Oregon Community College Green Initiative

Green Framework

October 30, 2009

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Overview of the Oregon Community College Green Initiative (OCCGI)

Oregon Community Colleges are committed to meeting the current and future workforce needs in "green" industries, as well as industries that are "greening" traditional occupations. The OCCGI proposes to support Community Colleges to:

- Ensure the efficient use of state resources for green workforce development training activities and initiatives by fostering a culture of cooperation among Oregon's community colleges
- Support the creation, sharing, and coordination of delivery of model curricula, career pathways, degree/certificate programs, industry specific skill standards, customized training, and best practices
- Foster effective networking throughout Oregon's economic, workforce development, and education systems to better understand and respond to workforce demands

The OCCGI is governed by an executive team consisting of two college presidents, the Commissioner of the Oregon Department of Community Colleges (DCCWD) and Workforce Development, and a liaison to both. The Executive team is responsible for policy and budget decisions impacting the OCCGI effort. A staffing group consists of a project manager, several DCCWD staff, subject matter experts, and college "loaned" staff. This committee is responsible for gathering, disseminating, and utilizing the information and preferences provided by the colleges to respond to grant opportunities and build a community college "green" framework. The OCCGI Core workgroup, established by the Council of Instructional Administrators and Career and Technical Deans, is made up of college leaders who respond to OCCGI requests for information and policy input. Finally, each community college has identified a lead who convenes a group at the local level to respond to requests from the OCCGI and to communicate statewide activities related to "green."

See Appendix 1 for a complete list of OCCGI team participants.

Community College Green Initiative Framework

The purpose of this framework is to describe the current situation with green-related instructional and workforce programs and green initiatives at Oregon community colleges and to identify the following:

- Demand-driven, new, or expanded instructional and workforce programs
- Statewide and local "green" efforts related to community college initiatives

- Current or potential opportunities for regional and statewide approaches

In the near term, this framework will provide the basis for developing federal grant proposals as well as other potential funding opportunities to serve workforce and economic development needs in green industries. For the long term, this framework is intended to help inform local, regional, and statewide community college planning and implementation of green program and proposal development. The Framework also includes Guiding Principles, Goals, and Core Elements for Green Education and Training at Oregon community colleges.

Background

Oregon has earned a reputation as a leader in the emerging green economy. The state's first comprehensive land use law, focused on protecting the invaluable legacy of Oregon farms and forests, passed over forty years ago in 1967. The Oregon Bottle Bill, another green landmark, passed in 1971.

Oregon has sustained a focus on green practices and initiatives across many political administrations. The state's commitment to green has endured through severe recessions. It has held through booming expansions in the economy and population. According to a recent study conducted by Pew Charitable Trusts, Oregon is one of three states with large, fast-growing sectors in the clean energy economy.

Oregon community colleges have long been recognized as innovators in workforce education. With the national focus turning to green jobs and the greening of jobs, Oregon is once again leading the way. Community colleges across Oregon are preparing workers for green (and greening) technical occupations, upgrading literacy skills of adults preparing for entry-level green jobs, providing customized training to green the current workforce, and supporting community awareness on sustainability practices.

Recognized by the National Council for Workforce Education and the Academy for Educational Development for its sustainability efforts, Lane Community College has been training students in energy efficiency in construction and facility management disciplines for over twenty years. Columbia Gorge Community College's Renewable Energy training for wind turbine technicians is only the third program of its kind in the nation and is a model for green workforce training partnerships with public and private entities. The Sustainability Training for Technical Educators project at Portland Community College (PCC) is infusing sustainability content, practices, tools, and techniques into PCC programs that impact the built environment through professional development and training activities to faculty in Building Construction Technology,

Architectural Drafting & Design/Interior Design, and Facilities Maintenance Technology. The Historic Preservation and Restoration program at Clatsop Community College provides a well-trained workforce that can preserve, restore and "recycle" historic buildings that might otherwise be lost. This program emphasizes that "being green" can mean looking to the past.

