 3% from Air Travel
- 1% from the District Owned Fleet

In 2010, we restructured our GHG tracking method to incorporate supply chain and business travel; we now have a more comprehensive and accurate picture of the college's true GHG footprint. This process spanned not only 2012, but all years dating back to 2005. **Results from the 2012 GHG audit** delineated PCC's carbon emissions as:

- 37.6% from Commuting by students and staff
- 37.3% from the Supply Chain
- 6.6% from Natural Gas consumption
- 2.3% from Business Travel
- 13.6% from Electricity consumption
- 0.002% from the District Owned Fleet
- 0.007% from Refrigerants
- 0.005% from Solid Waste

Below is a graph depicting PCC's 2012 carbon footprint. The 2006 GHG audit findings are included in Red and are shown above the 2012 findings.



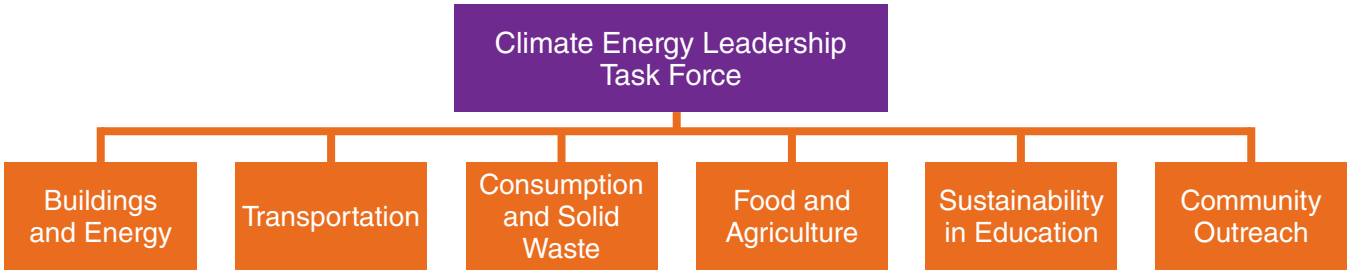
The GHG inventory spanning FY05-FY12 can be found in Appendix 3.

**Significant increase due to Bond construction, beginning in 2008*

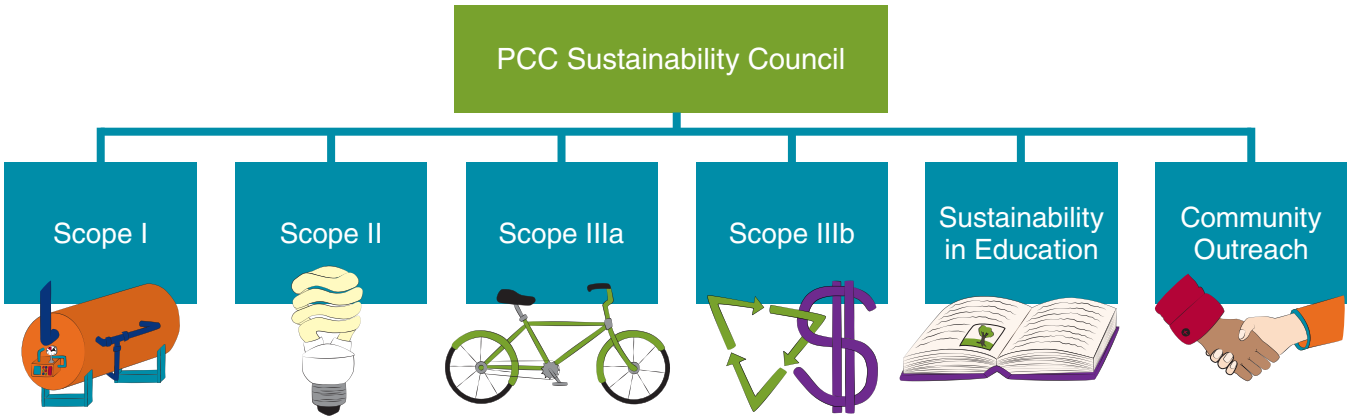
Restructuring the Climate Energy Leadership Taskforce

With a more accurate depiction of our carbon footprint, PCC has reassessed our sustainability committee structure and allocated resources accordingly. From 2008-2011, the Climate Energy Leadership Taskforce (CELT) governed PCC sustainability with 7 sub-committees specific to the 7 major areas of the Climate Action Plan, as outlined in the following chart:

In 2011, the CELT underwent a transformative stage. The



taskforce wrote by-laws and President Pulliams sanctioned the Taskforce to become the PCC Sustainability Council (PSC), giving the group the ability to make recommendations to the PCC Cabinet and Board of Directors. By deeming this group a Council, the group is a permanent fixture of the college. Although the name of the group changed, the PSC mission remains the same. The new design of the PSC is outlined in the following chart:



Above Middle: A student works in the Rock Creek Learning Garden

Above Bottom: PCC's outdoor recycling stations are standardized, district-wide.

The PSC sub-committee structure is redesigned based on the college's GHG source emissions as well as curriculum and outreach. An example of the reasoning behind this restructuring comes from the efforts of the Consumption and Solid Waste sub-committee (of CELT). This sub-committee was charged with 3 major tasks: 1) increasing the college's composting and recycling efforts; 2) creating a water conservation plan; and 3) implementing a sustainable purchasing policy. However, results from the 2012 GHG inventory showed that solid waste accounted for only 0.5% of PCC's entire carbon footprint. Given this new information, the PSC chose to redesign the sub-committees based on the scopes of emissions as well as overall environmental impact to the college.

The definition of each subcommittee and the CELT subcommittee(s) it replaces are as follows:

- **Scope I:**
  - Natural gas, district fleet, refrigerants and stationary fuels
  - Replaces: portions of Buildings and Energy and Transportation
- **Scope II:**
  - Purchased electricity
  - Replaces: portions of Buildings and Energy
- **Scope IIIa:**
  - Air travel, solid waste and commuting
  - Replaces: portions of Consumption and Solid Waste and portions of Transportation
- **Scope IIIb:**
  - Supply Chain
  - Replaces: portions of Consumption and Solid Waste
- **Sustainability in Education:**
  - Education-specific committee
  - Stays the same
- **Community Outreach:**
  - Outreach-specific committee
  - Stays the same

The PSC meets monthly to work on the college's sustainability progress and address sustainability issues for the local community. The PSC holds a yearly retreat occurring at the end of each academic year. The purpose of this retreat is to celebrate accomplishments of the PSC and its sub-committees, to reflect on sustainability achievements and to create action plans for the coming year.

2009-2013 PSC Sustainability Accomplishments

COMMITMENT OF HUMAN RESOURCES

PCC has dedicated significant human resources to the development of sustainability since 2006. The Sylvania campus houses a permanent Environmental Center Coordinator. This coordinator facilitates events and activities of the Sylvania Environmental Center; designs programs and workshops focused on sustainability; engages district-wide sustainability committees that oversee activities occurring in conjunction with the Environmental Center; and assists students who are interested in environmental and sustainability issues by connecting them to relevant academic programs, service learning opportunities, and student services.

The Rock Creek campus houses a permanent Sustainable Practices Coordinator. The Sustainable Practices Coordinator directs and coordinates resources, activities and programs for campus sustainability including grant activities, student leadership development, community outreach, and management of all composting efforts and the Rock Creek Learning Garden.

A district Sustainability Manager is housed in Facilities Management Services (FMS). This Sustainability Manager deals with all aspects of PCC sustainability including, but not limited to: tracking GHG emissions, reducing solid waste consumption, and assisting with curricular and co-curricular activities and community outreach. This position has a large role in developing, implementing, monitoring and updating the Climate Action Plan.

Recently, FMS hired a Sustainability Analyst. This Analyst assists the Sustainability Manager in tracking and reporting on the college's GHG emissions, completing PCC's annual Sustainability Tracking and Assessment Rating System (STARS) report and documenting various Return on Investment (ROI) measures for FMS, amongst other duties. Additionally, FMS has hired an Energy and Maintenance Manager for the college. This position assists sustainability efforts by tracking PCC's electricity and natural gas consumption and supporting efficiency projects to reduce that consumption.

Top: Sheep mow the fields around the Rock Creek solar array.

Middle: PCC and the Sylvania Multicultural Center work together to present the WACIPI Powwow, a celebration of Native American culture and tradition.

Bottom: A student takes in the scents of spring during a Gerontology class.

Left: President Pulliams and PCC Board members celebrate the opening of PCC's Newberg Center.

COMMITMENT TO COLLEGE-WIDE TRACKING PROGRESS GOALS

All sustainability staff, along with the PSC, assists in tracking progress of our CAP. As an ACUPCC signatory, we are committed to describing how PCC will track its progress in achieving the CAP goals. PCC has committed to the following three District-wide tracking progress goals:

1. **Report on college emissions annually.** An annual, updated GHG audit will be submitted to the ACUPCC website;
2. **Evaluate existing CAP action items and identify new actions every three years.** This CAP is a working document, designed to be continually updated. As established action items are completed and as new technologies become available, the PSC, with the assistance of the Sustainability Manager, will revisit and augment the Climate Action Plan;
3. **Re-examine the established objectives every five years.** Established objectives within the CAP may be completed before the 2030 goal, or the college may choose a different route toward our pre-established 2030 goal. In either scenario, the established objectives within the CAP will be revisited every five years by the PSC with the assistance of the Sustainability Manager.

Above: A Groundskeeper gets his hands dirty at the SE Center.

Right: The solar array on top of the Willow Creek center, a LEED Platinum building, produces 106 kWh.

One of the previous sections of PCC's Climate Action Plan 2009 was *Tracking Progress and Financing*. With the new PSC sub-committees, this sub-committee is now defunct; however, the following accomplishments were made, including:

- Established PCC's first Sustainability Revolving Loan Fund;
- Assisted with the development of Scope III supply chain-specific methodology;
- Established a permanent Sustainability office including budget and staffing;
- Integrated sustainability criteria into deferred maintenance planning.

The Tracking Progress and Financing sub-committee now serves in an advisory role to the PSC through the Facilities Management Services (FMS) Financial Services Manager.

The current PSC sub-committees have reached numerous goals since our first CAP in 2009. In the following section, we detail objectives and action items for 2016 and also reflect on accomplishments by the PSC sub-committees from 2009-2012.

PCC Bond Program - Sustainability

In November 2008, facing major challenges in meeting educational demand and workforce training needs throughout its 5-county region, the college placed a capital improvement bond on the ballot. This voter-approved $374 million bond program is allowing the college to increase classrooms, update equipment and technology, expand vital programming and renovate severely aging buildings. Today bond dollars can be seen in the new Willow Creek and Newberg Centers, in a completely remodeled downtown administrative facility, the Downtown Center, and in new emerging construction and renovation on the college's 4 main campuses: Cascade, Rock Creek, Southeast Center and Sylvania.

