1. Mission, Goals, & Strategic Planning

The Center’s main goal is to make the university more sustainable, in partnership with faculty, staff, and students. Another major goal is to work with external and internal partners to help Forest Grove and Washington County become more sustainable.

As part of the university’s strategic planning process, we submitted a plan for sustainability in the spring that expands upon the Center’s goals. As you can see from the plan (included here as an attachment), some goals are general because specific elements need to be vetted by various constituencies.

The plan includes a proposed Mission Statement:

The Center embraces and supports the sustainability component of the Pacific University mission. The Center—working with the Sustainability Committee [Advisory Board? see below], faculty, staff, and students—seeks to help all areas of university operations use resources more efficiently. Increasing efficiency of resource use also greens the University bottom line. The Center works with external partners to help Pacific University, Forest Grove, and Washington County become more sustainable.
Elements of the strategic plan are covered below.

2. **University Sustainability Committee & Sustainability Center Advisory Board.** After some discussion in the spring, the University Sustainability Committee members decided to propose disbanding the committee and to recommend that the Sustainability Center establish an Advisory Board that would include members from a wide array of campus constituencies. The center anticipates that a proposal will be submitted to the Provost and to the University Council this fall.

3. **Staffing.** Staffing is provided by John Hayes, who is half-time. In 2012-13, the center hired several students part-time, some just for specific projects: Kristy Granger, Fallon Harris, Kiersten Iwai, Conor Peterhans, Johanna Wood, and Troy Zuroske. They were a great help on myriad projects that really moved sustainability forward, and they are responsible for much of the progress reported below. For 2013-14, the Center has hired four students: Hannah Claussenius-Kalman, Felicity Dyall, Fallon Harris, and Willa Van Royen. Three positions are devoted to multiple projects; one position is devoted to developing and maintaining the sustainability website and Facebook page and helping with other social media.

4. **Earth Week.** Students from the Center helped organize and conduct Earth Week 2013 projects ([see poster](#)). Included were carrying out the [Wild & Scenic Film Festival](#) and a raffle of a mountain bike provided by the Center, the purchase of which was partially subsidized by Olson’s Bicycles.

5. **STARS Rating.** Pacific is a member of the Association for the Advancement of Sustainability in Higher Education (AASHE). AASHE sponsors the STARS rating program that tracks college and university sustainability efforts in over 100 operational areas. Through the diligent efforts of the Sustainability Committee, the Institutional Research Office, and many staff and faculty members, we submitted a STARS report in February 2012. As a result, Pacific was awarded a Bronze rating. Because of a tight timeline and the huge effort involved in generating the necessary data, we did not get all of the points that we could have gotten, although it is unlikely that we would have been elevated to a Silver rating with the additional points.

   For our next submission, we hope to obtain a Gold rating. The center is working with staff, faculty, and students throughout the university to garner the necessary points. Some of those efforts are outlined below; there are too many efforts underway to include them in this report.

6. **Presidents’ Climate Commitment.** A group of college and university presidents started an organization, the American College & University Presidents’ Climate Commitment (ACUPCC), that now includes 673 signatory institutions. In December 2012, President Hallick signed the commitment, adding Pacific to the list. [Earlier, President Creighton had signed Pacific onto the Talloires Declaration](#), an international commitment.

   The ACUPCC requires signatory institutions to name a date by which they would become climate-neutral and to submit climate-action plans. Among the more than 4,000 U.S. institutions, only 2 have reached climate neutrality. Most signatories expect to become climate-neutral in 20 to 40 years from now. Because of special circumstances, Pacific could choose to become climate-neutral in the relatively near future, which would generate a lot of positive press (see below).

7. **Carbon Footprint Calculation.** Institutional operations generate carbon dioxide and other greenhouse gases (GHG). Toting those up provides the institution’s carbon footprint, which needs to be known to determine what would be required to reach carbon neutrality. Calculating emissions will increase our STARS rating. The standard protocol requires calculations of Scope 1, 2, & 3 emissions:
   - Scope 1. Direct GHG emissions. Includes primarily natural gas combustion to heat buildings.
• Scope 2. Indirect GHG emissions. Purchased electricity.

• Scope 3. Other indirect GHG emissions. This broad category includes air and commuter travel, embodied energy in purchased materials, waste disposal, and a lot more. Whereas Scope 1 & 2 emissions are relatively easy to determine, Scope 3 emission calculations tie people in knots.

With the exception of the contribution from leased buildings in Eugene, Portland, and Woodburn, we have calculated our Scope 1 & 2 emissions. We will analyze Scope 3 emissions this year, a project that will take many months.

8. Carbon/Climate Neutrality. The three essential paths to climate neutrality include undertaking cost-effective energy conservation measures, using renewable energy sources where feasible, and purchasing carbon offsets to cover the rest.

• Energy conservation. We are developing a comprehensive program to implement all cost-effective energy conservation strategies. The proposal is to invest in a suite of measures that, on average, have a 5- to 7-year payback. We could use a dedicated green investment fund or rely on leftover year-end funds that, by our accounting rules, need to be capitalized. This investment makes good business sense because it has a guaranteed 14 to 20% first-year return on investment (ROI), amounts rarely exceeded by stocks or other investment instruments. Also, any reduction in energy consumption would increase our STARS rating.

We are first tackling archaic boilers, the subterranean behemoths that grunt and groan away in our larger buildings. We have worked with the Energy Trust of Oregon on an incentive program to pay some of the replacement cost. As an example, the boiler in Marsh, an old oil burner converted to natural gas, the only thing that survived the Marsh fire in 1975, operated at about 70% efficiency. Modern condensing gas boilers operate at up to 98% efficiency, and in summer 2013 we installed two HydroTherm KN-6 units to replace the old burner. We chose the Marsh boiler because we were facing an $8,500 repair cost on top of $11,000 spent earlier. The installed cost after the incentive payment and after deducting what we would have spent on immediate repairs is $72,000. Efficiency goes from 70% to 95%, saving $6,700/year, providing a 9.3% first-year ROI. That also removes 35.6 metric tons of CO2 from the atmosphere annually and reduces the amount of carbon offsets needed to reach neutrality.

With future boiler replacements, the hope is that in-house labor would substantially reduce replacement costs (roughly half of the Marsh boiler replacement cost was labor; we were temporarily without an in-house boiler engineer), which could boost first-year ROI to as high as 15%.

We also replaced the Stoller Center heat pumps, which use electricity to provide both heating and cooling, with more efficient models. We should realize a 23% energy savings, or about 400,000 kWh/year. If we got electricity straight off the Northwest power grid, that would save about 160 metric tons of CO2/year; however, because Forest Grove uses much more hydropower than the average Northwest grid delivery, the amount of CO2 saved would be substantially less.

In terms of overall energy use, it’s instructive to compare Gilbert Hall, which uses 0.500 therms per square foot of floor area per year (therms/sqft-yr; one therm is 100,000 Btu), with the Murdock chemistry building, our least efficient, which uses 6 times as much energy or 2.919 therms/sqft-yr. There are two main equipment differences. Murdock has its original, very inefficient, 32-year-old boiler. Gilbert has a super-efficient condensing gas boiler. Also in Gilbert, stale exhaust air is channeled through a heat-recovery ventilator that exchanges heat with fresh incoming air, preheating it, transferring about 75% of the energy in the outgoing air to the
incoming air. Murdock has a much higher air-exchange rate, mandated by building codes, of four complete building air changes per hour, and there is no heat-recovery ventilator, so 100% of the interior air’s added heat is lost when exhausted to the outside. Replacing the boiler and adding a heat-recovery ventilator would reduce Murdock’s natural gas energy use by about half, saving 20,000 therms or about $20,000 per year and also saving 106 metric tons of CO2 annually.

In terms of electricity consumption, we are just beginning to look at conservation measures. One strategy that we are undertaking is replacing exterior lighting with LEDs. LEDs often last for decades and produce more lumens per watt than other lights. They are mercury and lead free and do not produce ultraviolet radiation. We have much more to do with electricity energy conservation.

- Renewable energy. There are two main reasons that Pacific can achieve carbon neutrality more easily than many other institutions: about 80% of our electricity already comes from renewable sources, namely hydropower; we have a relatively mild climate that requires less energy for heating and cooling. Besides the hydro contribution, we have investigated using on-site renewable energy sources, such as solar photovoltaic panels to produce electricity and solar hot water panels. However, because Forest Grove has its own municipal utility and the 80% of electricity from hydropower is cheap, solar photovoltaic panels would not pay for themselves over their lifetimes. We have also investigated installing solar hot water panels on the new residence hall, which would displace cheap natural gas consumption, but the payback came in at 20 years so will not be implemented; indeed, any maintenance or panel or component replacement would boost the payback period beyond 20 years. Investment in renewable energy beyond hydropower would probably have to be off-site.

In Forest Grove, we could, however, invest in a small solar demonstration project for education purposes. In Hillsboro, the Intermodal Transit Facility, which Pacific helped pay for, is equipped with solar photovoltaic panels, and we might install more panels in Hillsboro because our electricity provider, PGE, charges about twice what we pay in Forest Grove, making panels there about twice as cost-effective. Investment in renewable energy production would increase our STARS rating.

- Carbon offsets. Purchasing carbon offsets should be the last adopted option, mainly because that does not precipitate any university energy savings and would not pay back the invested money that would otherwise support our educational mission. It makes sense, then, to invest in energy conservation and any available cost-effective renewable energy sources before purchasing offsets. Ultimately, to become climate-neutral, we would need to purchase some offsets.

The value in becoming climate-neutral in the not-too-distant future lies in the large amount of favorable publicity from being the first university west of the Mississippi to become climate-neutral.

We have worked with Northwest Natural and the Climate Trust to determine the cost of purchasing natural gas consumption offsets. At current consumption rates, it would take $45,000/year to offset all gas consumption, but that would drop as we implemented conservation measures. Cutting our gas consumption by a third or more would make offset purchases more appealing.

Currently, the Energy Trust is investing offset funds in biogas production facilities on dairy farms, burning methane to generate electricity. This keeps that methane—a greenhouse gas 25 times more potent than CO2—out of the atmosphere.
Because the primary current value to the university is accruing positive publicity by becoming climate-neutral, we would not just purchase the gas offsets. We would also want to offset electricity consumption, along with Scope 3 emissions. Currently, we consume about 10 million kilowatt-hours of electricity annually, and we would want to reduce that substantially before purchasing offsets, but noting that we would not need to offset the 80% coming from wind and hydropower. A rough estimate of current total offset costs would be $100,000/year; this could be more, depending on the energy embedded in Scope 3 emissions. We would undoubtedly want to lower the $100,000 cost substantially through implementing conservation measures before we considered offset purchases.

Scope 3 emissions also include the embedded energy in purchased products. Currently, Pacific purchases offsets for Dell computers. One could also choose to purchase relatively cheap certified carbon offsets for air travel, available here and here (about $9 to $12 for non-stop, round-trip flight from Portland to New York).

9. Office Greening. Several years ago, an ad hoc group of volunteer staff members undertook an office-greening initiative that had many wonderful benefits, including much wider use of recycled-content paper and double-sided printing. The center has convened a group of staff members to expand this initiative; Windy Stein is the group’s chair. Tangible results include, for example, a draft policy that would mandate purchase of Energy Star appliances, where available, and purchase of recycled-content office paper. The policy is in the approval process. Other initiatives will follow.

Currently, about half of our purchased office paper has 30% or more recycled content. Because recycled-content paper costs slightly more than virgin paper, it would cost university offices a total of about $3,000 to move to 100% use of at least 30% recycled content paper. This would represent about a 5% cost increase over the total we paid last year for office paper. Increasing the use of recycled-content paper and mandating Energy Star appliances would boost our STARS rating.

10. Campus Landscape Plan. The center has developed a comprehensive landscape maintenance plan that uses scientific principles to help guide the University on a sustainable path. Part of the plan includes becoming a Tree Campus USA, certified by the Arbor Day Foundation, which would boost our STARS rating.

Many of our landscaping practices do not meet sustainability norms, which is a major impetus for instituting a landscape plan. The plan outlines appropriate practices and sets up an advisory committee to oversee the landscape plan and to advise the Director of Facilities on campus landscape maintenance.

The landscape plan, a proposed draft of which is included as an attachment, follows the tenets of the Sustainable Sites Initiative, a partnership of the American Society of Landscape Architects, the Lady Bird Johnson Wildflower Center at the University of Texas, and the United States Botanic Garden.

11. Zipcars. The Sustainability Committee started conversations with Zipcar about placing two cars on the Forest Grove campus that may be rented by the hour or day. The first two cars showed up in early February, with a public unveiling on February 7. Ryan Aiello and others worked hard to make this a reality. The hope is that use would be substantial, leading to placement of more cars, both on the Forest Grove and Hillsboro campuses. One of the first two cars is a 50-mile-per-gallon Prius, and we will work with Zipcar to add more hybrid vehicles. Zipcars promote ride-sharing and we hope will cause some students not to bring cars to campus. You can sign up here (cost is $25, but you get $35 worth of free driving).

12. Model Room. With Student Life, the Center has set up a residence hall room that is a model for sustainable living practices. It is used to help students make good choices about resource use in
their living situations. This will become part of the Center’s video series in order to reach a wider audience. We achieve a higher STARS rating by setting up this room.

13. Outreach. Over the course of the year, the center did little to maintain the sustainability webpage and Facebook page, but that will change with hiring a student with specific responsibilities to update and to maintain these pages.

The center sponsored the making of two videos in spring 2013, one an overview of Pacific’s sustainability efforts, the other about moving into residence halls. These are the first in what will be a series of informative videos. Student Life, Facilities, and Marketing departments helped with producing the videos. Student Life uses the Arrive & Bring video to help tutor incoming freshmen on bringing less stuff to the residence halls.

The Give & Go program, coordinated by the Center for Civic Engagement, continues to grow in size. Students moving out of the residence halls in May donate unwanted items and support community organizations, such as CREATE, Family Bridge, Family Resource Center, Adelante Mujeres, HomePlate, St. Vincent de Paul, Community Action, Goodwill, and others. Donations included eighty-two 44-gallon bags of clothes, 12 bags of shoes, 34 bags of towels and linens, 329 pounds of food, and many bins of household items, books, and electronics. Give & Go also diverts much of what heretofore ended up in the landfill, and that diversion saves the university tipping fees.

14. Recycling. Thanks to Doug Martin and his able crew, over the last 5 years we have diverted 200 tons of paper and cardboard from the waste stream and have recycled tons of cans and bottles, saving the university $500,000 in landfill tipping fees. However, we have a problem with mixed recycling on campus. If too much garbage gets mixed in, the entire batch gets rejected by the recyclers, which then costs the university money and increases the amount we contribute to the landfill. The center is working with Facilities to improve compliance with recycling, especially in the residence halls.

15. Regional Sustainability Efforts. The Center’s students worked closely with the Forest Grove Sustainability Committee to organize sustainability summits where citizens come together to plan a sustainable future for the city. The first and second summits were held on the Pacific Forest Grove campus on October 20, 2012, and February 9, 2013. An additional summit occurred off campus on April 20, 2013. In addition, the committee planned the Forest Grove Annual Town Meeting program on January 26, 2013, where the theme was Creating a More Equitable, Safe, Healthy, Sustainable and Prosperous Forest Grove.

The committee has developed a climate-action plan and will monitor benchmark achievements. John Hayes authored the section on Energy Conservation and Green Buildings. Deke Gundersen and Johanna Wood helped with the plan, and Kiersten Iwai spent the summer of 2012 conducting a greenhouse gas inventory and developing reports for the city. The plan will be presented to the Forest Grove City Council for endorsement at its October 28 meeting. The last draft before the final draft is attached.

Kiersten’s reports on energy use, water consumption, and socio-economic assessment are linked here from the city’s Community Development website.

Faculty members Rich VanBuskirk and Deke Gundersen and John Hayes, as members of the Fernhill Wetlands Council board, worked with the City of Forest Grove and Clean Water Services on paying for a picnic and bathroom facility and rebuilding a viewing stand at the Fernhill wetlands site. The council also supports Clean Water Services’ installation of an innovative and sustainable natural wetland tertiary sewage treatment facility there.