Across the state, traditional degree programs from Range Management to Automotive Technology to Manufacturing are being infused with sustainability content. Community colleges, in partnership with apprenticeship programs and businesses, are training future and current plumbers and electricians with skills they need to meet the growing demand in solar installations. Whether developing new programs to meet the growing demand of emerging renewable energy jobs or revising/redesigning traditional career technical programs, Oregon's community colleges and their local and regional partners are on the forefront of green workforce development.

Oregon's Community Colleges, in collaboration with Oregon business and industry and workforce development partners, can make the promise of Greening the Oregon Workforce a reality. The Oregon Community College Green Initiative provides a framework for achieving this vision.

Current Assessment of Green Education & Training

The staffing committee developed an assessment template to collect, identify, and leverage existing green education and training resources at Oregon community colleges. The assessment tool gathered information from all seventeen community colleges according to the following categories:

Nascent Renewable Energy Jobs	Jobs in the infancy stage of development such as wave, thermal, and biomass.
Emerging Renewable Energy Jobs	Jobs that are on the ground and increasing such as in solar, wind, and utilities.
Energy Efficiency Jobs	Jobs that involve increasing efficiency of the built environment such as jobs in weatherization, energy auditing, and some trade occupations.
Greening of Existing Jobs	Jobs where the existing workforce needs upgraded skills. Education refresher courses might train plumbers in solar hot water installation, carpenters in green

	building techniques and materials, and landscapers in green landscaping techniques.
Curriculum infusion	The modification of curriculum to reflect the "triple bottom line" of sustainability/green principles and practices, such as sustainable manufacturing or greening across the curriculum.
"Other"	A wide range of green activities practiced at different college campuses that help the colleges be responsible partners in greening of the community.

Oregon's community colleges have been infusing green practices into curriculum, creating new "green" industry driven programs/degrees/certificates, providing customized training to employees to upgrade skills, and partnering with business and industry to train in green practices. Newer "green" programs are on the ground, developed in partnership with industry to meet emerging workforce needs in the green economy, including the following:

- Columbia Gorge Community College's Renewable Energy Tech program, which trains wind turbine technicians, is only the third program of its kind in the nation. It is a model for green workforce training partnerships with public and private entities.

- The Historic Preservation and Restoration program at Clatsop Community College is providing a well trained workforce that can preserve, restore and "recycle" historic buildings that might otherwise be lost. This program emphasizes that "being green" can mean looking to the past, as well as to what is "new."

- The NABCEP Entry-level PV Solar Exam Preparation course for Electricians at Central Oregon Community College provides short-term training for licensed electricians preparing them for NABCEP certification. This entry-level certification is required by Oregon to do work on residential work paid for with tax credits. Central Oregon Community College contracted with Lane Community College for instruction, so the program started with well-developed instructors and curriculum.

- Lane Community College's Water Conservation Technician Program trains individuals to design, implement, and evaluate water conservation programs and prepares them for a Professional Certification offered by the American Water Works Association.

- Blue Mountain Community College's Small Business development center is working with local businesses to develop green technologies and marketing and has hosted OSU workshops on bio products.

- Rogue Community College's "Green Team" sponsors renewable energy and sustainable educational events for the public. Their EcoCational House Project is a student-designed and built green residential home.

- Linn Benton Community College's Mechatronics program, in partnership with local industry, includes energy efficiency/conservation elements. Partnership with a local Bio-fuels company is projected to incorporate bio-fuel production processes into the program.

- Portland Community College's Solar Voltaic Career Pathways Certificate Program provides entry-level training that meets the need of local solar companies.

- Mt. Hood Community College recently opened its new biodiesel training lab. This training lab is another step in the creation of a sustainable training center at MHCC and is available for classes for students and community members who are interested in making biodiesel by converting used/fresh vegetable oil.

- Treasure Valley Community College provides weatherization training to the community.

Oregon community colleges are also focused on how their own operations reflect sustainability principles and practices. New construction is primarily LEED certified. Community college facilities managers and college sustainability teams have been active in identifying and implementing strategies to improve energy efficiency, reducing waste and water usage, and increasing "green" practices in the maintenance and operation of buildings and grounds. Community colleges are also utilizing widespread training in "Lean" practices to leverage more sustainable approaches in college operations.

See Appendix 2 for more detail of how information was collected.

See Appendix 3 for the compiled data on current green education and training offered at Oregon community colleges.

Potential New and Expanded Green Education, Training and Activities

Green "leads" at each of Oregon's seventeen community colleges completed a template describing potential new/expanded green training and activities in the following program areas:

1) Nascent Renewable Energy Jobs
2) Emerging Renewable Energy Jobs
3) Energy Efficiency Jobs
4) Greening of Existing Jobs
5) Curriculum Infusion
6) Other Green Activities.

See Appendix 4 for data compiled from the colleges.

Community Colleges recognize that "green" is not a specific industry and there is no specific educational sector that educates for "green" jobs. The Oregon Employment Department Research Division refers to the greening of Oregon's workforce rather than a separate green economy. In their recent publication, *The Greening of Oregon's Workforce: Jobs, Wages, and Training,* a green job is defined as one that provides a service or produces a product in any of these categories:

1) Increasing energy efficiency
2) Producing renewable energy
3) Preventing, reducing, or mitigating environmental degradation
4) Cleaning up and restoring the natural environment
5) Providing education, consulting, policy promotion, accreditation, trading and offsets, or similar services supporting categories 1-4.

To view the full report, go to: http://www.qualityinfo.org/pubs/green/greening.pdf

Community colleges cited opportunities to train for "green jobs," including using the train the trainer model for customized training, collaborative professional development for faculty, connecting programs between colleges, sharing of core curriculum, online courses shared across the state, and development of statewide certificates and degrees.

Community colleges listed coordinated efforts through their Small Business Development Centers for potential training for businesses, employees, and entrepreneurs in green. Across the state, community colleges are exploring ways to develop a green workforce for the nascent

renewable jobs especially in wave, biomass, and geothermal. Rural community colleges see partnering with each other as a way to maximize resources as they look to offer weatherization and energy auditor training. Automotive faculty seek resources to update programs to include alternate fuels and hybrid and electric cars while manufacturing programs want to integrate green manufacturing processes. Community colleges see opportunities to create learning laboratories on community college campuses for recycling, growing food, and living "green."

From the information gathered in the assessment process, the Community College Green Initiative staffing team developed/identified the following sectors for training categories to describe areas of workforce preparation related to the greening of the economy:

- ***Building*** (Construction and Retrofitting, Operations, and Assessment)
- ***Transportation*** (Infrastructure Construction and Retrofitting, Vehicle Operation and Maintenance, Alternative Fuels)
- ***Manufacturing*** (Assessment – Products and Processes, Production and Retrofitting – Product and Processes, Operations)
- ***Sustainability***: Practices, Methods, and Principles (Assessment, Redesigning Systems, Operations)
- ***Energy/Water Resources*** (Assessment, Utilization, Generation)
- ***Natural Resources /Agriculture*** (Assessment, Utilization, Sustainability Management)

OCCGI Goals

Oregon's community colleges are committed to working together in a connected, comprehensive approach to advance the "greening" of Oregon's workforce. Measures for advancing the delivery of green training emerged from the templates. These were further clarified through a series of facilitated meetings and conference calls with staffing green team, college "leads," and the core green team. This resulted in the following overall goals for OCCGI:

- Create program alignment /partnerships across community colleges to maximize resources.
- Create and deliver new "green" programs that are demand-driven and industry-led.

- Revise and infuse curriculum for "greening" programs and courses in all areas of college instruction, including lower division transfer, career and technical areas, adult basic education, customized training, and small business development.
- Develop and deliver industry specific certification trainings. Preparation for entering occupations in construction, weatherization, energy auditing, as well as other areas. Supplementing the skills of working plumbers, electricians, and others in "green" practices. Credit and non-credit training delivered through Business Development Centers and Customized training as well as regular "for Credit" college courses.
- Develop and deliver business and community training in green and sustainable practices.
- Offer professional development opportunities for college staff and partners in sustainability practices and principles.
- Use Career Pathways expansion as an education/training strategy in Oregon.
- Leverage partnerships with business/industry/WIA/labor/high schools/apprenticeships/ economic development/4 year institutions.