The college determined early-on that this bond program was going to be implemented differently. We would learn from the past; engage both our internal and external stakeholders in early planning and design, seeking collaboration, heightened communication, transparency and decision-making that is based on a commitment to broadly adopted and adhered to Guiding Principles. Several of those principles are directly related to the college's commitment to sustainability: (Full text of the Bond Guiding Principles can be viewed and/or downloaded at http://bond.pcc.edu/about)

- We will foster sustainable operations by emphasizing standardization in the systems we install in order that long-term operation costs are minimized, maintenance cost-effectiveness is enhanced, and faculty, staff and students find our facilities easy and pleasant to use.
- We are committed to achieving LEED Silver certification, but we will strive for LEED Gold certification for new facilities, and LEED EB in buildings we renovate. Where applicable, new equipment will be Energy-Star certified. In addition to new buildings, the bond allows older PCC buildings to be renovated and to improve energy efficiency. Some of these changes include:
  - The installation of water-efficient plumbing
  - Roofing upgrades
  - The use of sustainable cleaning equipment and materials
  - Energy-Star certified new equipment, where applicable

SUSTAINABILITY HIGHLIGHTS

PCC DOWNTOWN CENTER:

The Downtown Center, which opened at the end of 2009, is the home for PCC operations such as Human Resources, Finance, Community Education and Affirmative Action, among others. PCC purchased the building from the Oregon University System. The center is located in the Willamette Building, on the corner of SW 2nd and Yamhill Streets in downtown Portland. It was home to the old U of O ducks store and was renovated as part of the college's 2008 bond measure. The site is centrally located and adjacent to light rail aiding in the college's mission to be sustainable. The remodeled structure meets the highest standards for sustainability and energy efficiency.

- 40% water use reduction over a typical building.
- 25% energy savings over a typical building, due to high-efficiency equipment and a hydronic heating system.
- 80% of construction waste was diverted from landfill by being recycled or reused.
- 30% of the building material content is recycled.
- Approximately 10% of the building materials came from local sources (within 500 miles).
- 50% of wood products in the building are harvested from sustainably managed forests.
- Up to 90% reduction in air infiltration at existing windows due to exterior sealing.
- Readily accessible by public transportation.

PCC's Downtown Center, a LEED Gold building.

PCC's Willow Creek Center, a LEED Platinum building.

PCC's Newberg Center

THE WILLOW CREEK CENTER:

PCC's 3-story mixed-use development at Willow Creek was completed in 2010. The 100,000sf building located at the Willow Creek Transit Center houses the Washington County Workforce Training Center, 7 computer classrooms, 17 general purpose classrooms, a GED testing center, 4 labs, a wellness room and a large multipurpose room for special events. The center also contains PCC's Computer Education and Community Education departments, as well as many other college programs such as: GED classes, certified nursing assistant training, medical assisting and emergency medical services. The Willow Creek Center has the following sustainability and efficiency features:

- 56% reduction in potable water consumption due to landscaping and irrigation systems.
- 75% water savings due to water-efficient fixtures.
- 94% of construction waste was diverted from landfill by being recycled or reused.
- 28% of building materials contain recycled content.
- 12% of building materials came from local sources (within 500 miles).
- Forest Stewardship Council certified wood used.
- 37% in energy cost savings due to such energy savers as roof-mounted solar photovoltaic panels.
- Readily accessible by public transportation.
- Bicycle parking and changing facility onsite.

PCC NEWBERG CENTER:

The PCC Newberg Center opened its doors to students in fall 2011. The center offers college transfer and career training courses. A welcome addition to Yamhill County and the surrounding communities, the center serves students from Newberg, Sherwood and Dundee. With funds from the 2008 bond measure, the College purchased 16 acres for its future academic presence in Newberg. This first building consists of a 12,000sf educational center with 5 classrooms, a conference room and administrative space. The building is "Net Zero, Carbon-Neutral", which translates to generating the same amount of energy it expends. The building is "Net Zero, Carbon-Neutral", which translates to generating the same amount of energy it expends. The building systems incorporate passive ventilation, radiant heating, natural daylight and solar energy and incorporate a variety of green-building materials. Such efficiency has led to the center being awarded LEED-NC Platinum certification (Leadership in Energy and Environmental Design with a special focus on New Construction. Such efficiency has led to the center being awarded platinum level LEED-NC certification, which stands for Leadership in Energy and Environmental Design with a special focus on new construction.

Achieving Net Zero Snap Shot:

- The Newberg Center uses approximately 80% less energy than standard higher education academic buildings in the United States.
- Through sustainable design, the building uses 55.5% less energy than allowed by the Oregon Energy Code.
- 22% of the remaining energy needs will be met with the current 25.35kW bi-facial solar panel array. The array will generate 29,430kWh/yr or the energy needed to power three American homes.
- The building was designed using only electricity for power (no natural gas) so that when the additional 75kW solar panels are installed, the building will truly generate all of the power it needs.
- PCC Newberg Energy Use Index = 22 kBtu/sf/yr. Typical Academic Building Energy Use Index = 120 kbtu/sf/yr.

Daylighting:

- The building skylights are integrated into a sloped ceiling system designed to bring even and diffused light to the classroom and office spaces without the need for electric lights. The design reduces the building's energy use by over 15%.

Natural Ventilation/Cooling:

- When open, the louvers on the exterior wall of the building draw in fresh air from outside and release hot air out through the five stacks along the building's central spine.
- The ventilation turbines spin at very small wind speeds to create a stack effect to help pull the hot air out of the building. If there is no wind, a small motor at each turbine can be engaged to start them spinning.
- If additional cooling is needed, ceiling fans throughout the building can be turned on. With the additional air movement from the fans, the building will feel 3 degrees cooler.

Heat Recovery Ventilators:

- Each classroom and the office space are equipped with a Heat Recovery Ventilator (HRV). When outside temperatures are below 55 degrees, the HRV will bring in fresh outside air that is warmed by capturing heat from the building's interior common spaces.

Thermal Mass:

- The exposed concrete slab, SIPS panels and concrete shear walls act as thermal mass in the building, helping to maintain even indoor temperatures all year long.
- The building's exterior wall and floor systems have the ability to contain hot and cold air during times when the building is unoccupied. This captured heat/cold can then be utilized throughout the day to provide necessary comfort for the occupants during times when the building is open.

Radiant Slab/Heating:

- The concrete slab has radiant tubing with 90 degree water running through it to heat the building to 68F.
- Radiant heat is the most efficient because it heats people instead of the air. It is also the most comfortable heat because it does not create drafts like forced air.

Expanded Temperature Range:

- PCC's standard temperature ranges are 69F for heating and 77F for cooling. Expanding that range by just one degree in each direction reduces the amount of energy required to operate the building. 68F for heating; 78F for cooling for Classrooms and Office Areas; and 82F for cooling for the Commons. With the large ceiling fans in the Commons, the temperature will feel like 78F because of the additional air movement.

Proposed design for the Cascade campus Bond project.

CASCADE CAMPUS – NORTH PORTLAND STRIVING FOR LEED GOLD

Summary of bond financed improvements:

- A 3-story academic building, partially financed by an $8 million state contribution and an adjacent 3-story student center. Conceptual rendering here, both to be built on top of a single-level underground parking structure.
- Remodeling of the first floor of the Student Services Building and demolition of the existing timeworn student center, now part of the library.

Proposed design for the Rock Creek campus Bond project.

ROCK CREEK CAMPUS – WASHINGTON COUNTY/NW LEED SILVER GOAL

Summary of bond financed improvements:

- More than 89,000 square feet of space will be added to the Rock Creek Campus.
- To improve efficiency and increase classroom space and flexibility, bond dollars are allowing for a new addition to Building 7. Conceptual rendering picture above, and a near overhaul of Building 5.
- In addition to campus building improvements, the college introduced a new 35,000-square-foot solar array in spring 2012, funded by bond dollars. The array will produce nearly 10 million kilowatt hours during the next 20 years.
- Storm water and environmental enhancements and upgrades to the farm property used for

The Rock Creek solar array has produced 494,109 kWh since installation, which has been one year.

veterinary tech programs are also part of the overall site improvements planned for the campus.

- With seismic upgrades, building and classroom renovations, and electrical and telecommunications upgrades, 7 or the 8 buildings within the campus core will be improved with bond dollars.

Proposed design for the SE Center Bond project.

SOUTHEAST CENTER – SE PORTLAND LEED SILVER GOAL

Summary of bond financed improvements:

- Under this bond measure, PCC is transforming Southeast Center into a comprehensive, full-service campus more than double its current footprint.
- The expanded campus will have 2 new buildings, a student commons and library learning center, conceptual rendering pictured above. The buildings will from SE 82nd avenue and SE Division Street; each will be 3 stories with active ground floor or commercial space to better integrate and serve the college and surrounding neighborhood and business community.
- Under this bond measure, PCC has acquired three adjacent properties: 1) the German American Society/Kaiser Permanente Clinic property along SE Division Street, 2) Legin Restaurant adjacent to campus parking lots, and 3) property to the north of campus on 82nd Avenue, now being used for construction staging.
- The German American Society's historic 1911 building will be preserved and provide space for events, campus administration and Southeast's

Proposed design for the Sylvania campus Student Union.

Community Education staff. The clinic site will be a future child development center for the campus.

SYLVANIA CAMPUS – SW PORTLAND

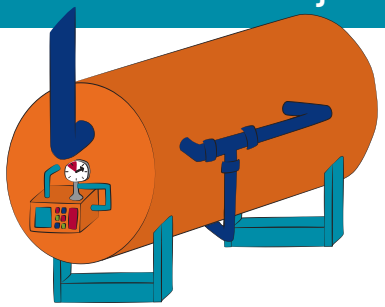
The remodeled structures will meet the highest standards for sustainability and energy efficiency.

Summary of bond financed improvements:

- PCC's oldest and largest campus covering 122 acres will see the renovation of more than 170,000 square feet of classroom, laboratory and office space. It will also include a new child development center and storage facility for the automotive building.
- The largest project will be modernizing nearly 75% of the College Center building – which equals about 120,000 square feet – making the student union more accessible and easier to navigate. (Conceptual rendering of lower mall area).
- As part of the framework plan for the campus, bond improvements will expand educational opportunities and advance PCC's Climate Action Plan, transforming many of the building's existing HVAC and electrical systems into more efficient systems. Resulting energy cost savings will help reduce the college's carbon footprint.
- In summer 2012, the Health Technology building benefited from E6 (energy-efficiency and reduced water usage) construction projects on the west side of the facility. Crews upgraded the pool's existing plumbing system. The natatorium was also completely reconditioned with the installation of two new dehumidification units.
- Construction crews also retrofitted existing buildings with energy efficient technologies.
- Modification of the heating hot water loop, making the current system more efficient and reducing energy costs to the college, was also completed in 2012.

Sub-Committee Objectives, Action Items, and Narratives

Sub-Committee Objectives, Action Items, and Narratives



Scope I PSC Sub-Committee

2030 OBJECTIVE: Utilize state of the art control systems district-wide to maximize energy efficiency.

2016 ACTION ITEMS:

- Retro-commission DDC control systems to achieve tighter control parameters, resulting in a decrease in energy use.
- Hire an Environmental Management Systems (EMS) Technician to assist with district-wide utility efficiency upgrades.
- Upgrade all remaining pneumatic control systems to DDC controls to more tightly control systems, thereby driving down energy use.
- Require a minimum of LEED Silver standards for all new (Bond) construction

Removing an old boiler from the Sylvania campus, to make room for more efficient equipment.

SCOPE I NARRATIVE AND ACCOMPLISHMENTS

PCC's Scope I sub-committee encompasses emissions from the college's natural gas consumption, refrigerants usage, stationary fuels onsite (i.e. aviation fuel for the Aviation Program) and district fleet emissions. (This sub-committee replaces components of the previous Buildings and Energy sub-committee as well as components of the previous Transportation sub-committee.)

Since 2006, PCC's Scope I emissions have decreased from 12,198 GHGs to 6,450 GHGs resulting in an **emissions reduction of 52.8%**. Sources for this decrease include installation of boilers at the Sylvania campus and district-wide utility loop upgrades. The boilers are especially relevant as Sylvania is the largest campus in the district and has the highest consumption of natural gas in the district. ENERGY STAR appliances are the standard for all applicable appliances purchased at PCC since signing onto the ACUPCC in 2006.

Furthermore, all new buildings constructed at the college must meet a **minimum LEED Silver standard**. With the current Bond, three LEED certified buildings have been built. They, along with their ratings, are listed as follows:

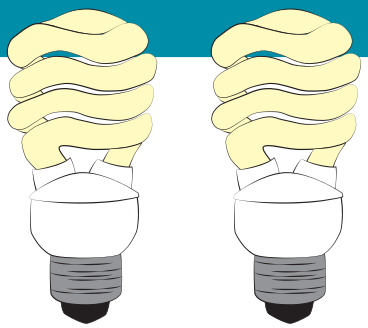
- 2009: Willow Creek Center - 95,308 gross square feet, LEED certified Platinum;
- 2010: Downtown Center - 43,595 gross square feet, LEED certified Gold; and
- 2011: Newberg Center- 12,800 gross square feet, LEED certified Platinum.

As of 2012, 6.6% of the entire PCC district is, at a minimum, LEED certified Gold.

In addition to building to LEED standards, PCC has been actively pursuing solar array installations. On the roof of Willow Creek is a 106 kW solar array, which powers 7.5% of the buildings energy use. At the Newberg Center, our most recent Net-Zero building, the college has 100% of the building's energy usage powered by roof-mounted solar panels. This installation totals 100kw. Most recently, a ground-mount installation of solar panels of 500kW was installed at the Rock Creek campus. This is the **largest solar array installation in the state of Oregon to date.**

All of these measures have contributed to a 52.8% reduction in Scope I emissions, since 2006.

A projected source of future decreased Scope I emissions is the installation of a green roof on PCC's CLIMB center. Installation of this green roof will be complete in Summer 2013 and will result in decreased consumption of natural gas, as well as refrigerants, for the entire building.



Scope II PSC Sub-Committee

2030 OBJECTIVE: Reduce our energy consumption 50% per square feet below 2006 levels.

2016 ACTION ITEMS:

- Reduce electrical use by upgrading lighting to energy efficient types suited for the application.
- Install light sensors and motion sensors district-wide.
- Replace failed equipment with energy efficient equipment.
- Engage an outside consultant to gauge building energy usage, in real time.
- Build increased awareness and outreach of energy use by engaging PCC staff and faculty to decrease energy consumption.
- Require a minimum of LEED Silver standards for all new (Bond) construction.

2030 OBJECTIVE: Produce 20% of our own energy onsite using renewable energy technology.

2016 ACTION ITEMS:

- Initiate a district-wide taskforce to develop a strategic plan around building energy usage with the assistance of outside consultants.

Dr. Pulliams strolls beside the Rock Creek solar array.

SCOPE II NARRATIVE AND ACCOMPLISHMENTS

The Scope II sub-committee encompasses emissions associated with electricity consumption at PCC. (This sub-committee replaces components of the previous Buildings and Energy sub-committee.)

Although Scope II emissions have increased from 10,761 GHGs to 11,509 GHGs in 2012, based on square footage there has been a **.6% decrease**. This can be attributed to accomplishments completed by the Scope II sub-committee.

Accomplishments by the Scope II sub-committee include:

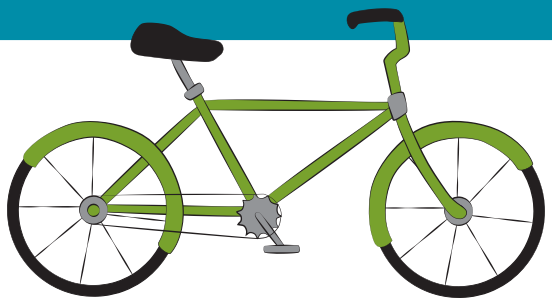
- Installation of **hand dryers** to replace paper towel dispensers in all bathrooms district-wide. This resulted in a 61% decrease in district-wide energy costs related to hand drying in bathrooms.
- **Fuel cells** were installed and are producing energy at the Sylvania campus in 2011, resulting in better energy efficiency/a reduction in electricity consumption.
- **Energy management system controls** were installed district-wide during 2011, improving mechanical energy efficiency of the systems.
- In 2012, a heating hot water loop was upgraded to a **variable flow pump system** on the Sylvania campus. Following an energy audit, this boiler plant project showed the highest energy savings return, in part load conditions.

The project converted 3-way valves in Sylvania's tunnel (that serve all of our buildings' heating hot water) to 2-way valves. Additionally, the main boiler plant pumps were converted to variable speed pumps. These changes allow the plant to supply only the amount of hot water demanded to heat the buildings, preventing un-utilized hot water from circulating or returning unused to the plant.

These upgrades allow PCC to gain both gas and electricity savings by circulating and pumping hot water based solely on demand. The projected savings are:

- **Natural Gas savings of 118,397 terms or $81,100** per year at current rates; and
- **Electricity savings of 84,967 kWh or $6,950** per year at current rates.

This boiler project's savings are applicable to both Scope I and Scope II sub-committee's accomplishments.



Scope IIIa PSC Sub-Committee

2030 OBJECTIVE: Reduce the number of students traveling to PCC campuses in Single Occupancy Vehicles (SOVs) by 28% compared to base number (in 2011), resulting in an overall reduction of student SOVs by 72%.

2016 ACTION ITEMS:

- Increase student shuttle ridership to 8.5%
- Increase student public transportation ridership to 24%
- Increase student bike commuters to 6%
- Increase student carpool/ridesharing to 12%
- Increase technology use for student services commuting to 8%

2030 OBJECTIVE: Reduce the number of employees traveling to PCC campuses in SOVs by 22% compared to base number (in 2010), resulting in an overall reduction of staff SOVs by 50%.

2016 ACTION ITEMS:

- Increase employee shuttle ridership to 4.5%
- Increase employee public transportation ridership to 13%
- Increase employee bike commuters to 6%;
- Increase employee carpool/ridesharing to 6.5%
- Increase number of employees using flex hours and telecommuting to 6.5%

2030 OBJECTIVE: Reduce the number of people traveling to campus and between campuses in SOVs

2016 ACTION ITEMS:

- Increase use of telecommuting, wikis and video chat for cross campus meetings;
- Increase shuttle ridership of people between campuses;
- Schedule Transportation Demand Management (TDM) promotions, education and outreach efforts leveraging PCC, Tri-Met, Metro and Westside Transportation Alliance resources;
- Generate interest in and visibility of commuting options within the PCC community by developing creative collateral and promotions; and
- Conduct a district bike parking inventory to ensure there is adequate capacity to accommodate bike commuters.

SCOPE IIIA NARRATIVE AND ACCOMPLISHMENTS

The Scope IIIa sub-committee encompasses emissions generated from faculty, staff and students commuting to and from the college, as well as emissions associated with business-related travel. (This committee replaces components of the previous Consumption and Solid Waste sub-committee as well as the Transportation sub-committee).

PCC supports alternative transportation options for its staff and students by providing, among other things, a **free shuttle service between campuses**. At the current time, the Department of Parking and Transportation Services (PTS) operates 7 daily shuttle routes using a fleet of 14 shuttle buses. All but one of the buses use bio-diesel and 6 of the 14 buses were purchased after 2010 meaning that they produce 50% fewer emissions than the other 8 buses. Given that PTS currently replaces at least 1 new bus per year, by 2022 (if not earlier) PCC will have a bus fleet composed completely of low emission buses.

Cascade campus has the largest population of bike commuters in the district.

Left: PCC's Willow Creek Center, a certified LEED Platinum building.

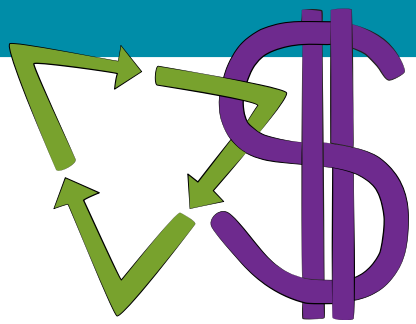
Below: Students work together to navigate PCC's technology systems.

Below Center: PCC's shuttle system is very popular. All shuttles run on at least a 50% mix of biodiesel to diesel.

During fall, winter and spring terms, PCC offers for sale a limited number of **subsidized Tri-Met bus passes**. At the current time, the college is selling 2,000 subsidized passes each term. Funding for this program comes from a transportation fee paid, each term, by any student enrolled for 3 or more credit hours.. In recent surveys, students have indicated they would like to see the availability of more, lower priced, subsidized bus passes. There is also a desire to expand the program to include English for Speakers of Other Languages (ESOL) students. PTS has recommended an increase in the transportation fee to expand the current program.

Supporting bike commuters is also important to PCC. During FY13, PTS added 20 bike lockers at Sylvania campus and 4 additional bike lockers at SE Center. New bike racks provided parking for 45 additional bikes at Cascade campus and 10 bikes at both SE Center and Rock Creek campus. Students at the Cascade campus have shown initiative by establishing a bike rental program in 2012.

Finally, the college has taken an industry-supported, verifiable approach to offsetting emissions from business-related air travel. **Carbon offsets** for all air travel from **FY10 to FY12, 1,597,349 airline miles**, were purchased by the district Sustainability Office from the Bonneville Environmental Foundation. These offsets directly support carbon mitigation projects in the local Portland market.



Scope IIIb PSC Sub-Committee

2030 OBJECTIVE: Develop a water conservation plan for all campuses.

2016 ACTION ITEMS:

- Incorporate stormwater plan development into the Master Planning process for each campus; and
- Continue to require LEED water standards and efficiencies in all new Bond construction.

2030 OBJECTIVE: Reduce solid waste generated by 50% by improving recycling, reuse and composting strategies.

2016 ACTION ITEMS:

- Continue pre-consumer composting at all campuses and expand post-consumer composting at all campuses;
- Increase the recycling and composting awareness campaign and outreach efforts at all campuses in coordination with ASPCC;
- Develop and implement a campaign to reduce demand for paper consumption;
- Develop methods to track and reduce the amount of waste produced in Dining Services' back of house and its current landfill-bound waste that is transported to landfill;
- Increase recovery rate of waste materials by a minimum of 50% from the baseline year (2006) of 7.45%. By 2030, the Scope IIIb sub-committee is charged with accomplishing a minimum district diversion rate of 75%; and
- Reduce demand and need for waste disposal by decreasing per capita (FTE) waste generation from the baseline year (2006) by 25%.

2030 OBJECTIVE: Reduce the amount of GHG emissions associated with Scope III supply chain purchases.

2016 ACTION ITEMS:

- Reduce college resource utilization by implementing PCC's sustainable purchasing policy at all campuses; and
- Develop methods to track and analyze utility usage associated with food services.

2030 OBJECTIVE: Increase sustainable food options districtwide by 10% above 2011 baseline.

2016 ACTION ITEMS:

- Incorporate more cost-effective, sustainable and local food option offerings in PCC cafeterias, by working with current vendors;
- Purchase 35% of all food from local vendors (within 250 miles), with 3% sourced from the Portland-metro area, if it's not cost-prohibitive for the consumer;
- Explore partnerships with local food providers and/or local growers throughout the Portland-metro area to achieve our purchasing goal;
- Implement Meatless Mondays; and
- Develop a labeling system for vegan and vegetarian options.

A student from the Sylvania Environmental Center waters a plot in the Sylvania Learning Garden.

Left: Pre-consumer waste is collected in color-coded buckets, by kitchen staff, district-wide.

Below: Sylvania campus is beginning to compost their pre-consumer waste onsite, using this worm bin.

SCOPE IIIB NARRATIVE AND ACCOMPLISHMENTS

The Scope IIIb sub-committee encompasses solid waste and supply chain emissions. This sub-committee replaces the previously existing Consumption & Solid Waste and Food & Agriculture sub-committees.

On July 14, 2011, a sustainability commitment was added to section 100 of the Oregon Community College Rules of Procurement and was approved by PCC's Board of Directors. The sustainability commitment states:

> In accordance with the Oregon Community College Rules of Procurement, member colleges are committed to the use and purchase of environmentally and socially responsible materials and products which are fiscally responsible, reduce resource consumption and waste, perform adequately and promote human health and well-being. Recognizing their regional economic role, colleges shall seek opportunities to educate, encourage, and influence their respective markets by utilizing, where feasible, products and services including new environmentally preferable products, reusable products, recycled content and recycled products.

By adopting this commitment, PCC is taking a major step towards reducing its carbon footprint; however, the college has not yet begun its implementation. Thus, the Scope IIIb sub-committee has created a 2016 action item to **implement PCC's sustainable purchasing policy.**

In 2011, PCC began expanding and improving its current composting and recycling efforts. Previously, recycling containers and signage varied throughout the college. To address the inconsistencies, Facilities Management Services **standardized outdoor and indoor recycling collection bins and signage** district-wide. Various departments partnered with FMS to **expanded and enhance the pre-consumer composting system** in place at the Rock Creek campus. In 2011, a district-wide program was developed which included the training of the Dining Services staff, the standardized signage and collection bins for pre-consumer waste for the PCC Vermiculture program and the "Portland Composts!" program. Through these efforts, PCC **reduced demand for waste hauling from 8 pounds per student in 2006 to 5 pounds per student in 2012**. This is truly remarkable as student headcount district-wide has increased 9% from 2006 to 2012, meaning that the demand for waste hauling per student has decreased 37.5%.

Learning gardens offer the college the opportunity to reduce carbon emissions, serve food grown on campus and support its service learning program. Since 2009, learning gardens have been planned or implemented at all 4 major campuses and centers. The Rock Creek and Sylvania Learning Gardens have been operating for several years, while the Cascade campus and SE Center began planning their own Learning Gardens in 2012. Additionally, Dining Services has increased the amount of food its purchases from **growers within 250 miles of Portland to 27% of its overall inventory**.

Sustainability in Education PSC Sub-Committee

2030 OBJECTIVE: Increase sustainability throughout academic curricular and co-curricular programming at PCC in collaboration with the PCC Curriculum Office, the Learning Assessment Council (LAC) and other PCC entities.

2016 ACTION ITEMS:

- Implement the Sustainability Practices and Academic Resources for Curriculum (SPARC) Council's "7 Green Outcomes" into current and newly development courses at PCC;
- Design and implement a search capability through Courseleaf to easily identify courses with green content;
- Continue development of distinguishing "focused" courses and and "related" courses parallel with AASHE STARS reporting;
- Provide continued support to faculty in curriculum development to ensure the creation of new or revised sustainability courses at PCC;
- Award the Sustainability Focus Award to students who have completed coursework with a sustainability focus;
- Support professional development and capacity building related to sustainability curriculum for faculty;
- Build sustainability into student, faculty and staff orientations to support curriculum initiatives at the college;
- Design a sustainability curriculum packet to include in materials for various faculty orientations;
- Collaborate with the LAC in assessment strategies and examples through the addition of the "7 Green Outcomes" to CCOGs; and
- Through PCC's Core Outcome #2, create collaborations with the Internationalization Committee, the Diversity Council, the Service-Learning program and community partners to address global environmental awareness, environmental justice, social equity, and food security in sustainability curriculum.

A Building Contruction Technology student gets hands-on experience in the outdoor lab.

2030 OBJECTIVE: Increase focused educational programs and options to meet green workforce needs.

2016 ACTION ITEMS:

- Explore the development of an academic Sustainable Agriculture Program;
- Explore offering LEED certification education and establish partners with businesses working in this field; and
- Explore new opportunities to create focused educational programs in coordination with the State of Oregon 40-40-20 Initiative and the US Science, Technology, Engineering and Mathematic (STEM) movement.

SUSTAINABILITY IN EDUCATION NARRATIVE

PCC prides itself on being an accessible and affordable higher education institution. By providing this education, the college has six core outcomes that graduates should be able to demonstrate. As PCC students take various courses and pursue their academic pursuits, one of the core outcomes in their educational experiences is to be more aware of environmental issues and understand their role and place in a global context, as expressed in PCC's Core Outcome #2 "Community and Environmental Responsibility." Graduates are expected to be able to apply scientific, cultural and political perspectives to natural and social systems and use an understanding of social change and social action to address the consequences of local and global human activity.

To help guide PCC's sustainability and green technology curricular activities, the PCC Cabinet established a district-wide academic sustainability committee, SPARC, in 2009. Members include staff, administrators, and instructors from across the disciplines. The committee regularly meets each term with a rotating chair position.

SPARC is guided by the college's Climate Action Plan and PCC's Core Outcome #2. SPARC supports the creation of college initiatives to broaden the curriculum with sustainability and leads the efforts to support faculty in the development of that curriculum. SPARC works collaboratively with the college's curriculum office, as well as the grant's office and community education. SPARC is charged to:

- Support the design and development of sustainability curricula;
- Maintain an historical record of PCC's efforts in green technologies; and
- Coordinate potential grant efforts for new curricula development and other efforts;
- Maintain a historical record of PCC's efforts in green technologies; and
- Serve as an advisory board to faculty for sustainability-related academic, curricular and program development.

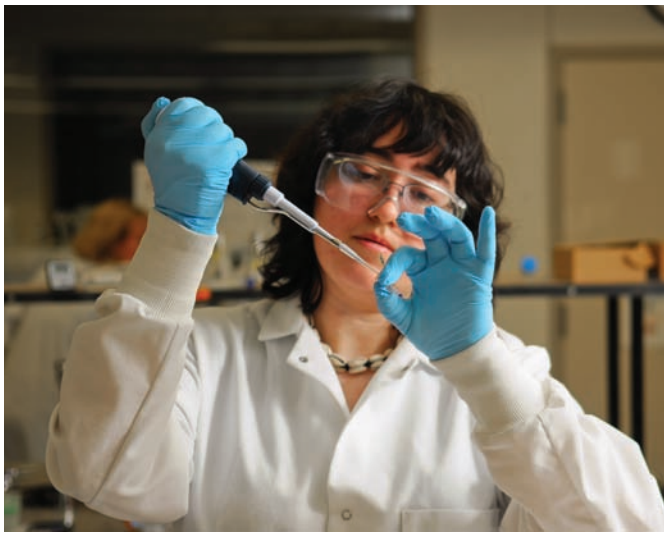
In addition to offering sustainability courses, PCC has many partnerships with local businesses and organizations to provide workforce training for green jobs.

SPARC developed the following **"7 Green Outcomes"** to guide the development and approval of new sustainability curricula in any PCC discipline:

i. 1) Critically examine the complex and interconnected relationship between human behavior and the environment through a lens of sustainability and "the triple bottom line" - people, planet and profit.

ii. 2) Critically evaluate the root causes of environmental problems, including historical, cultural, ethical, political, economic, social, structural, and/or infrastructural issues, in order to recommend, implement and/or engage in problem-solving to address the challenges and opportunities of promoting sustainable development.

iii. 3) Examine existing and alternative resource use and identify quantitative or qualitative processes to educate and provide services to prevent, reduce, or mitigate environmental degradation and increase resource and energy efficiency.



A Bioscience student developing her skills in the on-campus lab.

iv. 4) Express the significance of environmental sustainability in written, oral, artistic, physical, and/or mechanical forms.

v. 5) Use an awareness of the impacts of ecological issues and policies on communities of diverse backgrounds, on the local, regional, national, and international level, in order to interact with sensitivity, respect, and a sense of responsibility to others and the future.

vi. 6) Apply sustainable practices in the workplace and communities, as citizens, and/or in the development of public policy.

vii. 7) Apply an understanding of basic ecological principles (the interconnectedness of organisms to each other and their environment) to environmental problems and sustainability issues.

