CLUSTER RESOURCE GUIDE

MOVING FORWARD

6TH ANNUAL LEADERSHIP SUMMIT

DECEMBER 3, 2007

Oregon Business Plan.org

OREGON CLUSTER ALIGNMENT

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OREGON CLUSTER ALIGNMENT

INTRODUCTION

This Cluster Resource Guide summarizes the results of focus group research with industry cluster leaders in the summer and fall of 2007. These focus groups sessions were conducted jointly by the Oregon Governor's Office, the Oregon Economic and Community Development Department, the Oregon Innovation Council, and the Oregon Business Plan. This guide summarizes perceptions by business leaders about Oregon's business climate and the policy initiatives of the Oregon Business Plan. In addition, it provides background on each cluster and a list of *cluster-specific, action-oriented initiatives* that can serve as part of Oregon's economic development agenda for 2008. This guide is intended as a tool for those shaping broad policy priorities in the Business Plan and for those involved in the implementation of initiatives specific to individual industry clusters.

Background

Five years ago, the Oregon Business Plan placed the development of traded-sector industry clusters at the center of its economic development strategy. *Stepping Up*, the original Business Plan presented in December 2002, argued,

> As a broad strategy to revitalize and sustain the Oregon economy, we should position Oregon in fact and reputation as a state unique in its passion and ability to nurture clusters of innovative industries. This includes clusters we have already, those we can attract, and those we can build from scratch. It includes clusters in new technologies as well as traditional industries producing new products in new ways.

Five years later, we are well along the way in doing just that.

As a concept of using clusters as an economic development strategy was first popularized by Harvard Professor Michael Porter in his 1990 book, *The Competitive Advantage of Nations*. Porter defines clusters as "geographic concentrations of inter-connected companies and institutions working in a common industry." There are examples of clusters all over the world, from watch making in Switzerland to film and television production in Hollywood. The fate of local economies, according to Porter's theory, depends upon how effectively the firms in each cluster compete with other regions.

The Oregon economy comprises a broad tapestry of clusters. Our oldest clusters, such as forestry and agriculture, have evolved from such natural assets as our soils, climate, water supply, and access to shipping and markets. With $26.5 billion coming to Oregon from the manufacturing sector in 2006 (just under a fifth of Oregon's total GSP), companies here make everything from defense equipment to aircraft engines to packaged foods. Our Silicon Forest is a hub of design and production in electronics, software, and related businesses. And, in just the last few years, Oregon has started to position itself as a leader in the new green economy. We have clusters branding themselves based on sustainable practices (organic agriculture and certified wood), forming around all types of clean energy (such as wind, wave, solar, and biofuels), and leading the way in energy efficient building design and urban planning.

Traded-sector clusters, the focus of the Business Plan, are those that sell their products and services outside the state, bringing in fresh dollars that directly sustain high-paying jobs while spurring growth and good jobs among local suppliers, retailers, and service businesses. When Oregon's traded-sector clusters do well, so do local economies and communities buoyed by their payrolls and

their demand for goods and services. The Business Plan believes that traded-sector clusters are most successful when they compete through innovation, not only in leading-edge products and services, but also in leading-edge practices in supply chain management, production, marketing, and other functions of business. These leading-edge, traded sector businesses are so critical to the Oregon economy that they offer a model by which Oregon can achieve its primary economic goal: *growing well paying jobs for Oregonians.*

A key premise of the Oregon Business Plan is that our clusters can be strengthened through the collaborative efforts of business and government. By learning about cluster needs, the community at large can support clusters through a wide range of strategies, including higher education research, education and workforce development, transportation and logistics, recruiting key suppliers, and branding and marketing.

Cluster Development Progress

As a key part of the first Leadership Summit in 2002 the Oregon Business Plan recommended that the state refocus economic development, and that it do so – among other things – by supporting and developing traded-sector industry clusters. Cluster development work was well under way throughout 2003 and 2004, and by 2005 it gathered more momentum with the formation of the Cluster Network, a group of statewide cluster practitioners and experts. Under the umbrella of the Network, cluster development efforts in Oregon were inventoried and a central website on Oregon clusters (www.oregonclusters.org) was created. The Network has met regularly to promote networking and communication among groups involved in cluster development. Oregon's recent selection to be one of seven states to participate in the National Governor's Association Policy Academy, a program to promote cluster growth and best practices, will also help state government advance its work in cluster development. We hope these efforts will continue to provide an infrastructure that supports learning and sharing among clusters and those who support them.

With leadership coming from individual business associations, the Governor's office, OECDD, the Oregon Innovation Council, and a number of other economic development organizations, Oregon's cluster-based economic development strategy is gaining traction. Many industry associations have become much more sophisticated in developing cluster strategies and connecting with the broader community. On the public side, it is particularly important that the Governor's office asked all state agencies, working in conjunction with the Oregon Economic and Community Development Department, to learn about the needs of specific clusters and identify targeted strategies to respond to them. The focus groups conducted for this report provide a set of ideas for how industry and public agencies can work together.

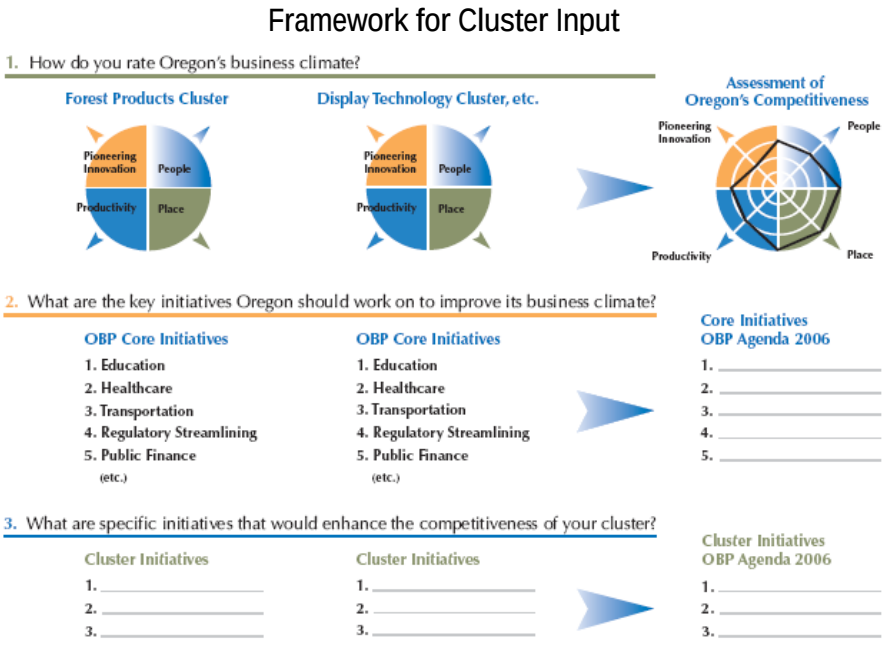
In support of cluster development, the 2007 successes of the Oregon Innovation Council were especially noteworthy: Oregon lawmakers funded nearly all of Gov. Ted Kulongoski's innovation proposals, including investments in seven new industry initiatives and the creation of two new signature research centers, in a package worth $28.2 million. As part of that package, lawmakers also passed legislation to enhance Oregon's innovation capacity by streamlining technology transfer and expanding the scope of the Oregon Growth Account.

Our success has recently been acknowledged both nationally and internationally. As part of the National Governor's Association Policy Academy on Innovative Clusters and Regional Economic

Strategies, Oregon is represented at the national level by a core team of public and private economic development leaders and has an opportunity to set an example of successful cluster development practices for other states. In a highly selective process, Portland was chosen as the 2007 destination for The Competitiveness Institute's annual international cluster conference, drawing more than 500 participants from over 40 countries, including representatives from economies as diverse as Ethiopia, Turkey, Pakistan, and Argentina. In a week-long conference, cluster development practitioners and policymakers had a chance to network, learn from each other, learn from Oregon, and visit (and taste) the best of Oregon's clusters.

In this year's update of the Oregon Business Plan, we have once again sought feedback from clusters, this time employing focus groups to assess Oregon's economic climate, to look for policy issues that cut across all clusters, and to identify cluster-specific initiatives.