OCCGI Green Framework Guiding Principles

As the green teams met to create the framework for Oregon's Community College Green Initiative, substantial time was given to developing the following principles and operating assumptions behind the framework:

- Green training development is demand-driven from business/industry.
- Green training is developed and delivered based upon a career pathways approach ensuring that Oregonians, including those with low skill levels, have access.
- Workforce training gaps are identified and curriculum is developed to address industry identified needs.
- Effective collaboration will maximize resources and ensure that training is portable and replicable.
- Synergy will be created with the alignment of green or workforce training plans/frameworks/proposals with other states.

- Oregon's community colleges will have increased capacity to deliver education and training for greening Oregon's workforce.
- Community colleges will act as role models in raising awareness of sustainability.

Core Elements of the Oregon Community College Green Initiative Framework

The core elements of a green framework serve as a foundation for expanding and enhancing the greening of Oregon's workforce; these elements include the following:

- Policies
- Agreements for training/curriculum development, delivery and collaborative use
- Business and Industry Partnerships
- Collaboration and nesting
- Networking, communication, and marketing
- Continuous improvement, accountability, and sustainability
- Resources

Within each element, specific strategies have been identified to support these efforts. More detailed information on the core elements is provided below.

Policies

- Develop policies that support state and local strategic investment in "green" jobs training and "greening" of training for existing occupations.
- Encourage collaboration among education and workforce training providers to maximize resources and improve student outcomes.
- Develop policies to facilitate sharing of curriculum, resources, and best practices across the seventeen community colleges and with other key partners.
- Support policy development that drives strategic alliances among education, economic development, workforce organizations, and employers to ensure demand-driven, high-quality programs leading to student and industry success.

- Ensure that state and local policies support green-related "career pathways" as a strategic approach to accommodate frequent entry and exit points for students; labor market dynamics; and evidence related to student retention and success.
- Utilize policy to better "nest" and integrate community college "green" initiatives with economic development clusters, workforce organization strategic plans, labor market demands, and other statewide strategic efforts related to "green."
- Research opportunities to amend Oregon Program Approval requirements to address employer needs.

Agreements for Training/Curriculum Development, Delivery, and Collaborative Use

- Curriculum development will be based on competencies needed and identified by high growth, high demand industries for the emerging green economy.
- The core curriculum will be replicable, transportable, and shared across institutions; it also should be developed to fit various educational delivery systems, including degree programs, customized training, business training, and community education.
- All refined or developed courses will include competencies, assessment tools, and career pathways/ladders.
- Curriculum will be designed to support articulation among community colleges, high schools, and four-year institutions.
- Delivery methods may include blended or hybrid distance learning models, other distance learning-based training, and face-to-face methods.
- Curriculum will be designed to meet the needs of students at all skill levels and from multiple entry points, including accessible "bridge" programs for underprepared students, dual credit opportunities for high school students, integration of Basic Skills and Technical program curriculum, and fast-track options. The goal is to design scalable, accessible, sustainable and affordable training.
- Colleges will also promote efforts to incorporate green literacy across the curriculum in all disciplines by revising/updating existing curriculum to meet the skill gaps in traditional occupations that are greening. The adaptations and refinements of career guidance tools must be done simultaneously.

Business and Industry Partnership

- View green job training as critical to Oregon's economic development.
- Convene sector partners in determining relevant skills/knowledge and abilities and developing both industry and occupational specific competencies.
- Involve business and industry partners in the development of curriculum to align it with industry standards and certificates.
- Work with employers to customize green career pathways to meet their specific needs both for emerging and concurrent workforce.
- Create green internships, green learning labs, and green service learning opportunities providing structure for applied learning and supporting local businesses and community efforts.
- Leverage existing relationships with green industry partners, employer apprenticeship committees, and local businesses that work with Small Business Development Centers and Customized Training areas of the colleges.
- Help facilitate the alignment of local, regional, and statewide business development strategies to connect providers of parts and repair services with new, emerging industries.

Collaborative and Nested

- Foster knowledge exchange networks between industry and Oregon community colleges for development and affirmation of "green" workforce development and success.
- Align Oregon Green Community College Initiative with other Oregon statewide, regional, and local planning efforts focused on state economic recovery and growth including those of Oregon Workforce Investment Board, Workforce Integration, and Oregon Business Development Department to ensure collaboration and nested efforts in "greening" Oregon's economy.
- Use LMI and industry data, including *The Greening of Oregon's Workforce* report from WorkSource Oregon, to project workforce needs and prioritize program/training development.
- Collaborate to develop and leverage new and existing data/information sources.

- Integrate Career Pathways model including Programs of Study, bridge courses, articulation agreements, roadmaps and certificates, alternative delivery methods, career planning, developing and delivering "green jobs" training and education
- Incorporate Student Success Indicators and "momentum points" into green program development
- Incorporate the use of Career Readiness Certificate and Work Keys into green program development
- Develop industry-education regional partnerships
- Align planning efforts for green community college initiatives with state strategic plans including those of OWIB, Workforce Integration, and Oregon Business Development Department to ensure collaborative and nested efforts in developing a "greening" economy
- Support and collaborate with other efforts to secure resources for the statewide advance of green jobs and to advance state and federal policy that supports those efforts
- Participate in collaborative projects and activities to support the greening of Oregon's economy
- Work with apprenticeship programs to refine and develop "green apprenticeship" models
- Collaborate across the economic, workforce, and education systems to build and nurture a "green jobs" community of practice and foster creative synergistic potentials

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Networking/Communications/Marketing

- Develop multiple methods of communicating and marketing green job training – match the communication to the targeted audience.
- Ensure that workforce system partners are informed through websites, newsletters, and statewide summits.
- Create "green" learning opportunities for community college staff and partners which include workshops and webinar.
- Leverage the knowledge of community colleges in Oregon and nationally in developing and delivering "green jobs training."
- Promote access to green training and green skills development that lead to green jobs.

- Promote non-traditional employment opportunities to encourage diversity.
- Promote the "greening of Oregon's workforce" locally and statewide.
- Facilitate the development of seamless educational articulations that support green jobs training across community colleges, K-12 districts, and four-year institutions.
- Establish the means to encourage transitions between education and employment systems, programs, and services allowing for local/regional flexibility.
- Develop strategies for the marketing of green career and training opportunities with high school students, dislocated workers, adult educations students, and current workers (and their employers).

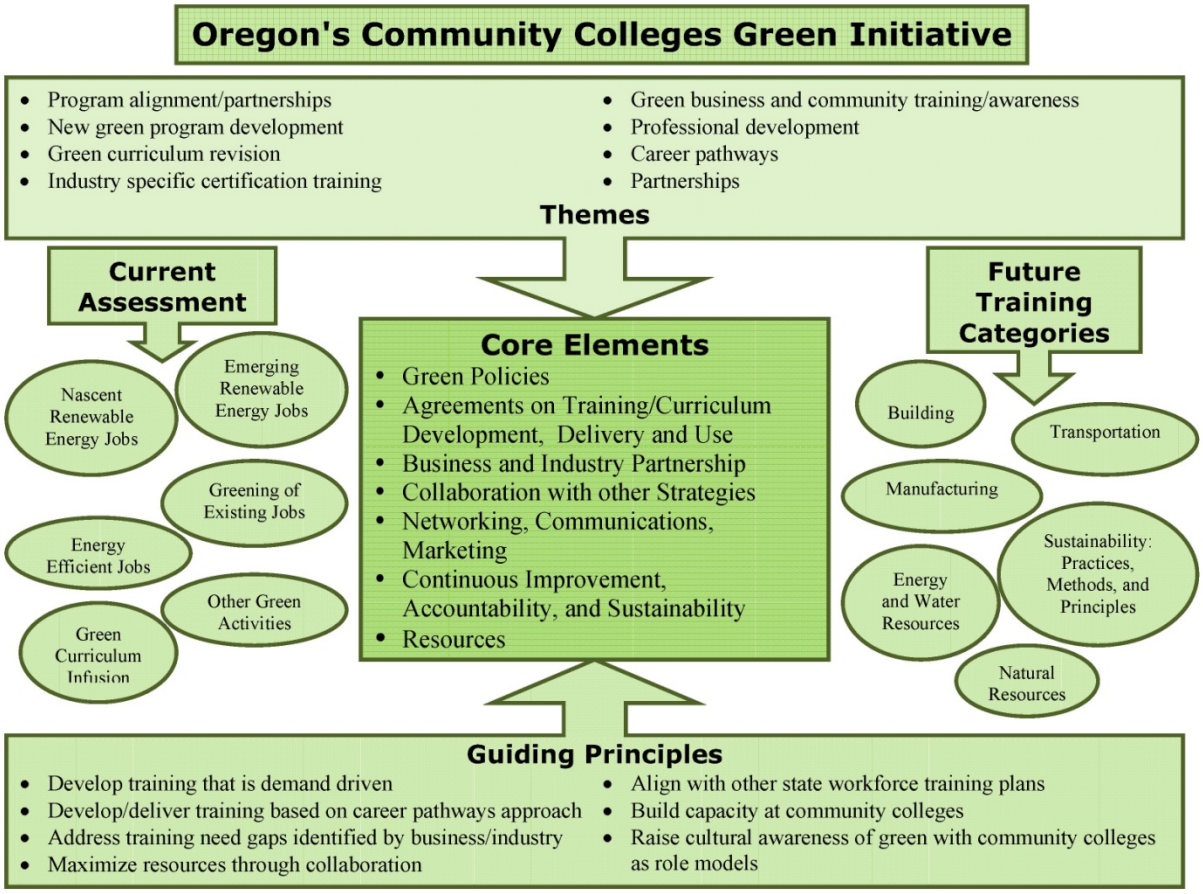
Continuous Improvement/Accountability/and Sustainability

- Establish a means to encourage and facilitate the use of data to strengthen connections to business, inform green program development, and measure success.
- In collaboration with business and industry, develop outcomes specific to
    1) Green job training,
    2) Articulation of green education
    3) Programs/degrees/trainings that include sustainability concepts. Analyze and report on outcomes.
- Use data-driven decision making in creating green education and training opportunities.
- Develop networks of green knowledge/green expertise within community colleges to facilitate the sharing of best practices, curriculum, and delivery.
- Develop agreements to promote transparency, accountability, and alignment.
- Collaborate with education, workforce, sector partners, and economic development partners to disseminate data.
- Develop statewide consortium between community colleges to deliver training and opportunities for student flexibility and success.

Resources

- Identify actions and resources to support Oregon community colleges' ability to "green" the workforce and economy.

- Actions are:
    1) Seek “green” industry partners who will assist colleges in developing non-proprietary, industry based, and cross-industry skill training and education for current and future employees.
    2) Use best practices of knowledge transfer to update understanding of benefits of “greening” Oregon’s workforce and economy for college faculty and staff, business owners, workforce partners, and governmental agency personnel.
    3) Use data and statistics to show state economic benefit, gain in livability in Oregon’s communities’ skill portability across industry and reduction of waste stream.
    4) Visit demonstration programs and sites.
    5) Host webinars and workshops.
    6) Seek/promote externships for CTE faculty with business and industry.
- Resources needed for colleges to drive expansion of Oregon’s “green” workforce include support funds for the following:
    1) Knowledge transfer activities as mentioned above.
    2) Development of accelerated, customized bridge and business training as well as new, revised, infused, or hybrid programs/courses.
    3) Expansion of course, certificate, and degree articulation agreements between colleges to ensure portability of student achievement.
    4) Purchase of equipment, materials and supplies.
    5) Hiring of additional faculty and staff.
    6) Improving data system to track results for outcome achievement and reporting purposes.
    7) Activities/events to share expertise, analyze return on investment of state and federal funds, and plan for improvement and sustainability.
    8) Expansion of distance education tools and methodologies.
    9) Student support for success and retention in green programs and trainings.
    10) Expansion of support services including advising and coaching to increase retention and completion rates.



Oregon Community College Green Initiative: The Future is Now.

The emerging transition to a green economy holds great promise for Oregon's economic growth and job creation. Oregon's community colleges are on the forefront of this growing momentum by preparing workers for emerging and reoriented jobs in the green economy, infusing sustainability principles and practices into curricula, introducing communities to green concepts and action, and creating learning laboratories on campuses. This framework serves as a foundation for developing federal, state, and foundation grant proposals to advance Oregon's community colleges' green initiative. It is intended to help inform local, regional, and statewide community college planning and implementation of green strategies and activities.