To further support and encourage the development of new sustainability curricula across the college, the **SPARC Council has sponsored and organized 2 PCC Faculty Sustainability Curriculum Workshops**. In 2011, 25 PCC Faculty participated in the 1st workshop with presentations highlighting sustainability resources and practices from Food Services, Engineering, Business, Sociology, Environmental Sciences and the LAC. In 2013, 32 PCC Faculty participated in "The PCC Project: Sustainability Across the Curriculum," with speakers from Portland State University, Evergreen College's Bioregional Sustainability Curriculum Project, the Piedmont/Ponderosa project (national model) and University of Oregon. Participants are encouraged to complete a sustainability curriculum plan for a new or revised course and to meet in the 2013 Fall term to track curriculum development progress.

In addition ot offering sustainability courses, PCC has many partnerships with local businesses and organizations to provide workforce training for green jobs. The development of green curriculum at PCC was catalogued by an engineering faculty for the State of Oregon's Community College Workforce Development. The Green Training Performance System project catalogued all green-related credit and non-credit courses at PCC from 2009, 2010 and 2011.

SUSTAINABILITY IN EDUCATION CURRICULA ACCOMPLISHMENTS

In support of PCC's Core Outcome #2 and goals from the 2009 Climate Action Plan, the following section outlines the efforts of numerous PCC Departments to develop and implement sustainability curricula.

Architecture

This two-year degree (A.A.S.) develops design and technical skills needed for a career in Residential or Home Design. Skill sets developed are also applicable to working with architects as a Drafter. The broad based curriculum emphasizes technical skills as related to construction documentation, building systems and codes, sustainable design principles, and CAD.

Sustainable design and construction concepts are embedded in all applicable courses, including Design, Building Systems, and Residential Codes. Sustainable content includes energy efficient design and analysis, passive solar design, sustainable materials analysis and selection, daylight design, alternative energy sources, water harvesting concepts, and embodied energy and cost benefit analysis.

The Sustainable Building Certificate builds on the Architectural program by combining additional coursework in sustainable design, products, materials, and construction with environmental science, sociology and ethics. These courses add both depth and breadth in the area of sustainability, and are taught by highly qualified instructors from the fields of architecture, and construction, who have specialized training in sustainable design practices.

Interior Design

Students of Interior Design at Portland Community College are concerned with creating interior environments which support and enhance the lives of their clients. Our students learn to develop a methodology of programming for client needs that encompasses aesthetics, sustainable design practices, design history, color, light, furniture, and kitchen/bath design for residential remodels. Students attain a commitment to incorporate energy saving strategies, healthy indoor air quality, resource conservation and waste reduction within the study of residential interior design.

Automotive – Alternative Fuels

Automotive service technicians inspect, test, diagnose, repair and supervise the repair of mechanical and electrical systems on hybrid and electric automobiles and light trucks. Other responsibilities may include accounting, record keeping, sales, customer relations and management.

Science

The sciences (Biology, Chemistry, Environmental Studies and Resources, Geology and Physics) are involved in solving some of the most pressing environmental problems facing our society today, such as medical issues, dwindling energy resources and the need for new and better materials and worldwide food shortages.

Civil/Mechanical Engineering Technology

Civil Engineering Technology graduates help design better bridges, keep our drinking water safe, or prevent industrial pollution. Mechanical Engineering students learn to use math, science and communications to solve real life problems in climate control systems, manufacturing, and improving energy efficiency. Civil and Mechanical Engineering courses are included in the EET Renewable Energy Systems option.

Electronic Engineering Technology— Renewable Energy Systems

The Renewable Energy Systems (RES) training prepares technicians for solar power, wind power, fuel cell and other renewable energy fields. Graduates of this degree can be hired to work as technicians in wind manufacturing/servicing areas, solar manufacturing and installation, as well as fuel cell manufacturing. Graduates can also assist engineers with solar systems design projects or projects in many other renewable energy areas.

Automotive studetns work in lab together.

Micro Electronics Engineering Technology – Options in Solar Manufacturing

This program allows students to enter the world of solar cell (photovoltaic) manufacturing, providing the opportunity to learn the entire process of fabrication, metrology, testing and quality control. AAS students will learn to maintain and repair the complex, automated equipment used in producing the cells.

Engineering

Portland Community College offers freshman and sophomore courses in chemical, civil, computer, electrical, environmental, industrial, manufacturing and mechanical engineering tailored to the needs of students transferring to several university programs. Engineering classes are also integrated into some of the new PCC Green Technology options.

Building Construction

This program is designed to help students develop the technical qualifications and life skills needed to enter the construction industry, as well as to help those currently in the construction trades upgrade and learn new skills. Options include Residential Construction, Design/Build Remodeling and Construction Management. A requirement of all three options is BCT 206 Sustainable Construction Practices. Other sustainable or "Green Building" classes such as Alternative Building Design and Construction, Residential Green Roofing and Building Science are offered as electives, and sustainable & energy efficient building practices are a thread running through all of the construction classes.

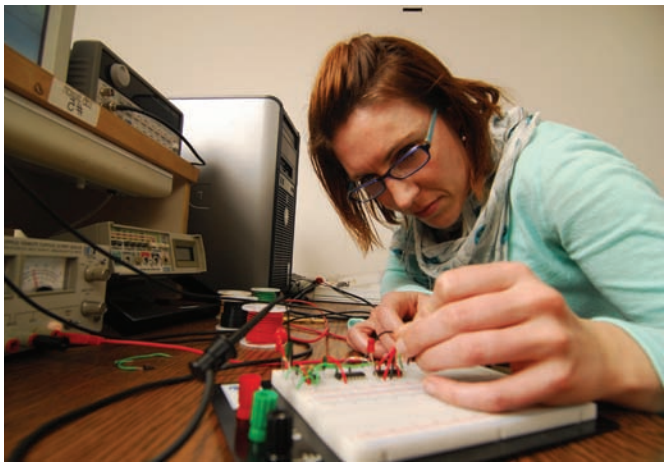
Facilities Maintenance

In the Facilities Maintenance Technology (FMT) and Industrial Technology (IT) programs, students learn the skills and concepts necessary to install, operate, maintain and repair piping and mechanical systems in residential, large commercial, medical, institutional and industrial buildings. Sustainable and eco-healthy green building practices are incorporated throughout facilities classes. Students also learn troubleshooting skills, problem-solving methods and electrical concepts, which are critical to large employers. Building Commissioning is followed by classes such as: Air Quality for the Indoors, Smart Building Controls, Building Power Cost Management, Solar Electric Panel Sizing, Installation of Photovoltaic Panels, and Commissioning of a Solar Electric System. All of these courses are over 70% hands-on and taught by veteran technicians in their fields.

Landscape Technology

PCC's Landscaping Technology program offers courses in biology, horticulture, mathematics, and landscape knowledge, providing students with basic skills and a solid foundation. An Environmental Landscape Technician Degree will be offered in fall 2013 with courses in Sustainable Landscapes, Permaculture, Sustainable Construction Technology II, and Sustainable Grading and Drainage.

This program has one of the best classrooms available: the Pacific Northwest. Not only is the program situated on the beautiful Rock Creek Campus, nestled in the Willamette Valley between the Coast Range and the Cascades, but it also has a large greenhouse and growing facility. Vast resources allow students to develop a broad background of skills in landscaping and horticulture, and to earn specialized certificates.



Above: A student works in the Microelectronics lab.

Left: The Sylvania campus greenhouse, in full bloom.

Community Outreach PSC Sub-Committee

2030 OBJECTIVE: Increase awareness of PCC's sustainability programs and initiatives internally.

2016 ACTION ITEMS:

- Work with other PSC subcommittees to identify specific communication needs, and advise and facilitate the promotion and awareness of their sustainability activities and accomplishments to the PCC community, if staffing and budget permits;
- Provide engaging forums for the PCC community to share ideas, resources and news about sustainability at PCC; and
- Develop a plan to publicize PCC's sustainability efforts with College Advancement.

2030 OBJECTIVE: Increase awareness of PCC's sustainability programs and initiatives externally.

2016 ACTION ITEMS:

- Develop an annual marketing plan and budget proposal for promoting PCC's sustainability programs, events, courses and achievements;
- Provide educational resources to support community members who are incorporating sustainability into their daily practices; and
- Encourage changes in personal behavior and organizational culture by initiating college-wide excitement for PCC sustainability initiatives, highlighting leaders who are paving the way, and sharing personal success stories within the community.

COMMUNITY OUTREACH NARRATIVE

The Community Outreach subcommittee collaborates with all of the other PSC subcommittees to publicize sustainability events, achievements and campaigns at the college. **The subcommittee helps identify those accomplishments best shared with the community and the most effective communication methods for involving them. Community Outreach** offers expertise, resources, and guidance, as well as college and local business connections.

The subcommittee is focused on engaging local communities, both internal and external to the college, in our sustainability efforts. **The size and diversity of PCC's community requires creative and flexible outreach methods.** Low cost campaigns create connections across the district and the city. A strong online presence is essential: listservs, websites, and digital displays bring attention to PCC's efforts by targeting a wide audience. In-person, personal outreach is also an essential part of this subcommittee's work. By participating in a wide variety of local and national events and conferences, we promote PCC's achievements while sharing and learning from our peers.

Through these events, PCC also creates strong partnerships with local and national organizations focused on sustainability. We've participated in conferences including the Association for Advancement of Sustainability in Higher Education (AASHE); the California Green Schools conference; Rio+20: the United Nations Conference on Sustainable Development; and the Oregon Higher Education Sustainability Conference (OHESC). PCC partners with local and national organizations/sponsors to host events such as the Village Building Convergence (VBC), Earth Week, the Harvest Festival, and the LOCATE Summer Sustainability Institute. **The tremendous achievements made possible by the 2008 Bond continue to be widely publicized, increasing our local community's support for the college while gaining national recognition.**

Community Outreach also focuses on building strong partnerships and information sharing within PCC. **The subcommittee helps publicize the accomplishments of Dining Services, Parking and Transportation Services, Facilities Management Services, Purchasing, the Bookstore, and other internal groups committed to sustainability.** By supporting events such as the E-Cycle Drive, Recyclemania, Bike to Work Week, and various faculty training opportunities, the subcommittee works to create a strong sustainability community at PCC. The subcommittee also supports ongoing programs and campaigns including the learning gardens, recycling awareness, the Green Initiative Fund, Green Teams, the transition to hand dryers and online class schedules.

PCC Sylvania participated in **City Repair's week-long Village Building Convergence (VBC) for 3 years, 2010-2012**. As a formal VBC site, Sylvania's Learning Garden hosted student interns, classes, service-learning student and community volunteers to create 2 large natural buildings including a cob bench with a living roof and a cob building to house our worm bin.

Additionally in 2011, **Sylvania campus hosted the Washed Ashore exhibit**, a massive 3-month art exhibit about plastics in

our oceans. PLastics that has washed up on Oregon beaches were made into large sea creatures and displayed throughout campus.

STUDENT ENGAGEMENT NARRATIVE

Since 2006, the Associated Students of Portland Community College (ASPCC) has made sustainable practices a priority within their organization. These student leaders challenged established practices and sought to partner with the college to be a part of the solution to carbon neutrality. In the following years, ASPCC dedicated Student Activity Fees (SAF) dollars towards implementing several initiatives that directly contribute to the college's Climate Action Plan goals.

Dedicated Student Leadership Roles

Each PCC campus has ASPCC student leaders who address sustainability issues and efforts. These leaders provide guidance and input on a variety of projects and initiatives on all four campuses. **Accomplishments of the Sustainability Student Leaders include:**

1. Helped establish Green Teams and other sustainability related clubs on campus.
2. Infused sustainable practices into the ASPCC organization and events, i.e. using reusable plates at functions and purchasing recycled-content products.
3. Engaged in recycling efforts in conjunction with Facilities Management Services.
4. Planned and implemented educational events and activities that promoted and encouraged student participation in sustainability efforts, i.e. Earth Week events.
5. Encouraged all students to plan events that are low to Zero Waste by sharing best practices.
6. Served on PCC committees, including the Sustainability Leadership Team (SLT) and Transportation committee, to represent the student voice.
7. Advocated for green building standards and practices throughout the bond process.
8. Voiced concerns to our elected officials about the need for "green" job education funding for our future graduates.
9. Participated in campus waste audits, providing student volunteers and feedback.
10. Supported the campus learning gardens through volunteerism; by 2015 each campus will have a learning garden.
11. Promoted and participated in service projects related to green initiatives.
12. Established The Green Initiative Fund (TGIF).

To further their support of campus sustainability initiative, the ASPCC District Student Council (DSC) proposed and passed a $0.10 increase in their student activity fee in 2008 (this fee is embedded in tuition). This increase accumulates into the **Green Initiative Fund (TGIF) which funds projects that "green" our campuses and reduce the college's impact on the environment.** These projects increase the amount of renewable energy used on campus, increase energy efficiency, and reduce the amount of waste generated. Portions of the fund also support educational initiatives and student internships. TGIF is administered through a student majority governance board.

Since 2009, **TGIF has funded** the following projects:

- Peace and Tranquility Garden at the SE Center;
- Bike Rental Program on the Cascade campus;
- Water bottle filling stations, district-wide;
- Learning Garden plans at Rock Creek, SE Center and Sylvania campuses;
- Take Back the Tap Campaigns;
- Chemical Cleaning Kits for the Chemistry department on the Sylvania campus;
- Reusable gowns for the Dental Hygiene program at the Sylvania campus;

Students plant for spring in the Sylvania Learning Garden.

Conclusion

As a college with a commitment to sustainability in our practices, policies and educational programs, PCC's Climate Action Plan provides a clear vision for our climate leadership in the short and long term. Taking our commitment seriously is about creating a great place to work and learn that honors our values and inspires our future.

To achieve our goals, the PCC Community will continue to work together across disciplines and departments; to encourage leadership from staff and students; and to strengthen our partnerships with the greater Portland community.

We hope each of you will join us in our sustainability efforts and **take action on our 2013 CAP goals:**

- Turn out the lights when vacating a room and help us lower our electricity use!
- Take the PCC Shuttle, public transportation, carpool or ride your bike to campus to reduce single occupancy vehicles (SOVs) coming to the college
- Recycle and compost while you're on campus
- Get involved in sustainability events and activities like the Learning Gardens, and Earth Week!
- Take a "Green Course" – coming soon to the PCC Catalog!

To learn more about PCC Sustainability and to get involved, visit our website at:

http://www.pcc.edu/about/sustainability/

Top: Cascade Campus, Terrell Hall

Middle: Rock Creek Campus, Building 9.

Bottom: Sylvania Campus, Technology Classroom Building.

Appendix 1: Acknowledgments

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The Sustainability Leadership Team would like to thank the following faculty, staff, students and external partners for their contributions to this Climate Action Plan:

Linda Gerber: SLT co-chair and Sylvania Campus President

Jonathan Marchetta: SLT co-chair and Interim Director, Facilities Management Services

Algie Gatewood: Cascade Campus President

Anthony Hair: GHG Inventory intern, Community Environmental Services

Birgitte Ryslinge: Interim Rock Creek Campus President

Briar Schoon: District Sustainability Analyst

Charlie Geiger: Sylvania Campus Custodial Manager

Christine Chairsell: District Vice President, Academic and Student Affairs

Dianna Benting: District Food and Vending Services Manager

Eric Crum: Director, Community Environmental Services

Erin Stanforth: District Sustainability Manager

Heidi Sickert: Climate Action Plan Editor and Business faculty member

James Langstraat: District Associate Vice President, Finance

Jeff Triplett: Sylvania Campus Dean of Instruction

Jessica Howard: Southeast Center Campus President

John Garner: District Parking and Transportation Services Manager

Joy Chaussee-Sippel: FMS Administrative Assistant and Photographer

Kristin Watkins: District Associate Vice President, College Advancement

Laura Ward: District Energy Resource Manager

Leslie Riester: District Associate Vice President, Technology

Linda Degman: District Bond Program Director

Linda Eden: District Director of Auxiliary Services

Lutgarda Cowan: SPARC chair (2012-current) and English faculty member

Mandy Ellertson: Rock Creek Student Leadership Coordinator

Mark Gorman: District Transportation Demand Management Coordinator

Melissa Aaberg: Web Development Technician

Neal Nagius: District Community Relations Manager

Preston Pulliams: District President

Randy McEwen: District Vice President

Rhea Combs: District Director, Affirmative Action

Steve Hopf: District Division Manager, Procurement

Todd Sanders: SPARC Chair (2008-2012) and Engineering faculty member

White Lion Photography & Design: Climate Action Plan Graphic Design

Wing-Kit Chung: District Vice President, Administrative Services

A special thank you to the Graphic Design Team as well as the Climate Action Planning team that composed the City of Portland Climate Action Plan. The design and text of your plan was inspirational and influential on this Climate Action Plan.

Appendix 2: City of Portland GHG educational tool

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CLIMATE CHANGE OVERVIEW

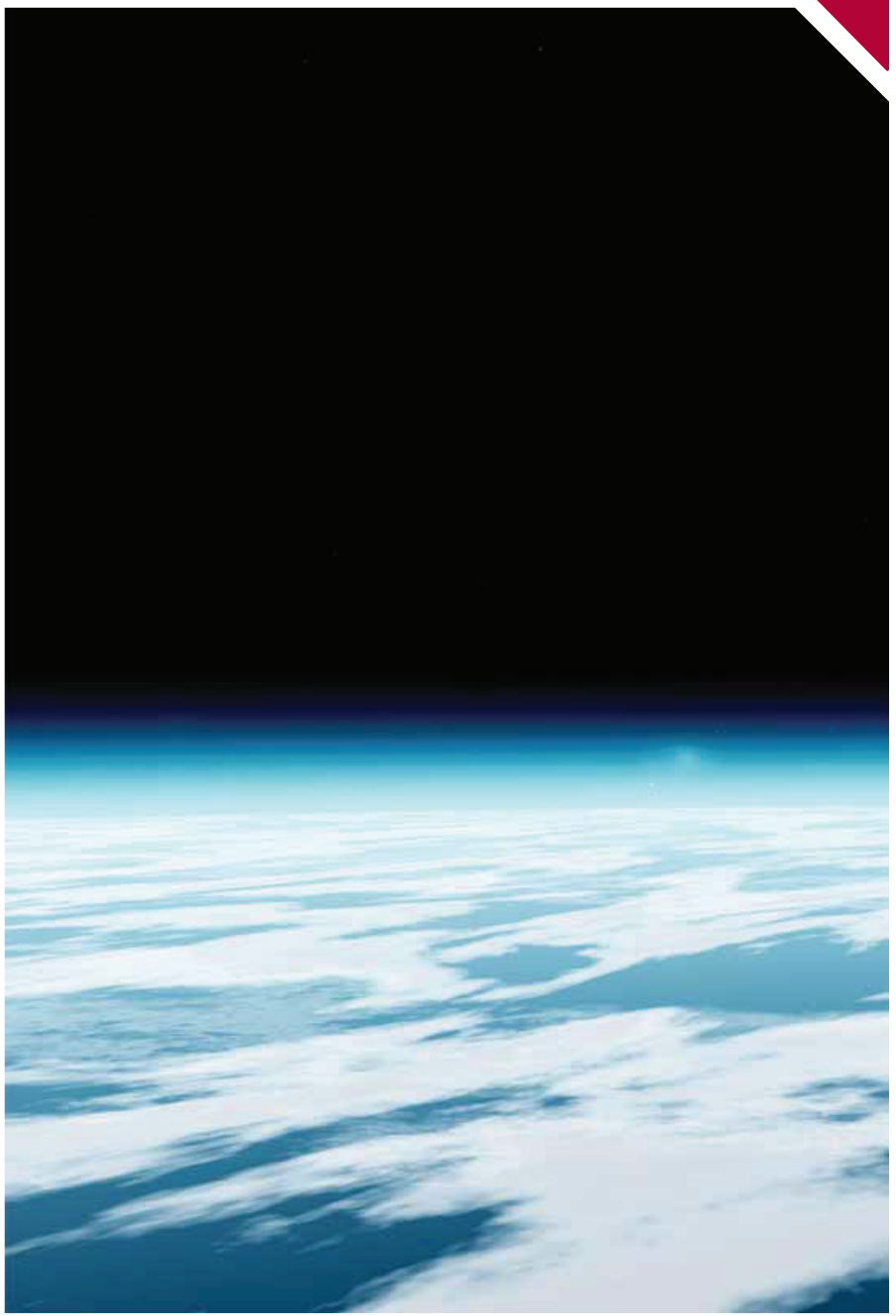
THE GREENHOUSE EFFECT

Climate change is driven by the greenhouse effect, a natural phenomenon essential to life as we know it. Without the greenhouse effect, the Earth would be permanently icy and inhospitable. Water vapor, carbon dioxide and other gases in the Earth's atmosphere act like a blanket over the Earth, absorbing some of the heat from the sunlight-warmed surface of the Earth instead of allowing it to escape into space (see graphic on page 48). Increasing the amount of these gases, called carbon emissions, in the atmosphere essentially makes the blanket thicker — and warmer. This warming is accompanied by changes in precipitation patterns, increased frequency and intensity of storms, wildfires, droughts and floods, rising sea level, changes in water quality and substantial changes in habitats, including the range of pests and diseases.

CARBON DIOXIDE AND OTHER CARBON EMISSIONS

Fossil fuels such as coal, gasoline, diesel, fuel oil and natural gas are made of carbon that has been stored underground for millions of years. Burning fossil fuels to generate electricity, manufacture goods, grow food, heat our homes and power our vehicles transforms this stored carbon into the gas carbon dioxide, which is then released into the atmosphere. Changing patterns of land use and land cover, primarily the burning and destroying of forests and the conversion of wildlands to farmland or housing, also release carbon dioxide from carbon stored in plant matter and soil. Further, by reducing the number of trees and plants that otherwise would remove carbon dioxide from the atmosphere through photosynthesis, such land use changes reduce the planet's capacity to absorb carbon dioxide. As a result of these activities, global atmospheric concentrations of carbon dioxide have increased by more than 30 percent over the past 150 years.

Carbon dioxide comprises almost 85 percent of U.S. carbon emissions, but it is not the only greenhouse gas of concern. Methane, nitrous oxide and halocarbons are also increasing in the atmosphere as a direct result of human activities. Methane



emissions, which account for eight percent of U.S. emissions, result primarily from raising livestock and waste disposal in landfills, where putrescible — rotting — waste generates methane. Soil management practices and application of fertilizers are the principal cause of nitrous oxide emissions, which represents five percent of U.S. emissions. Halocarbons, which include chlorofluorocarbons, hydrochlorofluorocarbons and perfluorocarbons, are synthetic gases produced during industrial processes such as cement manufacturing and aluminum smelting. These carbon emissions, though a smaller percentage of total emissions, all exert a more powerful greenhouse effect than carbon dioxide. (See "Units of Measurement for Carbon Emissions" in Appendix 3 for more information.) Reducing emissions of these gases is thus a critical component of climate protection.

SCIENTIFIC AUTHORITY

The United Nations Environment Programme and the World Meteorological Organization established the Intergovernmental Panel on Climate Change (IPCC) in 1988. The IPCC remains the primary authority on global climate change, receiving the 2007 Nobel Peace Prize for its work in the field.

The latest IPCC report, released in 2007, concludes that:[1]

- Human activity has increased atmospheric concentrations of carbon dioxide, methane and nitrous oxide to levels not seen in the past 650,000 years.
- There is over 90 percent certainty that most of the warming of the climate is due to human activity.
- Humans have set in motion a warming of the climate and rising of sea levels that will continue for centuries, but the amount of warming and sea level rise will be determined by human activity in the coming years.
- To minimize the extent of climate change, global carbon emissions must peak no later than 2015 and decline 50 to 85 percent from 2000 levels by 2050.

In January of 2008, the IPCC Chair, Rajendra Pachauri, suggested that the world had just seven years to stabilize carbon emissions.[2]

IMPACTS

Portland, Multnomah County and the entire Pacific Northwest will feel the impacts of global climate broadly and deeply. Since 1900, the average temperature in the Pacific Northwest has increased by 1.5 degrees Fahrenheit. In the next century, the warming is expected to accelerate and increase at least three times as quickly.[3] In the last century, glaciers on Mt. Hood shrank by more than one-third.[4] Melting ice on this iconic mountain, while one of the more visible impacts of climate change, will not impact Portlander's daily lives in the way that will other, less immediately apparent changes.

The Pacific Northwest will experience more warming in summer, and nights will cool off less than they do today. Increased urbanization and population growth, with their related roads and rooftops, will exacerbate the urban heat island effect, increasing local temperatures even more. Winters will likely be wetter and summers drier. As shown in Figure 19, these changes, coupled with higher temperatures, will likely mean higher river flows in the spring, when water is already abundant, and lower flows in the summer, when surface water is badly needed for drinking, irrigation, hydropower and salmon.

The region's landscapes are at risk. Forests, a cornerstone of the economy and environment, are particularly vulnerable. Drought, fire, pests and disease are likely to increase. Oregon's beaches are threatened by rising sea levels, stronger storms and increased coastal flooding and erosion.

1 Intergovernmental Panel on Climate Change, Climate Change 2007: Synthesis Report.

2 Pachauri, Rajendra K. "How Would Climate Change Influence Society in the 21st Century?" Lecture delivered at Massachusetts Institute of Technology, January 29, 2008.

3 University of Washington Climate Impacts Group, http://cses.washington.edu/cig/pnwc/cc.shtml.

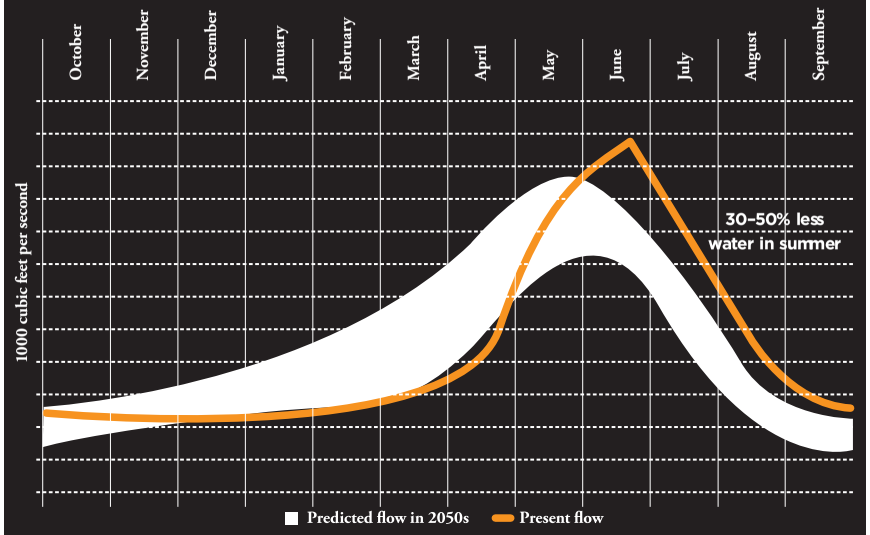
4 Jackson, K. M. and A. G. Fountain. "Spatial and morphological change on Eliot Glacier, Mount Hood, Oregon , USA." Annals of Glaciology, 46, 222-226.

Climate change also poses a significant challenge to public health. Rising temperatures may be accompanied by increased incidents of diseases such as cholera and weather-related mortalities. Rising temperatures are a specific concern for seniors, who are particularly vulnerable to heat stroke — especially in this region, where most homes do not have air conditioning. Additionally, mental health problems such as anxiety and post-traumatic stress syndrome may increase to the extent that people migrate from increasingly inhospitable climates to the temperate Northwest.

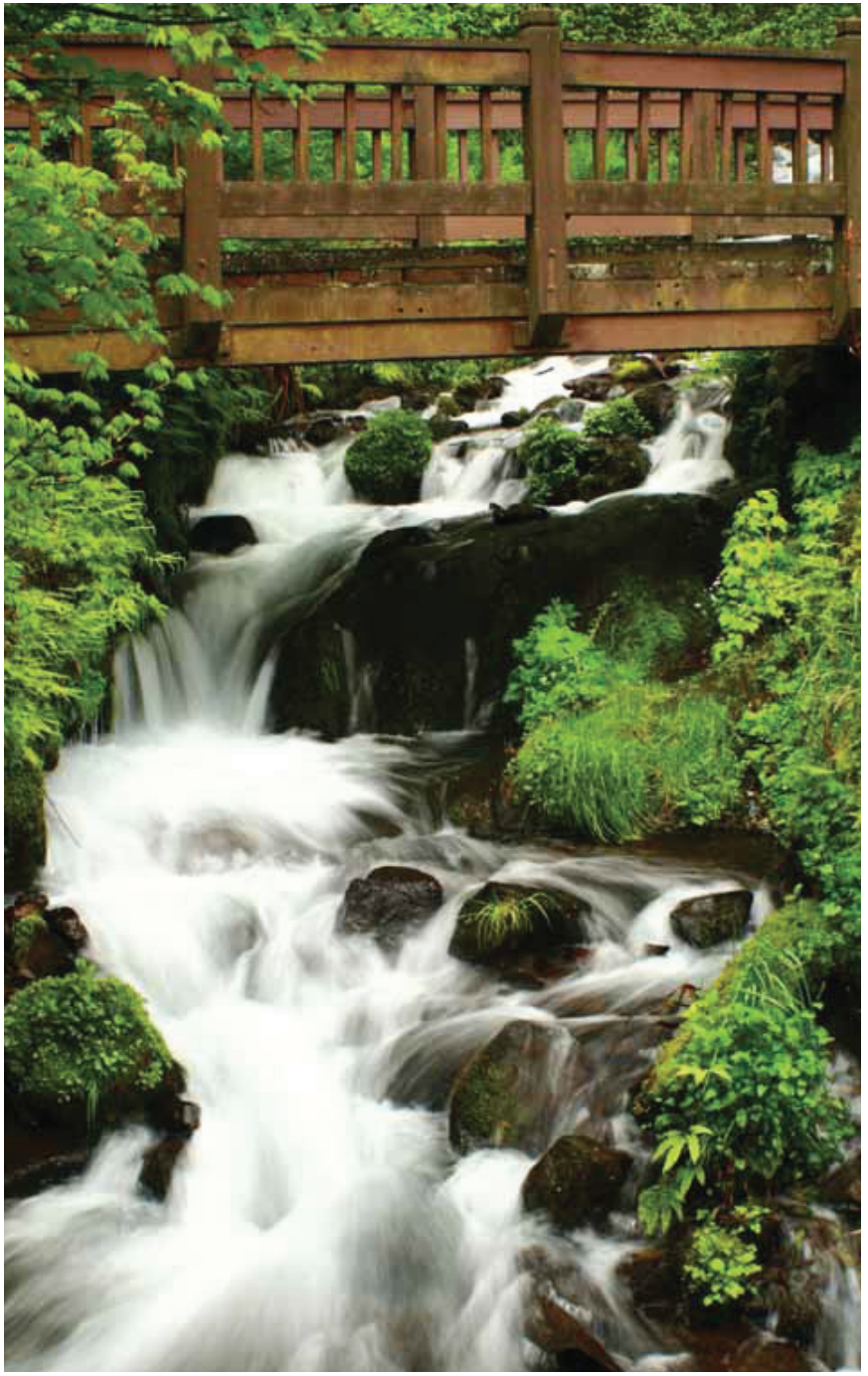
This summary is by no means an exhaustive survey of potential climate impacts. Additional information can be found at the following:

- Intergovernmental Panel on Climate change (IPCC) — www.ipcc.ch
- U.S. Climate Change Science Program — www.climatescience.gov
- Oregon Climate Change Research Institute — oregonstate.edu/groups/geco/pages/OCCRI.html
- University of Oregon Climate Leadership Initiative — climlead.uoregon.edu
- State of Oregon Climate Change Portal — www.oregon.gov/ENERGY/GBLWRM/Portal.shtml
- University of Washington Climate Impacts Group — cses.washington.edu/cig

FIGURE 20
PACIFIC NORTHWEST RIVER FLOWS



University of Washington Climate Impacts Group



Appendix 3: GHG inventory

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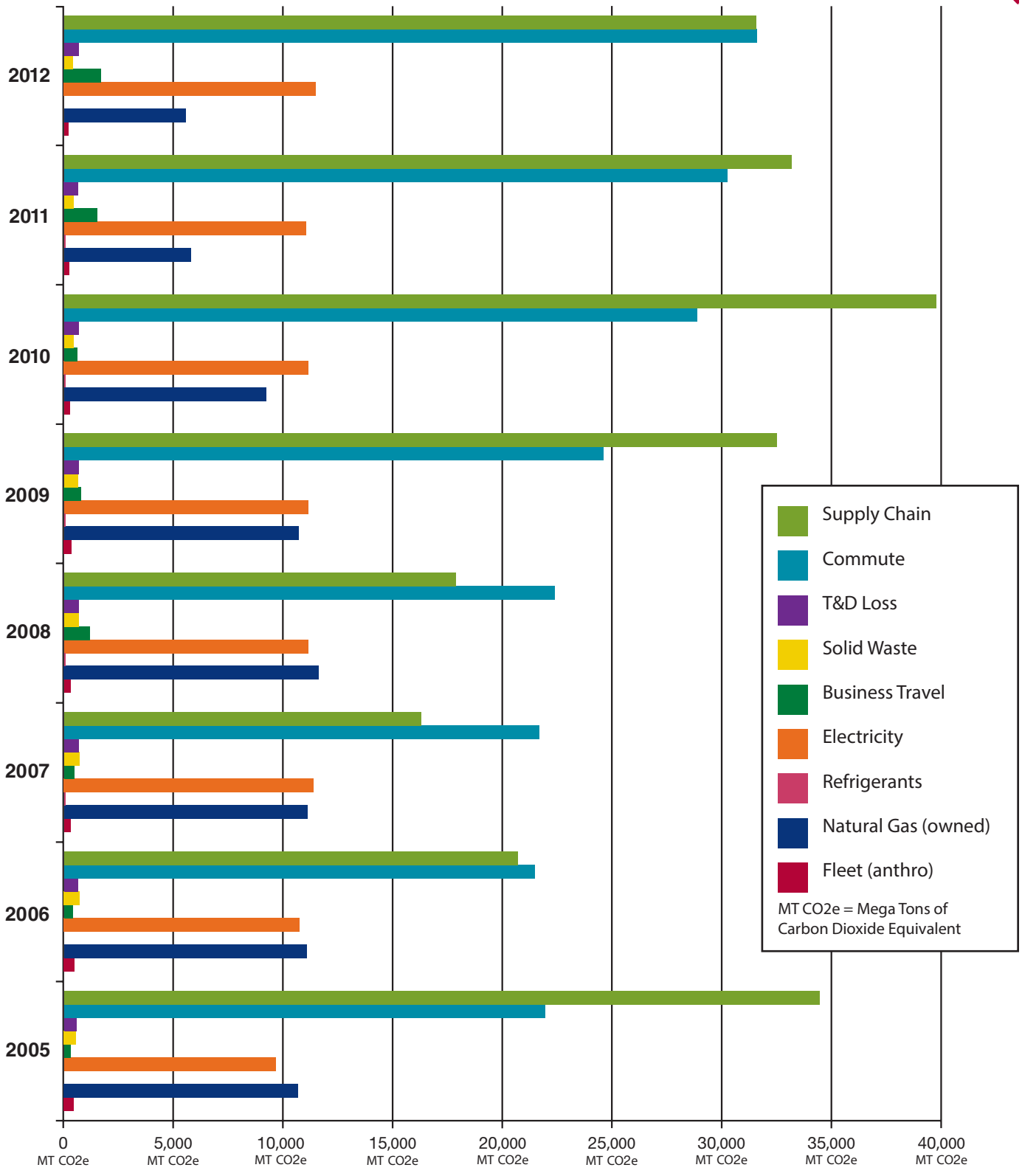

Appendix 4: PSC/SLT Membership

Appendix 4: PSC/SLT Membership

THE PSC MEMBERSHIP IS MADE UP OF THE FOLLOWING MEMBERS:

- PSC Co-Chairs (2)
  - Director of Facilities Management Services
  - Rotating Campus President
- Chairs of each PSC sub-committee (6)
  - Scope I
  - Scope II
  - Scope IIIa
  - Scope IIIb
  - Sustainability in Education: Sustainable Practices and Academic Resources Council (SPARC)
  - Community Outreach
- One Food Services representative (1)
- Sustainability Manager (1)
- Sustainability Analyst (1)
- A representative of the PCC Finance Department (1)
- Director of Auxiliary Services (1)
- One rotating PCC Campus Sustainability Coordinator (1)
- One rotating Dean of Instruction (with different affiliation than Campus President PSC Co-Chair) (1)
- One student representative (1)
- One faculty representative (1)
- One Bond representative (1)
- One rotating Student Leadership Coordinator (with different affiliation than Campus President PSC Co-Chair) (1)

Appendix 5: ACUPCC text and signed on tangible actions

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American College & University Presidents' Climate Commitment

AMERICAN COLLEGE & UNIVERSITY PRESIDENTS' CLIMATE COMMITMENT

We, the undersigned presidents and chancellors of colleges and universities, are deeply concerned about the unprecedented scale and speed of global warming and its potential for large-scale, adverse health, social, economic and ecological effects. We recognize the scientific consensus that global warming is real and is largely being caused by humans. We further recognize the need to reduce the global emission of greenhouse gases by 80% by mid-century at the latest, in order to avert the worst impacts of global warming and to reestablish the more stable climatic conditions that have made human progress over the last 10,000 years possible.

While we understand that there might be short-term challenges associated with this effort, we believe that there will be great short-, medium-, and long-term economic, health, social and environmental benefits, including achieving energy independence for the U.S. as quickly as possible.

We believe colleges and universities must exercise leadership in their communities and throughout society by modeling ways to minimize global warming emissions, and by providing the knowledge and the educated graduates to achieve climate neutrality. Campuses that address the climate challenge by reducing global warming emissions and by integrating sustainability into their curriculum will

better serve their students and meet their social mandate to help create a thriving, ethical and civil society. These colleges and universities will be providing students with the knowledge and skills needed to address the critical, systemic challenges faced by the world in this new century and enable them to benefit from the economic opportunities that will arise as a result of solutions they develop.

We further believe that colleges and universities that exert leadership in addressing climate change will stabilize and reduce their long-term energy costs, attract excellent students and faculty, attract new sources of funding, and increase the support of alumni and local communities.

Accordingly, we commit our institutions to taking the following steps in pursuit of climate neutrality:

1. Initiate the development of a comprehensive plan to achieve climate neutrality as soon as possible.
    a. Within two months of signing this document, create institutional structures to guide the development and implementation of the plan.
    b. Within one year of signing this document, complete a comprehensive inventory of all greenhouse gas emissions (including emissions from electricity, heating, commuting, and air travel) and update the inventory every other year thereafter.
    c. Within two years of signing this document, develop an institutional action plan for becoming climate neutral, which will include:
        i. A target date for achieving climate neutrality as soon as possible.

ii. Interim targets for goals and actions that will lead to climate neutrality.

iii. Actions to make climate neutrality and sustainability a part of the curriculum and other educational experience for all students.

iv. Actions to expand research or other efforts necessary to achieve climate neutrality. v. Mechanisms for tracking progress on goals and actions.

2. Initiate two or more of the following tangible actions to reduce greenhouse gases while the more comprehensive plan is being developed. (PCC has committed to the **bolded** action items below: A, B C, D, E and G)

a. 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.

b. Adopt an energy-efficient appliance purchasing policy requiring purchase of ENERGY STAR certified products in all areas for which such ratings exist.

c. Establish a policy of offsetting all greenhouse gas emissions generated by air travel paid for by our institution.

d. Encourage use of and provide access to public transportation for all faculty, staff, students and visitors at our institution.

e. Within one year of signing this document, begin purchasing or producing at least 15% of our institution's electricity consumption from renewable sources.

f. Establish a policy or a committee that supports climate and sustainability shareholder proposals at companies where our institution's endowment is invested.

g. Participate in the Waste Minimization component of the national RecycleMania competition,and adopt 3 or more associated measures to reduce waste.

3. Make the action plan, inventory, and periodic progress reports publicly available by submitting them to the ACUPCC Reporting System for posting and dissemination.

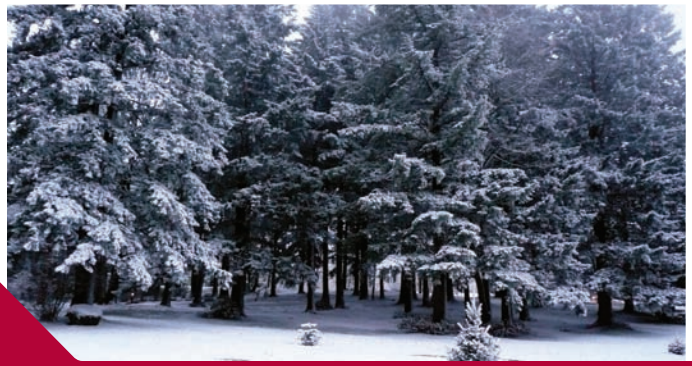
In recognition of the need to build support for this effort among college and university administrations across America, we will encourage other presidents to join this effort and become signatories to this commitment.

Signed,

Dr. Preston Pulliams
Portland Community College

February 27, 2008

Appendix 6: ASPCC Funding Principles for The Green Initiative Fund (TGIF) projects



Appendix 6: ASPCC Funding Principles for The Green Initiative Fund (TGIF) projects

THE FOLLOWING PRINCIPLES GUIDE AND GOVERN THE TGIF FUNDING PROCESS:

- Taking into consideration that PCC is a multi-campus institution, the TGIF governance board shall seek to distribute funds in an equitable manner.
- Projects shall support efforts to reduce PCC's impact on the environment.
- Projects shall contain publicity, education and outreach components.
- All necessary written approval by appropriate campus officials shall be obtained prior to funding consideration.
- PCC students, staff, and faculty are permitted to submit project proposals, as long as they are under the umbrella of a campus department. Individuals and organizations outside the college are not allowed to submit project proposals.
- TGIF funding will not support projects that are already mandated by law or college policy. TGIF will only fund projects that are not currently paid for by the college.
- TGIF is limited in funds and therefore will be more likely to support projects which have secured partial funding via other means such as department budgets or outside sources.
- Preference will be given to projects that demonstrate the greatest reduction of PCC's greenhouse gas emissions and/or resource usage for the least cost (ROI).
- Student participation is encouraged in all projects.
- Projects shall positively impact the triple-bottom-line of sustainability and take into account all impacts.
- A report will be required upon the completion of each project. We will release the report to the public.