In partnership with the Governor's office, OECDD, the Oregon Innovation Council, and many statewide trade associations, we were able to have conversations with more than 20 of Oregon's industry clusters. Through regional meetings organized by the Governor's office and OECDD, we learned about local clusters, such as Southern Oregon's heavy-lift helicopters, Astoria's seafood cluster, and the Columbia River Gorge's wine and wind energy clusters. Our trade associations served as access points to groups of industry leaders. We thank them for gathering their members to participate in two-hour cluster focus groups that have yielded rich information and an economic development agenda for the years to come. We'd also like to acknowledge the support we received from the Portland Development Commission, Oregon Business Association, Associated Oregon Industries, and many other city and state agencies in making sure the business community's voice was heard.



In this guide, the clusters' feedback is organized in three broad categories, according to the questions raised in the diagram to the right. The two following sections summarize the results of clusters' assessment of Oregon as a place to do business and their recommendations on broad priorities, information that was valuable for setting the Oregon Business Plan's policy agenda (found in the Policy Playbook). The third and last section, organized alphabetically, provides summaries of the cluster feedback we received and the list of specific initiatives identified by each..

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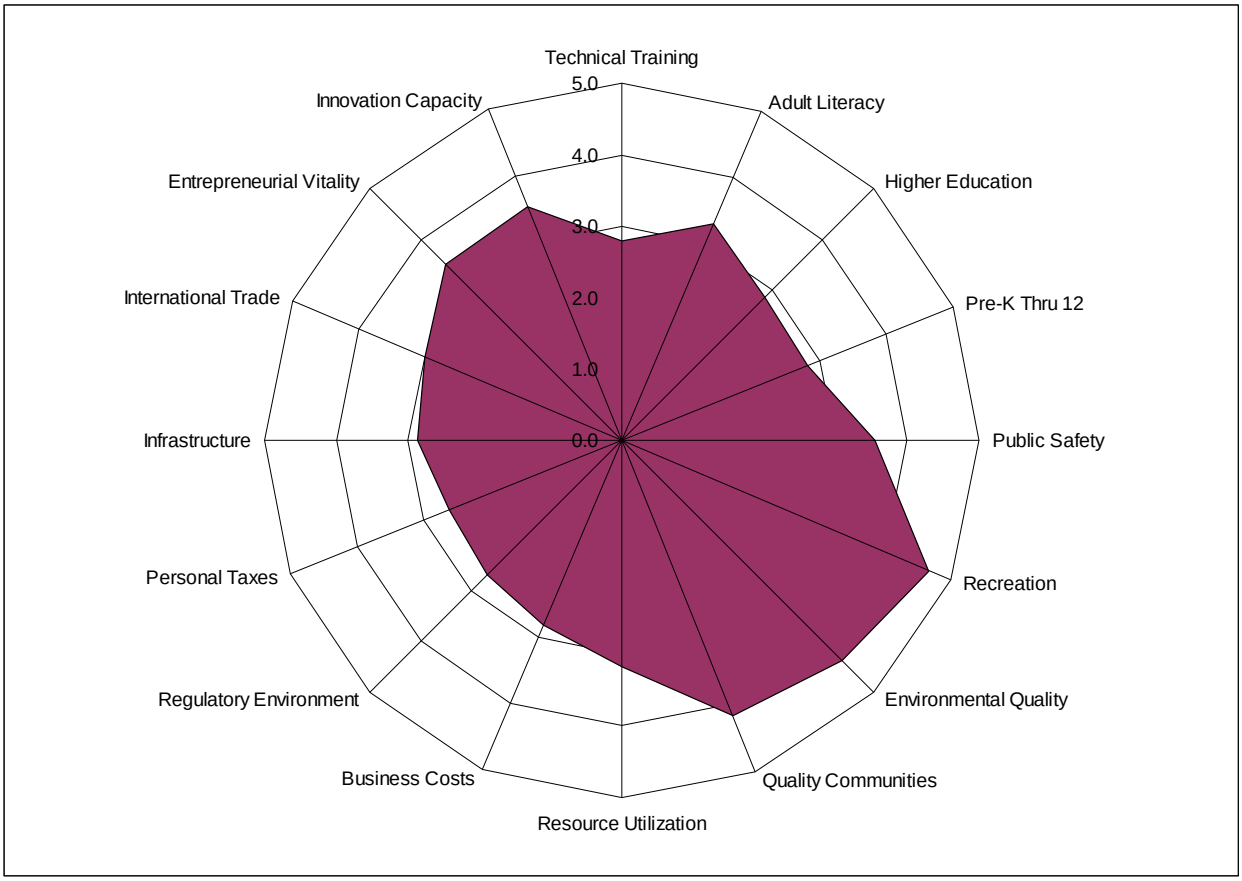
CLUSTER FEEDBACK ON OREGON'S BUSINESS CLIMATE AND POLICY INITIATIVES

As in 2005, we asked clusters to tell us how they perceive Oregon as a place to do business for their industry, using the Four P model represented in the quadrants of the spider diagram below (clockwise from upper left) Pioneering Innovation, People, Place, and Productivity. We received 98 responses from 18 industries. In aggregate, these diagrams and the other feedback we've received indicate that across industries, cluster leaders perceive Oregon as a great Place to live (which is an big asset for attracting talent), but rate the state average or below average for its assets in Pioneering Innovation, People, and Productivity. Specifically, clusters perceive a need for a better-educated, skilled workforce, a more business friendly tax and regulatory environment, and improved infrastructure. Oregon's high rankings on Place underscore sustainability and quality of life as part of Oregon's competitive advantage.

Note: Cluster feedback was provided mainly through focus groups of 4-25 cluster participants. The views and priorities captured during these sessions may not be representative of the entire industry, or every individual within the industry.

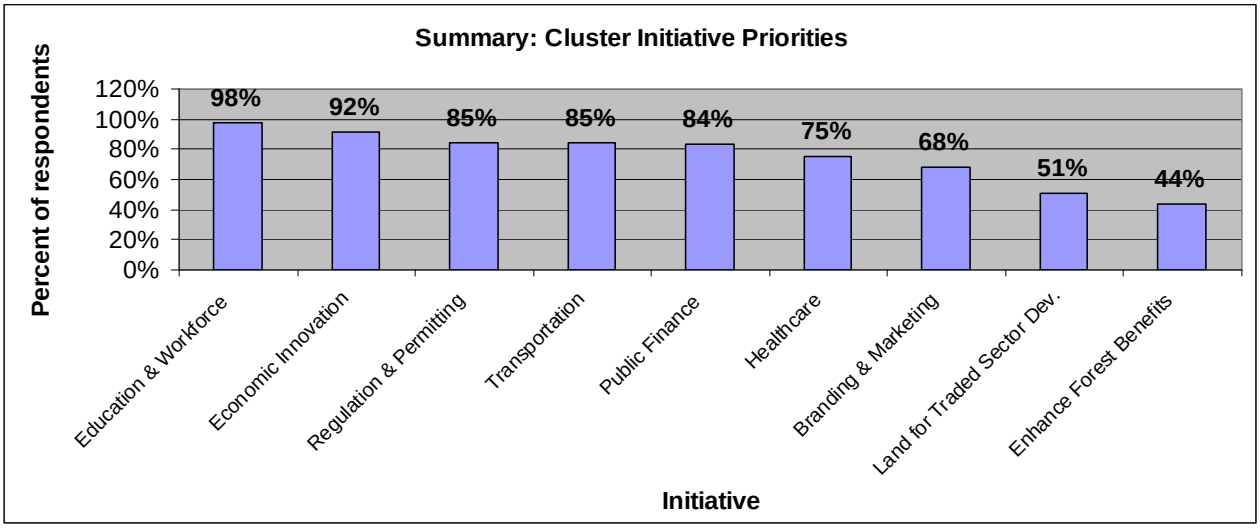


Prioritizing the Oregon Business Plan Initiatives

To make sure we are on track with our policy initiatives, we asked the clusters to evaluate the importance of all previous Oregon Business Plan initiatives and let us know if we were missing any key initiatives. We received responses from 85 industry leaders from 12 industry clusters. The results showed that, once again, workforce, education, and innovation were the top industry priorities. Specifically, "Increase the Educational Attainment and Skills of All Oregonians" and "Enhance Oregon's Capacity for Economic Innovation" were ranked the top two most important initiatives. (83 out of 85 ranked the Education and Workforce initiative as "extremely important" or "important" and the economic innovation initiative was ranked as "extremely important" or "important" by 78 out of 85 total respondents.) Tied for third place were "Simplify and Streamline Regulation & Permitting and Improve Oregon's Transportation Infrastructure. New initiative suggestions included: Design a Fair & Equitable Water Allocation, Distribution and Storage Policy, Reform the Capital Gains Tax, Implement a Carbon Tax, and Invest in Railroads.

Total Cluster Priorities			
OBP Initiatives (Current + Past)	Rank	Extremely Important / Important	Percent of Respondents*
Education & Workforce	1	83	98%
Economic Innovation	2	78	92%
Simplify & Streamline Regulation & Permitting	3	72	85%
Transportation	3	72	85%
Public Finance	4	71	84%
Healthcare	5	64	75%
Brand & Market Oregon More Aggressively	6	58	68%
Make Land Available for Traded-Sector Industry Development	7	43	51%
Enhance Oregon's Forest Resource Benefits	8	37	44%

*Note: Percent of Respondents was calculated by dividing the number of respondents who rated the initiative "Very Important" or "Important" by the total number of respondents (85), even if not all industry leaders rated that initiative.



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Individual Cluster Priorities		
Cluster	Top 2 Initiatives	Percent of Respondents
NW Education		
	Education & Workforce	75%
	Economic Innovation	50%
Environmental Technology		
	Education & Workforce	73%
	Economic Innovation	60%
Energy Efficiency		
	Brand & Market Oregon More Aggressively	73%
	Education & Workforce	55%
Manufacturing		
	Education & Workforce	100%
	Brand & Market Oregon More Aggressively	100%
Forestry		
	Enhance Oregon's Forest Resources	70%
	Streamline Permitting	64%
Green Development		
	Streamline Permitting	78%
(Tied for 2nd place)	Education & Workforce; Economic Innovation	67%
Wave Energy		
(5-way tie for 1st place.)	Economic Innovation	100%
	Public Finance	100%
	Education & Workforce	100%
	Make Land Available for Traded-Sector Industry	100%
	Streamline Permitting	100%
Bioscience		
	Economic Innovation	100%
	Healthcare	80%
Biofuels		
	Economic Innovation	83%
	Transportation	67%
Wind Energy		
	Streamline Permitting	83%
	Education & Workforce	67%
Agriculture		
	Transportation	100%
(Tie for 2nd place)	Brand & Market Oregon More Aggressively	67%
	Enhance Oregon's Forest Resources	83%

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CLUSTER SPECIFIC FEEDBACK AND INITIATIVES

The remainder of this guide summarizes priorities and perceptions of individual clusters, organized in alphabetical order. As you read, please review the list of *cluster- specific, action-oriented priorities* at the end of each and think about ways to connect with these clusters by using your knowledge, expertise, or organizational resources.

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Agriculture Industry Cluster

Key Cluster Components: Natural Resource based industry including the production of food, fiber, fuel & foliage (nursery and forestry). Encompasses a diversity of products from commodities crops to specialty foods to cattle ranching to the production of feed for livestock. Oregon's specialty crops strengths include Hazelnuts, Grass Seed, Cranberries, Christmas Trees, pears, and cherries.

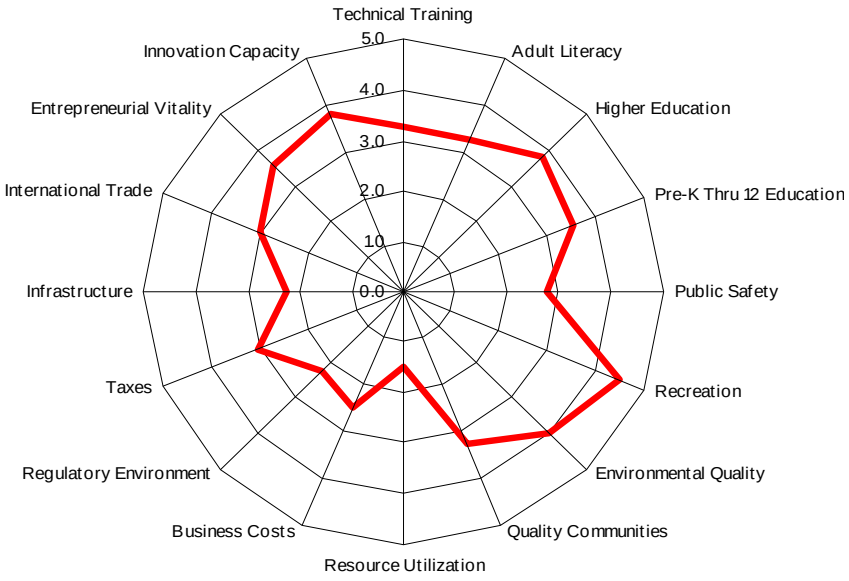
Cluster Contact: Geoff Horning, Executive Director, Agri-Business Council of Oregon, geoff@aglink.org, www.aglink.org

Geographic Location:

Statewide—Oregon has 17 million acres of privately owned agricultural land.

Background: The Agri-Business Council of Oregon (ABC) is a private, non-profit volunteer membership organization established in 1966. Using industry collaboration, ABC works to preserve and enhance the vitality of Oregon agriculture.

Cluster Perception of the Oregon Business Climate:



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Average Wage 2006: $22,069

Cluster Employment 2006: 36,237

Average Wage Growth 2003-2006: 9.46%

Cluster Employment Growth 2003-2006: 6.91%

NOTES
Source: BLS, QCEW data based on cluster definition from 2006 OECDD "Statewide Traded Industry Clusters" report

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Resulting Information from Cluster Focus Group

Oregon Advantages

- People (Oregonians are pioneers, leaders, innovators)
- Multiple climates make it possible to produce a diversity of crops
- History/Heritage/Culture
- Geography—access to export markets

Cluster Challenges

- Environmental Concerns:
  - Resource Utilization: Fair and Equitable Water Allocation, Distribution, & Availability
  - Air Quality
- Transportation Infrastructure (rivers, roads, railways)– costs, congestion, trucker shortages, and railroad policies (Union Pacific hauls in corn for ethanol and hauls back empty to Midwest because it is quicker)
- Perception of industry and resistance to learning about agriculture industry: people think that growers aren't stewards of the land, Farming doesn't lead to a living wage
- Agricultural Variety makes it difficult to do collective marketing and hard for individual segments of the industry to gain visibility & show their impact on the economy
- Land Use—Both measures 37 and 49 are imperfect, defunding the Big Look Task Force was a mistake
- Getting credit for carbon sequestration
- Tax Policy
- Immigration Policy—Hiring a legal workforce

Cluster Action Ideas

- Water—Bring together business & government in a way that separates politics from sound policy-making. Get all impacted groups (agriculture industry, tribes, etc.) represented in the Governor's group on water policy. Secure funding to address the issue.
- Leverage—Oregon's dual strengths in sustainability and agriculture.
  - Take advantage of increase in worldwide recognition of food certifications and labels (Organic, Food Alliance, etc.)
  - Get Carbon Sequestration Credits for being caretakers of the land and maintaining open space
  - Invest in sustainable agriculture research
- Land Use—Bring back the Big Look task force.
- Brand Oregon Agriculture inside and outside Oregon—Secure funding for Brand Oregon & recognize the diversity of the Agriculture cluster.
- Education—Let people know the value of Oregon Agriculture. Make agriculture classes required in the curriculum from grade school to high school.
- Address rural policy issues by funding the Governor's Office of Rural Policy and use the research that has already been collected in rural areas statewide
- Encourage more regional cooperation with Washington and British Columbia on access to water and transportation issues.

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Biofuels Industry Cluster

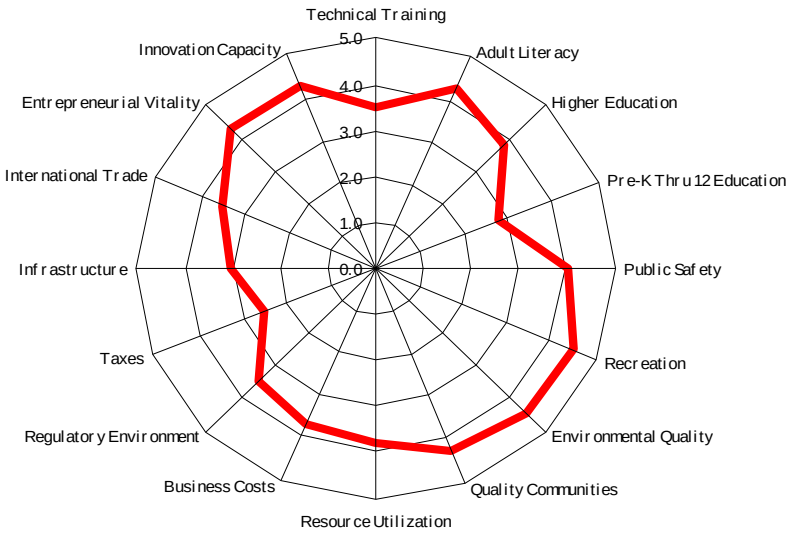
Key Cluster Components: Production, distribution, feedstock supply and research, testing and certification, byproducts (glycerin), design engineering, financing, insurance, legal services, regulatory assistance, education, production research. Of the components, Oregon is currently strongest in distribution.

Cluster Contact: Nikola Davidson, Northwest Biofuels Association
nikola@nwbiofuels.org
www.nwbiofuels.org

Geographic Location: Oregon

Background: The Northwest Biofuels Association (NWBA) is a non-profit trade association representing the business interests of the biofuels industry in Idaho, Montana, Oregon, and Washington. NWBA is focusing its efforts on key industry objectives in order to: 1) Promote the growth of the biofuels market, 2) Provide a centralized, credible information source, 3) Serve as the voice of the industry, and 4) Build the industry network

Cluster Perception of the Oregon Business Climate:



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This data includes **all Renewable Energy Production** industries in Oregon.

This cluster is composed of industries that focus on utility and power construction, energy production, and professional and technical services. Half of the employment in this cluster is from energy-related manufacturing. Professional and technical services account for 30%, and construction makes up the balance with 20%.

Average Wage 2006:
$59,149

Cluster Employment 2006:
27,893

Average Wage Growth 2003-2006:
9.62%

Cluster Employment Growth 2003-2006:
8.12%

Source:
BLS, QCEW data based on cluster definition from 2005 Cogan Owens Cogen report for OECDD. Exact NAICS codes used are available upon request.

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Cluster Focus Group Feedback

Trends/ Opportunities

- Nationwide availability of R&D money → provide research and leadership on technologies for cellulosic ethanol and algae for biodiesel
- Climate change → ethanol and biodiesel are integral to lowering carbon footprint
- Increasing and volatile costs of petroleum, strained production capacity → biofuels help expand refining capacity and fuel options, need additional infrastructure for biofuel storage and blending
- Oregon and Portland renewable fuel standards → Guaranteed markets
- Buy local campaigns → Local branding, regional feedstocks
- Bridging the rural/urban divide → urban demand provides rural economic development

Oregon Strengths

- Regulatory framework, policy climate, and tax incentives: RFS, BETC, grower/consumer credits
- Early adopters
- Green ideology & values: labor pool eager to be part of start-up environmental businesses & consumers who demand alternative fuels, cleaner energy
- Entrepreneurial spirit: people are willing to take risks
- Quality of life attracts and retains workforce, reinforces green values
- Cost of doing business relative to California (wages, energy, real estate)
- Logistics & transportation infrastructure (Columbia River, Port of Portland, BNSF Rail)
- Existing forest infrastructure & forestry/agriculture industry (access to biomass, feedstock)

Cluster Challenges

- Long term supply of feedstock: a) federal forest policy, b) guarantee that local farmers will grow crops necessary for biodiesel/ethanol production, c) collection of waste grease
- Lack of mainstream technology for feedstock conversion (cellulosic ethanol & algae biodiesel): a) slow pace of R&D, b) "valley of death" in funding stage c) limited state funding for cellulosic ethanol production, d) high start-up costs for small businesses
- Competing against economies of scale (i.e. Midwest) - as the size of production facilities is increasing, big firms are pushing out smaller companies
- Tax structure (capital gains, income taxes)
- Transportation infrastructure, especially rail
- Dissemination of good information (dispelling myths) to increase market demand
- Biofuels production/infrastructure development has outpaced feedstock development

Cluster Action Ideas

- Coordinate with agriculture & forestry industries to secure long-term access to feedstock
- Increase demand for biofuels through education and marketing campaigns
- Education for agriculture sector on incentives, legislative financial support for farmers/crushers
- Encourage contracts: guarantees that farmers have markets for feedstock sales
- Increase feedstock R&D at OSU extension, BEST Center – Recruit expertise/faculty
- Provide examples of success, leverage early adopters

Improve Oregon infrastructure for biofuels industry expansion

- Work with City of Portland on availability of tanks, racks
- Work with Oregon Dept. of Agriculture/ Legislature on developing loans & grants for crushing facilities

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Bioscience Industry Cluster

Key Cluster Components: In Oregon, the bioscience cluster includes the following major groups: Medical devices, Pharmaceuticals and diagnostics, and Reagents, Services and Equipment for Bioscience Research. Notable companies include Invitrogen, HemCon, Inovise, Vesticon, Welch Allyn, iSense Corp, and Mitosciences. Other partners in support of the industry include IBM Life Sciences, K&L Gates, Oregon Health & Science University (OHSU), OECDD, Software Association of Oregon, Oregon Science and Technology Partnership, Healthcare Information and Management Systems Society, as well as other infrastructure organizations supporting the industry. The Oregon Bioscience Association (OBA) is emerging as the focal point of this cluster by creating opportunity through Community, Collaboration and Commercialization.

Cluster Contact: Bob Lanier, Executive Director, Oregon Bioscience Association http://www.oregonbio.org/ bob@oregonbio.org

Geographic Location: Statewide, with concentration in Portland, Corvallis and Eugene.

Background: The OBA was organized in 1989 as the Bioforum Foundation and has since expanded from a focus on biotechnology to a comprehensive spectrum of bioscience companies and service providers with a current membership of 132.

The Oregon bioscience cluster is built on the four cornered foundation of Research, Workforce, Funding and Infrastructure. These elements exist in Oregon, they're growing, and, in fact, contribute more than $2.5 billion to the state's economy.

Average Wage 2006: >$50,000

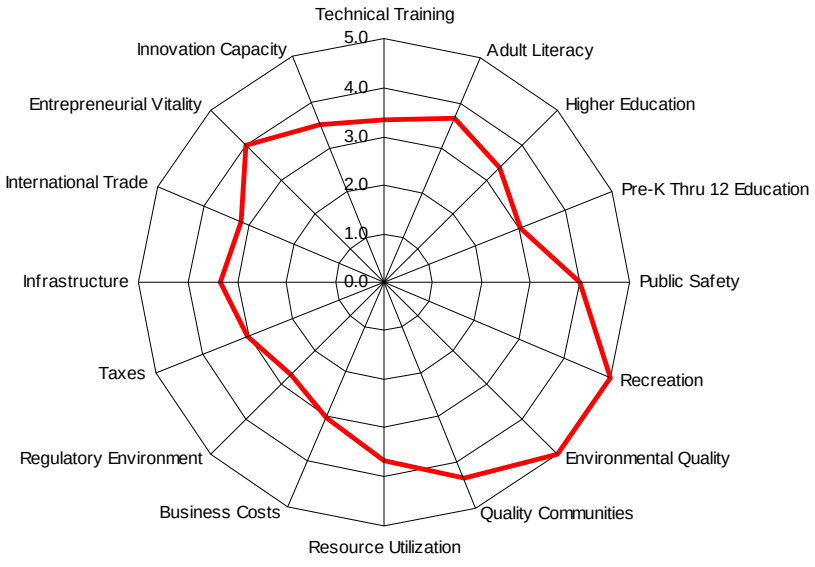
Cluster Employment 2006: >6,000

Average Wage Growth 2003-2006: >8%

Cluster Employment Growth 2003-2006: >10%

Source: Oregon Bioscience Association

Cluster Perception of the Oregon Business Climate:



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Resulting Information from the Cluster Focus Group

Trends

- Universities are more engaged in technology-based economic development.
- OTRADI is the first of what will likely be more bio-based SRCs.
- Three major bioscience companies have a presence in the state.
- We continue to spawn startup bioscience companies in all four sub clusters.

Cluster Challenges

- A state-wide need for access to funding for seed, early and advanced stage companies.
- Universities must increase their impact on bioscience industry development.
- Fill the gaps in the Oregon bioscience industry infrastructure.
- Address the gaps in managerial talent and top scientific talent.

Cluster Action Ideas

Need for local funding for seed, early and later stage company development

- Support a sustainable pipeline of financing sources, including angel, seed and venture funding as well as university and Signature Research Center funding.
- Enhance Angel funding through
    - Personal state tax credits (i.e. similar to the situation for university foundation investments)
    - State matching of angel investments.
    - Reduce/eliminate the capital gains tax on such investments.
- Fund an Oregon BioSeed Fund targeted at early stage companies.
- Expand and stabilize support for SBIR/STTR grant applications and provide matching and gap funds to leverage this significant funding source.
- Re-examine and modify the PERS investment strategy to encourage more venture funds specializing in the Biosciences to make investments in Oregon.

Universities need to increase their impact on bioscience industry development

- Recruit research staff to fill key bioscience competence gaps in the university system.
- Encourage commercialization of university based intellectual property.

Bioscience industry infrastructure

- Create a system of accelerators/incubators which contain wet lab and clean room space.
- Create incentives for private developers to build wet lab and clean room space.
- Help universities to more user friendly to early stage bioscience companies.

Need to address the gaps of managerial talent, and top scientific talent

- Build a pipeline of "leadership" talent.
- Through state/private fellowships increase the number of quality graduates.
- Ensure that there is a Biotech Management option in MBA programs at OUS.
- Expand the Health Science Professional Management certificates available from OUS.
- Create an executive level "Bioscience Mentoring Program."

Other Opportunities

- Provide incentives for organizations to purchase Oregon-made technologies and products.
- Work with OECDD to develop a package for the 2009 legislative session.

Creative Services Industry Cluster

Key Cluster Components: Film, performing arts, music, architecture, advertising, interactive media, video games, photography, design, and visual, communication, literary, & culinary arts. Portland is most well known for its indie music scene, independent film making, sportswear design, infomercials, and animation. Ashland draws international attention for its annual Shakespeare Festival.

Cluster Contact: Anne Mangan, PDC mangana@pdc.us
http://www.pdc.us/bus_serv/target_industries/creative_services.asp

Geographic Location: Portland, Ashland, Eugene, and Bend

Average Wage 2006: $65,801

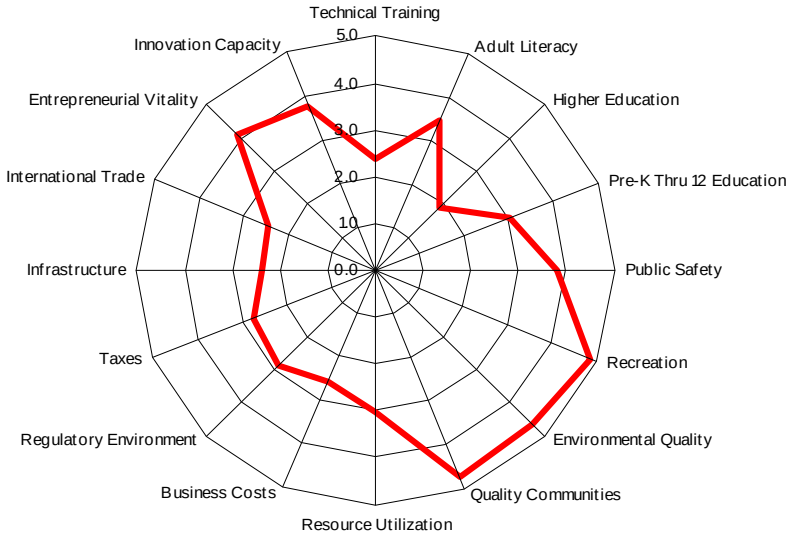
Cluster Employment 2006: 26,162

Average Wage Growth 2003-2006: 10.79%

Cluster Employment Growth 2003-2006: 13.72%

NOTES
*BLS, QCEW data based on cluster definition from PDC's 2002 report "Economic Development Strategy for the City of Portland"

Cluster Perception of the Oregon Business Climate:



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Resulting Information from Cluster Focus Group

Oregon Advantages

- Unique way of thinking- people are creative, forward-thinking, innovative, progressive, non-judgmental, and there is a general feeling that new ideas are possible
- Quality of life
- Sustainability & Environmentalism
- Affordability—Cost of Living is relatively low
- Creative Talent (especially given the city's size)
- Airport—direct flights to/from Europe, Asia, East Coast

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Cluster Challenges

- Portland doesn't get the younger, top of the class crowd that New York gets. Instead people come here with families and when they want to slow down. Need geniuses, not just those who are "good enough."
- It has been hard to attract the best people because Oregon doesn't have a cultural community that can compete with Amsterdam, London, New York, etc. and wages are lower.
- Depth of talent pool in the film and performing arts industry (not enough crews, cutters, etc.)
- Cyclical nature of the industry and small size of cluster makes it hard to recruit more trained professionals during slow times
- No government support for the arts like in Minneapolis or Atlanta, either in funding or free rent (like San Francisco gives to opera and ballet).
- Weak arts education: No world-class film school, no mentoring programs, continuing education, or opportunities for training/ apprenticeships
- Missing courageous leaders who travel and bring back ideas. Portland needs a strong mayor, like Mayor Daly in Chicago.
- Lack of an online holding tank or collective body of writing about arts & culture where young people interested in moving here can read about what's going on
- Hard to attract capital/ start-up funds
- Lack of diversity

Trends & Opportunities

- Food, music and alternative films are giving Portland global recognition → "Portland" has cache → People are excited about coming here → "it's a town that's becoming a city"
- Youth energy for arts & culture is growing
- Interest in Sustainability → LEED buildings & Green production provide a good marketing strategy → people come to Portland to see our green theater (Gerding), learn what Portland has done
- Other regions are attracting film-making through tax credits and other incentives (See the Irish Film Board for an example) → Oregon should have a more comprehensive package that benefits even the indie level films → Modest investments can bring huge increases in jobs

Cluster Action Ideas

- Create a dedicated funding stream to the arts that would generate approximately $10 million a year. Get state government to contribute and have companies match the public investment.
- Form a trade association or Creative Services Alliance to include all key players. Advertise it well.
- Hire an Arts & Culture government champion to be an advocate for the Arts Industry and play a specific leadership role.
- Cultural facilities as an economic development tool (including work spaces—from artist work spaces to sound stages, as well as performances spaces)
- Create a virtual space to be a central clearinghouse of Arts & Cultural news, events, etc. (See "Creative London" for an example)
- Invest in higher education for creative arts. Partner with the sports apparel industry to build a design school or connect the NW Film Center with PSU to create a film degree program.
- Host an annual event to highlight Oregon's arts scene (ex. Design Festival, Creative Conference)

Defense Industry Cluster

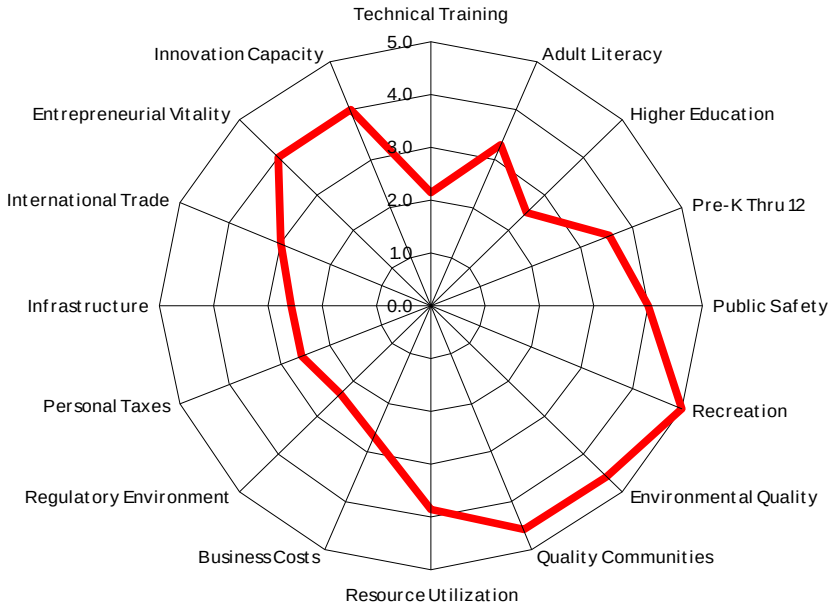
Key Cluster Components: Cluster cuts across multiple industries: Medical, armor, cars, boats, civil defense, homeland security, military, aerospace technology. Notable companies include FLIR, Precision Castparts, Freightliner, SAIC, Axiom, HemCon, ATI-Wahchang, Vigor Industries, Oregon Iron Works

Cluster Contact: Brice Barrett, Pacific Northwest Defense Coalition brice.barrett@pndc.org

Geographic Location: Oregon, Washington, Montana

Background: Member-driven organization that represents defense industry. Companies are not clustered around a single set of concepts or products, but PNDC provides a framework for the development of a critical mass of defense companies and fosters an environment of collaboration, wherein different segments of the cluster can work together.

Cluster Perception of the Oregon Business Climate:



n = 7

PNDC's membership includes nearly 90 companies employing more than 20,000 Oregonians.

The defense cluster includes:
Manufacturing
Biomedical
Electronics
Renewable Energy
Textiles
Personal Gear

-Oregon ranks 49th out of 50 states in federal defense procurement dollars spent per capita

SOURCE: PNDC

OREGON CLUSTER ALIGNMENT

Resulting Information from the Cluster Focus Group

Oregon Advantages

- Quality of life, culture
- "Know-how" for implementation of defense contracts
- Low cost of doing business
- Climate of innovation, homegrown small businesses, willingness to fight hard to compete
- Manufacturing base
- Strong National Guard presence

Joint Cluster Opportunities

- Give Oregon defense cluster visibility and exposure
- Mentoring & Information Sharing
- Business attraction strategy
- Inter-cluster cooperation to attract federal defense appropriations, workforce training funding
- Intra-cluster collaboration with other clusters (OWET, AEA, Manufacturing 21)
- R&D opportunities-attraction of SBIR and STTR grants

Cluster Challenges

- Oregon ranks 49 out of 51 in terms of defense dollars coming back to the state. No military bases here. Oregon is a net donor.
- Most other military companies and vendors are located out of state
- Aging workforce- losing qualified staff
- Logistics and transportation infrastructure.
- Innovation capacity-tech transfer & commercialization
- Lack of finance from venture capital and state funding
- Industry is project-driven and revenue projections are difficult

Cluster Initiatives

- Address workforce challenges by:
  1) Identifying current gaps in specific trades and needed skill sets (based on data)
  2) Categorizing future needs (based on predictions about industry trends, expected new products, and relevant policy changes)
  3) Providing specific targets, ie. number of welders, assemblers, operators, etc. needed by a specific year
  4) Working with partners (Manufacturing 21, Worksystems Inc. WIRED grant, High Performance Enterprise Consortium, community colleges, high schools, etc.)
  5) Recruiting new workers by creating pathways through internships, JobsCorp, high school academies, etc.
- Foster innovation by:
  1) Creating an applied physics laboratory at OUS. Use Rice University and University of Washington for models. Make university a nexus of advanced defense research.
  2) Create industry driven R&D fund with matching.
  3) Make a concerted effort to help companies win SBIR & STTR grants. Need technical assistance and market domain knowledge.
  4) Tie education funding to outcomes. Change the Oregon university culture to be business-friendly and improve tech transfer process.
- Promote a "Buy Oregon" philosophy—create connections in the supply chain between Oregon companies. Require critical defense components to be manufactured in the US ("on-shoring")

Education Technology & Services Cluster

Key Cluster Components: e-learning businesses, content providers, testing and evaluation services, learning management system authors, educational software, and many others at various stages of business maturity

Cluster Contact: Jim Snyder, NWEA & Northwest Education Cluster http://nwedcluster.com, jlouiset@msn.com

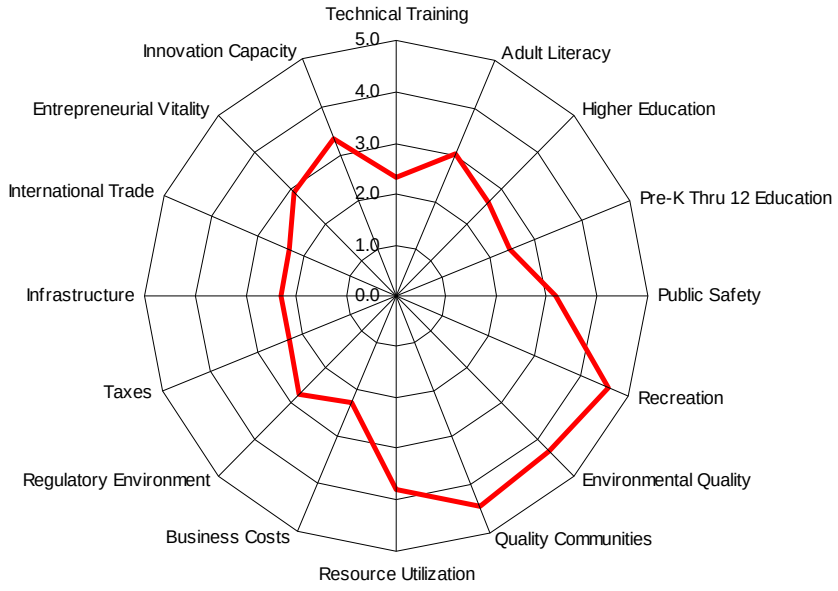
Geographic Location: Portland Metro area, Eugene

Background: Since August 2003, more than three dozen Northwest area companies have been networking to learn about each other's businesses, discover synergies, and explore the potential of the education/training industry as an economic driver for the city and its metro area.

The northwest education cluster includes about 40 education organizations that serve the K-20 education market.

There is no other data available at this time.

Cluster Perception of the Oregon Business Climate:



n = 7

OREGON CLUSTER ALIGNMENT

Resulting Information from Cluster Focus Group

Trends

States are incorporating more technology in educational curriculum

Cluster Challenges

- Very little use of technology and innovation in educational curriculum; state educational administrators more focused on administrative: compliance & reporting
- Lack of 2nd stage financing, venture capital for education/Oregon Investment Council lacks trust/confidence in Oregon entrepreneurs
- No creative services with education industry expertise in Oregon
- Tax structure- property taxes, no sales tax, etc.
- Poor educational reputation- low high school graduation rate (Oregon 33rd in nation for graduation rates)
- Regulatory environment (state statutes that are mandated that get in the way of them doing business): ex. Statewide buying policy is to buy not by district but by building, which creates problems and makes it more expensive for Oregon to buy products

Joint Cluster Opportunities

- Recruiting Talent
- Addressing Regulatory Challenges- OEA charter school cap, by building purchasing procedures
- Public/Private Partnerships- align state educational goals with economic growth opportunities, use companies rich data sources for education policy decisions, partner with universities in development of educational curriculum
- Advocacy—Be a Voice for Oregon Education Industry through lobbying
- Networking
- Business Attraction- make calls to companies looking to move here
- Finance—Grants (SBIR, Redevelopment, School Districts), Seed Money, VC
- Share Best Practices—for selling to educational market

Cluster Action Ideas

- Put together a conference or consortium to explore "21st century education in Oregon: utilization of technology in education" Create a partnership between forward thinking school districts, public leaders, educational administrators & educators, universities and education companies. Participants to include: University of Oregon, PSU, OSU, Portland Schools Foundation, Meyer Memorial Trust
- Develop a PR/Marketing strategy to raise awareness about the education cluster in Oregon. Agree on a unified quarterly message and utilize various PR resources to disseminate the message.
- Develop a business attraction strategy. Start by getting Wireless Generation to move to Portland.
- Explore opportunities for second stage financing for education companies

Energy Efficiency Industry Cluster

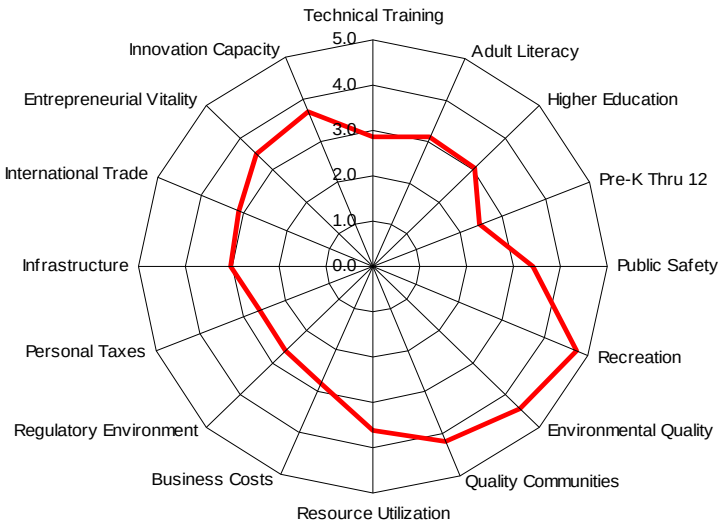
Key Cluster Components: Companies provide energy efficient products and services for commercial, industrial, and residential customers. Includes "Parts & Smarts": Parts- Supply & Parts Retailers; Smarts: Services including energy efficiency program development, R&D for utilities and government clients, marketing, engineering expertise, energy analysis and audits, green building design, and installation.

Cluster Contact: Stan Price, Northwest Energy Efficiency Council
stan@putnamprice.com
www.neec.net

Geographic Location: Pacific Northwest

Background: The Northwest Energy Efficiency Council (NEEC) is a business association of the energy efficiency industry. NEEC's mission is to promote policies and programs that enhance market opportunities for energy efficiency.

Cluster Perception of the Oregon Business Climate:



n = 12

This cluster is composed of product sales and professional services companies. Energy efficient products manufactured internationally are sold through supply chain networks in Oregon that include representatives of manufacturers, distributors, and retailers. Design and engineering services companies employ building professionals who design, engineer, commission, and service building HVAC and lighting systems as well as industrial processes. Skilled trades people, such as plumbers, electricians, and sheet metal workers, install energy efficient equipment.

Estimated employment: 2,500 professionals and 5,000 skilled trades

Average professional wage 2004: $60,000

Sources: Bonneville Power Administration, WA Department of Community, Trade, Economic Development

OREGON CLUSTER ALIGNMENT

Resulting Information from Cluster Focus Group

Trends/Opportunities

- Increased concern for environment & carbon emissions → Awakening regarding the societal benefits + economic benefits leads to a greater ROI
- Changes in consumer values, awareness → new energy policies, regulations
- Energy crisis of 2000, 2001, Capacity constraints, and War in Middle East → increased sensitivity to reliance on oil, energy efficiency more highly valued

Cluster Challenges

- Lack of trained employees-gap in readiness level or "soft middle"
- Organization of grid and utility structure (uneven program support from electric utilities across state and confusing market signals) An independent grid operator would enhance the industry's ability to implement all cost-effective conservation.
- Perception that Oregon is a bad place for business because of restrictive regulatory environment (permitting & fees) & environmentalist attitude
- "Multiple Oregons"—policies and attitudes vary across regions within Oregon with regards to development
- Tax structure (capital gains tax, income tax, etc.)
- Lack of branding/ attention for energy efficiency measures (not as "sexy" as using renewable energy)

Oregon Advantages

- Combination of the energy tax credits run by the Oregon Department of Energy and Energy Trust: BETC, residential Renewable Energy Tax Credit
- Consumer mindset and political activism (at least in West side of Oregon)
- Green building industry strength
- Pacific Northwest Electric Power Planning and Conservation Act—changed energy efficiency from a utility service to a resource comparable to power generation

Cluster Action Ideas

- Build Demand for Energy Efficiency Program through Retrofitting Education & Branding: Build the "Energy Oregon Green" brand/certification standard

- Improve workforce training programs and connections to Oregon universities
  - Train electrical/mechanical engineers and give them "on the job experience" through internships and customized curriculum developed by university-industry partnerships
  - Make realistic predictions about job growth and skills needed
  - Include energy efficiency in the BEST center's focus

- Create a PR campaign to market Oregon as *the* place to do sustainable business. Capitalize on the green brand that Oregon already has made for itself. Get the environmental community together with the business community to sell this message.

- Create more incentives and policies to keep conservation funding in Oregon.

Environmental Technology & Services Industry Cluster

Key Cluster Components: Technologies & services designed to help companies or individuals comply with environmental regulations, reduce pollution and waste, and decrease resource use and environmental impact. Subcomponents include products & technologies, engineering, consulting, science, legal services, laboratory services, field work, etc. Technologies address: environmental protection & cleanup, waste & recycling, energy & efficiency, water & wastewater, sustainable business practices. Oregon strengths include storm water management, biofilters, waste clean-up, soil remediation, engineering and legal services, and renewable energy services.

Cluster Contact: Robert Grott, Executive Director
Northwest Environmental Business Council (NEBC)
robert@nebc.org www.nebc.org

Geographic Location: Oregon, Washington, Idaho, Montana & Alaska

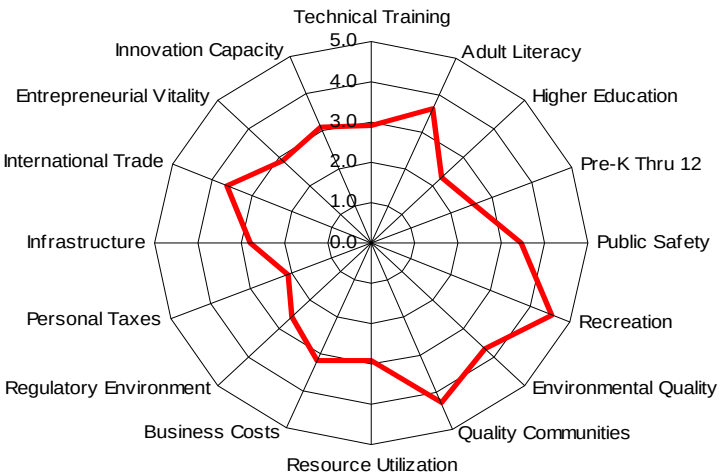
Background: Established in 1996, NEBC is a trade association representing the leading environmental technology and service firms in the Northwest who are working to protect, restore, and sustain the environment. Objectives include business development, member education, information dissemination, and regulatory and legislative advocacy. NEBC's structure as a cross-discipline, cross-sector organization fosters transfer of knowledge and builds synergies and business opportunities among members.

The environmental technologies and services cluster includes a broad range of company types, including product developers & vendors and service firms in the areas of engineering, science, law, consulting, insurance, laboratories, contracting, field work, etc.

Of the several hundred Oregon companies working in this sector, many overlap into other sectors, making it difficult to segregate employment data.

NOTES:
Job growth is strong, with many technical positions currently going unfilled due to a shortage of skilled applicants.

Cluster Perception of the Oregon Business Climate:



n = 11

OREGON CLUSTER ALIGNMENT

Resulting Information from Cluster Focus Group

Oregon Advantages/Industry Drivers

- Early adopter population: first sustainability board legislation nationwide, land use planning, 1995 clean-up rules, pollution control tax credit, stormwater management regulations. People support environmental issues (e.g., recycling).
- Reputation: history of renewable energy in the NW & Oregon, growing reputation for green building and brownfield redevelopment.
- Culture of cooperation between business and regulatory sector: willingness to think outside the box, businesses have the desire to address environmental impacts (sustainability philosophy).
- Quality of life and livable cities make it easier to recruit employees.
- Economic diversity: good spread of industries.

Cluster Challenges

- Shortage of environmental engineers and other skilled workers.
- Conservatism of regulatory agencies - due to a lack of resources to deal with innovative environmental technologies and new approaches.
- Lack of investment capital and start-up funding in Oregon.
- Antiquated tax structure (capitals gains, etc.).
- Inadequate taxes to support replacement of aging infrastructure and expansion to accommodate growth.

Cluster Action Ideas

Partner with DEQ to create a climate of innovation and collaboration with industry.

- Discuss innovation program ideas with DEQ management and approach legislature for funding.
- Improve minimum data standards used by DEQ (such as chemistry standards that other states have) and clearly communicate the standards used for decision-making

Promote an environmental tax credit that rewards businesses trying to do the right things.

- Continue working with OBA and AOI to pass a tax credit for pollution prevention investments that go "beyond compliance" with existing regulations.

Increase availability of trained engineers.

- Advocate for engineering education funding and the recruitment of engineering professors by collaborating with groups such as the Oregon Engineering & Technology Industry Council.
- Work with Oregon universities to attract interns by replicating programs like OSU's Civil Engineering Cooperative Program (CECOP).
- Work with other sectors to create a clearinghouse for internships.

OREGON CLUSTER ALIGNMENT

Food Processing Industry Cluster

Key Cluster Components: Food manufacturing (processing) companies—Bakery, Dairy, Fruits and Vegetables, Meat and Poultry, Seafood, Snacks, and Specialty—with processes including: Canned, Dehydrated, Freeze Dried, Fresh Cut, Frozen, Juice, Organic, Powder, and Puree. In addition to food processing, the expanded food cluster also includes farm production, packaging and machinery, transportation and warehousing.

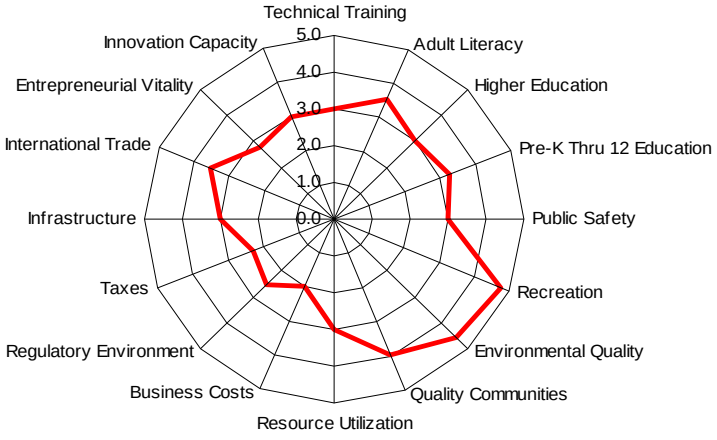
Cluster Contact: David Zepponi, President Northwest Food Processors Association dzepponi@nwfpa.org www.nwfpa.org

Geographic Location: Oregon, Washington and Idaho

Background: In 2003 Northwest Food Processors Association (NWFPA) responded to unprecedented regional threats in the global marketplace by initiating the nation's first comprehensive, multi-state initiative and competitive assessment of a food manufacturing cluster. Support for this program came from three governors, state and regional government, members of Congress, the U.S. Economic Development Administration, industry, education and others.

NWFPA's "big hairy audacious goal" is to reposition the three-state food processing industry to compete globally through dramatically increased productivity and innovation. The model is simple: Innovation leads to productivity gains, which lead to global competitiveness, which leads to increased profitability.

Cluster Perception of the Oregon Business Climate



n = 4

The Food Processing cluster represents a diverse group. The extended cluster is a mix of commodity producers, specialized, niche producers, processors, distributors and packagers.

Food processing is a $21 billion industry in the Pacific Northwest The extended cluster generates $42.5 billion in output annually.

Oregon Cluster Employment 2006:
23,043 food processing
103,242 farm production
9,914 packaging & machinery jobs
74,378 transportation & warehousing
210,577 Total Extended Food Processing Cluster

Oregon Cluster Output:
$6.1 billion for food processing with a payroll of $690 million

$24.5 billion extended cluster total contribution to Oregon's economy.

Average Wage 2006:
$36,793

Source: Northwest Food Processing Cluster Assessment & Roadmap October 2006 by Applied Development Economics.

OREGON CLUSTER ALIGNMENT

Results from Cluster Assessment and Cluster Advisory Strategy Group

Oregon Opportunities for Growth including marketing advantages

- University research and innovation collaboration drives competitiveness and profitability.
- Policies that support entrepreneurship—quality of life attributes, higher education, entrepreneurial spirit, and growth management polices.
- Outdoor recreation, especially for young professionals.

Industry Issue Drivers in descending priority order:

- Competitiveness
- Operations/Productivity
- Food Safety
- Energy
- Political/Legislative Activity
- Climate Change
- Environmental Affairs
- Innovation Infrastructure
- Water Supply
- Workforce

Cluster Challenges and Threats to Competitiveness

- Declining prices
- Rising input costs, especially for energy and transportation
- Increasing regulation of business practice
- Lack of succession planning in family businesses
- Global distribution of infrastructure
- Decreasing math, science and engineering graduates

Cluster Priorities and Action Plans

Two of the NWFPA's major cluster programs include the five-year $6 million Northwest Energy Efficiency Alliance Initiative, funded by utility organizations; and the $3.4 million Innovation Productivity Center (IPC), funded by the Oregon legislature through the Oregon Innovation Plan.

An industry driven private-public Cluster Assessment Strategy Team (CAST) was formed to develop recommendations from the cluster assessment. Recognizing that significant activities were already underway in government affairs, energy, environment, food safety and human resources, CAST developed objectives and strategies in five additional focus areas:

- Increase the capacity of the Northwest's innovation infrastructure;
- Improve transportation infrastructure and services;
- Develop a robust workforce pipeline;
- Form strategic alliances to improve the food processing industry's competitiveness; and
- Increase the industry's operational productivity.

OREGON CLUSTER ALIGNMENT

Forest & Wood Products Industry Cluster

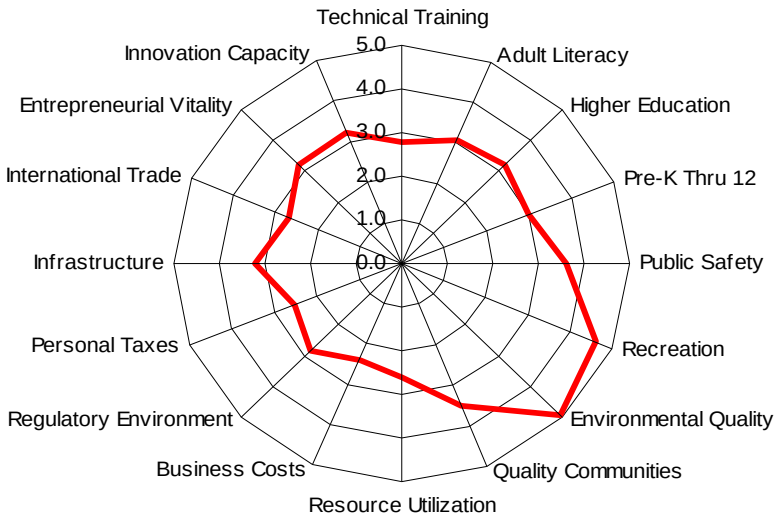
Key Cluster Components:
Primary & secondary wood products: manufacturing of lumber, panel products, pulp, paper; forestry services: firefighters, consultants and loggers. Notable Oregon companies include Hampton, Jeld-Wen, Forest Capital Partners, Weyerhaeuser, Campbell Group, Roseburg Forest Products…..see OFIC website for more.

Cluster Contact:
Linc Cannon, Oregon Forest Industries Council, www.ofic.com, linc@ofic.com

Geographic Location:
Statewide

Background:
Historically, Oregon's forest sector has been concentrated in or near the forest, with supportive industries (equipment suppliers, etc.) more likely to be located in urban areas. Today, the forest sector has restructured in response to changing timber supply and global competition and is now concentrated closer to transportation corridors. It produces innovative products with a technologically sophisticated workforce. Oregon's forest sector is the country's largest lumber producer and the state's second largest employer, and is lean, resilient and critical to economic diversity and rural prosperity.

Cluster Perception of the Oregon Business Climate:



n = 10

This employment data is composed of interrelated wholesale, manufacturing and management services industries. Wood Manufacturing accounts for about 50% of the employment in this cluster.

Average Wage 2006:
$42,443

Cluster Employment 2006:
61,405

Average Wage Growth 2003-2006:
8.8%

Cluster Employment Growth 2003-2006:
0.2%

Competitive Share Growth:
0.3%

Competitive share growth is the portion of Oregon employment growth attributed to factors unique to Oregon that have contributed to employment within a cluster.

NOTES
- This cluster is among the largest in the state based on employment.
- The average wage is above the state's private sector average

OREGON CLUSTER ALIGNMENT

Resulting Information from Cluster Focus Group

Trends

- Global competition (e.g., lumber and panels from Brazil/South America, paper mills and furniture manufacturers to China)
- Potential growth in biomass energy opportunities and carbon markets
- