

Oregon Way Advisory Group

April 2, 2009



The Net Zero Project – Portland Community College:
Building The Next Generation of Green Jobs

Project Background & Vision

Long Standing Board Commitment To Sustainability Leads To A Unique Public-Private Partnership

Background

- Supporting Portland Community College (PCC) Board Policy – integrate principles of sustainability into PCC curriculum and its built environment
- Building of the PCC E6 Initiative – goals to reduce energy, water and waste on campus
- Augmenting the National Science Foundation Grant – infuse sustainability content, practices, tools and techniques into PCC programs regarding building construction



Vision: Convert PCC's Sylvania campus to net-zero and transform the built environment into a living classroom for developing the next generation of technical green skills

- Engage in a unique public-private collaboration to create and implement the vision
- Create green jobs now
- Action based learning opportunities for students, faculty and further curriculum development – create green jobs of the future

Portland Community College Background & Opportunity

Transforming The Built Environment Into A National Model For Technical Profession Curriculum



Portland Community College Fast Facts

- One of the largest community colleges in the country
- Largest institution of higher learning in Oregon
- Serves more than 1,373,758 college-age residents in a five-county, 1,500-square mile area in northwest Oregon
- Enrolls just over 86,000 students across multiple campuses

Oregon Way Opportunity: Create the most sustainable community college in the country by

- Creating jobs now and for the future
- Create tremendous positive environmental impact
- Breaking down silos between Federal, State and private funding sources
- Act as a convener of multi-agency and sector (public & private) funded projects

Project Summary

Retrofit PCC Sylvania Campus To Achieve "Net Zero" With Minimum Interim Target Of 50% Energy Savings

The Context

- Entire PCC system currently consumes approximately 1 ton of carbon per student
- Sylvania Campus has ~900,000 sq ft of building stock
- Sylvania spends ~\$2.8 million annually on utility bills (\$1.6 million energy and \$1.2 million water/sewer)
- Solar friendly environment

The Action

- Retrofit and upgrade current building stock and site operations to maximize energy, stormwater, wastewater, and waste efficiency

The Results

- ~1040 family wage jobs
- 9 million kWh energy savings / yr
\$0.7 million cost savings / yr
- 937 metric tons of carbon saved / yr



The Cost - \$138 million

- \$50MM – Power Gen Facility / Building
- \$3MM – Stormwater Retrofit
- \$70MM – Building Retrofit
- \$15MM – Sewer & Water Retrofit

Work Currently Under Way

Numerous Initiatives On Campus To Leverage For This Project

PCC is a charter signatory of the American College and University Presidents Climate Commitment to reduce emissions of global greenhouse gases by 80%

Campus Wide Assessment

- Private sector team to commence campus wide assessment within a week
- Funding: 50/50 PCC and Dept of Community Colleges & Workforce Development
- Three week assessment & strategic planning process to detail and identify the specific building and campus-wide improvement opportunities



Project Related Work – Sylvania Bond Investment Heavily Renovation Oriented

- Surface water runoff capture and reuse; efficient lighting retrofits; retrofits for hybrid automotive technology; SOV reduction in student-friendly ways; boiler replacements, HVAC fans, etc. for efficiency; energy mgmt system modernization; low flow plumbing fixtures; glazing; permeable paving; solar

Other

- Green teams and service learning
- Green technology academic offerings
 - Renewable energy system, solar installation & manufacturing, hybrid vehicle repair, sustainable design & construction, etc.

What Is Net Zero

Net Zero = Self-Sustaining Systems

Self-Sustaining

- Energy generation & distribution
- Stormwater collection & reuse
- Wastewater treatment & reuse

Transformational Innovation

- Ambitious goal requires innovative technologies and techniques in distributed infrastructure
- Promoting commercialization opportunities

Additional Strategies

- Maximizing energy efficiency in building
- Taking a holistic, campus-wide view of transportation management and resource conservation
- Pursuing LEED certification for building retrofits.



Project Details

List of Potential Building and Campus Site Upgrades



- **Energy Efficiency Upgrades:** facade, mechanical, interior and electrical upgrades to existing buildings to vastly improve energy performance and user comfort
- **On-site Renewable Generation:** installation of photovoltaic panels and/or solar hot water panels on buildings and parking structure rooftops or adjacent sites
- **Water Efficiency Upgrades to Existing Building Stock:** low or no flow plumbing fixture upgrades
- **On-site Storm Water Management:** incorporation of site stormwater in landscaping, parking; conversion of 40% impervious surface to pervious in order to restore nature flow rates on campus
- **On-site Wastewater Management:** membrane bioreactor or living machine to treat wastewater on-site
- **On-site Waste-to-Energy:** closed-loop systems for foods and solid wastes to be used as feedstock for on-site power and thermal energy generation
- **Campus Operations Improvement:** development of best practices in building/campus operations and training for the involvement of staff, faculty and students in maintenance, operation, planning and implementation of improvements
- **LEED Certification:** achievement of a minimum LEED NC (New Construction) or LEED EB (Existing Building) Gold certification for buildings and a goal of pursuing LEED-EBOM (Existing Building Operations & Maintenance) certification for the entire campus upon completion
- **Education:** engagement of students, faculty, facilities staff and the community in direct educational⁷ and behavioral changes necessary to realize the net-zero strategies

Application to Oregon Way & Project Benefits

The PCC Net Zero Project Meets The Oregon Way Objectives

Six Critical Criteria

- **Job Creation:** Achieves significant immediate job creation in 2009 and beyond
- **Energy Impact:** Reduces carbon footprint and improves energy efficiency
- **Integration:**
 - Integrates public/private and local/state/federal partners
 - Utilizes a holistic systems approach to implementing built environment improvements
- **Workforce Development:** Builds long-term workforce capacity through on-the-job training and skills development via PCC curriculum and via immediate job creation
- **Local Sourcing:** Enhances the regional economy and American manufacturing leadership by emphasizing Oregon-based companies and building the supply chain through partnerships
- **Applied Innovation:** Applies Oregon-grown innovation at a system-level scale



Project Timeline

Ready to Build, Ready to Scale

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- Assessment: April 6th – April 24th
 - Identification of construction packages to get boots on the ground immediately (e.g. demolition, mobilization, etc)
 - Development of refined project plan for 2009
- Design: April 24th – May 24th
 - Complete architectural and engineering design efforts for 2009 packages
 - Development of plan to create jobs in 2009 and beyond
- Permitting: May 15th – June 15th
- Construction: June 15th – October 1st
 - Boots on the ground
 - On-site training of next generation green collar workers



Project Budget & Funding Sources

Requires Next Generation Of Public – Private Financing Collaboration

TOTAL COST **\$138 million**

Current Financing

Current PCC Bond + State Stimulus \$13 million

Total **\$13 million**

GAP **\$125 million**

ARRA Oregon Formula Money

EECBG **???** million

SEP **???** million

ARRA Competitive Grant Money

EECBG **???** million

ARRA Loan Money

CREB Loan **???** million

Total ARRA **\$0 million**

Private Investment

Foundation **???** million

Pension **???** million

Institutional Bank / Specialty Fund **???** million

TOTAL GAP FINANCING **\$0 million**



Summary of Key Points

The Net Zero Project Not Only Meets Oregon Way Objectives, But Also Presents An Opportunity For Oregon To Create A National Model For Community Colleges and Green Job Training

Key Takeaways

- Work is already under way
- Opportunities for leverage
 - PCC can provide at least \$13 million in funding from current bond
 - Synergies are numerous with upcoming bond work
- Immediate creation of jobs in Summer of 2009
- Immediate environmental impact in 2009 with completion of Phase 1 of project
- OR Way support required for: 1) successful competitive grant apps; 2) allocation of formula dollars; 3) securing of private funding
- Transformative national model
- Ideal match for OR Way criteria
- Being perfect learning lab for students that aspire 4 yr, 2yr, or professional certificates
- Feasible - demonstration scale that is manageable – 900,000 sq ft

