Green-Focused Program of Study
Oregon Team

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State Technical Assistance Academy
Green-Focused Program of Study
Oregon RFA Narrative

Oregon's Current Status of Program of Study Impelementation

Oregon has chosen to implement Career and Technical Education (CTE) Programs of Study in a manner that accommodates local educational needs while maintaining a set of standards that are consistent with the requirements of the Carl D. Perkins Career and Technical Education Act of 2006 (Perkins IV). The Perkins IV funds are the leverage to move CTE programs from a focus on electives and a few articulated courses to a standards-based program with strong secondary-postsecondary partnerships. In Oregon each program of study must address four core elements. Those elements are content and standards, alignment and articulation, accountability and evaluation, and student support services. Table 1 indicates how specific indicators for Oregon's Core Elements align with the Perkins IV core Program of Study components.

Perkins IV Core POS Component	**Relevant Indicators for Oregon Core Elements of a CTE Program of Study**
Incorporates secondary and postsecondary elements	Shared secondary and postsecondary technical content incorporates the knowledge and skills identified in the Oregon Skill Sets, which are developed and validated through national and state employer input.
Includes rigorous content aligned with challenging academic standards and relevant career and technical content in a coordinated , non duplicative progression of courses	Relevant, rigorous standards-based technical content aligned with challenging academic standards. An expectation that the elements defined in the Perkins Act will ensure a greater depth and breadth of student learning through the alignment and integration of challenging academic and technical standards in curriculum, instruction and assessment. A unified, cohesive sequence of content among secondary and postsecondary partners; a nonduplicative sequence of courses or learning experiences; students receive credit for prior learning whenever possible.

Perkins IV Core POS Component	Relevant Indicators for Oregon Core Elements of a CTE Program of Study
May include the opportunity for dual or concurrent enrollment programs	Alignment of content between secondary and postsecondary education may include course articulation or other ways to acquire postsecondary education credits (e.g. Oregon's credit for proficiency, dual credit).
Leads to industry-recognized credential or certificate at the postsecondary level, or an associate or baccalaureate degree	CTE Programs of Study are designed to equip high school and community college students with knowledge and skills needed for high demand, high wage careers that are responsive to regional, state or global employment trends. NOTE: All secondary components of a CTE Program of Study in Oregon must be aligned with a postsecondary certificate or degree that is at least 45 credits.

Table 1 - Comparison of Oregon Program of Study Requirements with Federal PerkinsIV requirements.

Currently CTE Programs of Study are developed locally and approved at both the regional and state level. Regional CTE coordinators, with technical assistance from the Oregon Department of Education (ODE), have spent the past year working with approximately 25% of our local CTE programs. Their work has focused mostly on alignment between secondary and postsecondary instruction achieved through identifying appropriate industry-based standards. This has been a definite stretch for Oregon. Prior to this process, CTE programs in secondary and postsecondary institutions were developed separately linked loosely by reams of course to course articulation agreements. The current approach requires closer communication between institutions, attention to nonduplication of content and tighter alignment between programs. In fact, Oregon no longer regards a CTE Program of Study as being secondary or postsecondary. A CTE Program of Study in Oregon has a secondary and postsecondary component that must exist before the program receives state approval.

One interesting outcome of the current process for Program of Study development and approval is the emergence of the regional CTE Program of Study. As instructors reviewed standards and addressed technical skill assessment with the regional coordinators and community colleges, some began to question the value of program autonomy. This has been particularly evident in agriculture programs. Through the Green-Focused Program of Study project, ODE hopes to carry that growing interest in consistency one step further. Our intent is to develop the first of several possible statewide Programs of Study that support state economic needs, create greater options for students, and provide strong models for CTE Programs of Study. We have chosen

to begin this work with a Program of Study that focuses on the sustainable built environment.

Demand for "green-focused" CTE and employment

Green-focused industry in the state of Oregon is experiencing rapid growth. Home to over 200 companies related to green-focused industries, Oregon is 10th in the nation in installed wind power, ninth in solar installations and is the national leader in green building[1]. In addition, the impact of green-focused industries is branching out to include a new and growing manufacturing sector.

Four key green-focused business industry sectors are integral to the Oregon business climate; Energy Efficiency, renewable energy, preventing and reducing pollution and mitigating or cleaning up pollution.[2] The state has the opportunity to become a national leader in these areas generating innovative, family wage jobs. But, to do so it must develop a strong workforce for these industries. A recent gap analysis indicates there is a shortage of workers for these industries and a need to strengthen existing curriculum with the integration of educational elements related to the four key business sectors. [2] As green-focused industry continues to proliferate, the demand for a prepare workforce grows with it.

With industry leaders Solar World AC, Solaicx, PV Powered and Gro Solar all located in state, Oregon has more solar manufacturing than any other state in the US. Because of this large presence, there is an industry development that is shifting the emphasis from service and installation to production. As a result, industry is reporting having difficulty finding employees with basic workplace skills, especially remedial mathematics skills.[2] While solar photovoltaic's play an important role in Oregon industry, wind power production is a growing industry as well. Between 2005-2008, there was a 29% increase in jobs due to wind farm construction[3] and the wind industry is expected to continue to grow with the recent relocation of Vestas to Oregon[4]. Gap analysis indicates over 600 Turbine installation and maintenance technicians will be needed in the next four years[2].

Oregon is a green building leader in both commercial and residential structures. Oregon has the highest ratio of Leadership in Energy Environmental Design (LEED®)-certified buildings per capita of any state. Statewide there are 69 certified LEED projects and 315 registered LEED structures, [5] second in total number of structures only to its fellow Pacific Northwest state of Washington. The purpose of green building is to reduce impact, especially in the area of energy conservation and the associated conservation technologies. Since there is a large trade component associated with the building trades the majority of the workforce members have only a high school diploma. Thus traditional high school curriculum is one of the few opportunities to address energy related issues, and in the opinion of current industry representatives, high school curriculum could be improved to meet the needs of the industry.

A recent survey of green-focused industry managers indicates a need for related educational program of study. According to survey respondents there is a lack of renewable energy core competencies in tradition high school [and college curriculum][2]. Since 50% of employees are required to have just a high school degree, it is currently difficult to find employees that are "work ready". To address this industry need, a green-focused Program of Study is important to Oregon[6].

Oregon has an emerging need for a green-focused workforce and a green-focused Program of Study can help develop that workforce. We are proposing that our efforts begin with a Program of Study that emphasizes the sustainable built environment. We have chosen this context because there are some existing strong partnerships between the construction industry, secondary education, and postsecondary education. The Technical Assistance Academy will allow us to leverage these partnerships, build a strong model for a statewide Program of Study, and develop a framework for other related Programs of Study.

Commitment to implementation of action plan

Our primary route for dissemination of the work that evolves from the Academy is our regional coordinator network. This group meets regularly and represents high schools and community colleges across the state. The regional coordinator's network is the group that would encourage use of the "blueprint" and help sheppard the work involved in implementing the Green-Focused Program of Study.

One of the biggest issues we hope to resolve through this technical assistance process is how to sustain a statewide Program of Study. Although we have a process for state approval in place, the actual development of a Program of Study has been a regional responsibility. The key issue we will need to resolve is "ownership" of the Program of Study. In order to maintain the integrity of the Program of Study, a single agency or institution will have to monitor its implementation. In deciding the ownership issue, It is important to maintain the integrity of the Program of Study and also maintain communication between secondary and postsecondary partners involved in implementation.

The Oregon Perkins plan has been a catalyst to bring together different aspects of CTE in the state. At the community college level there is a well established program approval process that insures quality CTE programs that meet demands for preparation for high wage, high skill, and high demand careers. Many of the requirements align well with Program of Study requirements in Perkins IV. Community colleges in Oregon are involved in a statewide career pathway project that helps postsecondary students attain the skills necessary to enter the workplace. Many high schools have developed strong alignment and articulation with community colleges as a result of previous versions of the Perkins legislation. Perkins IV in Oregon has helped develop and strengthen bridges between high schools and community colleges through common standards and articulation.

The critical difference between the work proposed for the Green-Focused Program of Study and ongoing work related to CTE is the focus on a statewide program. Although we have existing statewide degree programs at the community college level and we have statewide coordination of the pathways work, there is no process for developing a statewide Program of Study. Through this technical assistance we will develop a Program of Study related to the sustainable built environment that and use our experience with other statewide efforts to insure its implementation.

Breadth, depth, and influence of proposed state team

Our state team consists of representatives from state agencies, postsecondary institutions, secondary institutions and industry organizations. The strength of this group is their pre-existing relationships. Each has worked with some aspect of education related to the sustainable built environment and have often worked together on common projects.

The Oregon Department of Education will serve as lead agency on the project. The department currently maintains the regional coordinator network which is critical to the dissemination of the products. ODE also manages Perkins IV and establishes policy related to the implementation of Perkins IV. ODE also works closely with the community college system.

The postsecondary partners are Portland Community College (PCC) and Portland State University (PSU). PCC is a state leader in providing education for technicians involved in the sustainable built environment. They have received grants from the National Science Foundation to expand their work to a regional level and offer a summer Sustainability Training for Technical Educators. PCC has worked with secondary partners to help enhance construction technology programs. The Center for Sustainable Processes and Practices will provide technical assistance related to the sustainable built environment. Their architecture program also serves as an additional educational opportunity for students who wish to move beyond a two-year degree.

Portland Public Schools, the largest school district in Oregon, will provide the secondary connections for the team. Of particular value to the team will be representation from Benson High School. Benson is a comprehensive technical high school with a robust construction program. The instructors at Benson have been incorporating sustainable building practices into their program in collaboration with PCC. The existing partnership between PCC and Portland Public Schools will enable us to implement the Program of Study. Actual implementation will be critical to expansion of the Program of Study throughout the state.

Our industry partners, Energy Trust of Oregon and Oregon Building Congress (OBC), will provide critical guidance in curriculum and demands of the workplace. Both organizations have extensive experience in developing curriculum related to sustainable building practices. Energy Trust of Oregon operates a Technical School Outreach program that works directly with existing construction programs in Oregon. The Oregon

Building Congress is the educational arm of the building industry. OBC operates summer trainings for students and teachers. They also are the primary industry sponsors of ACE Academy, a charter school that focuses on architecture, construction, and engineering.

References

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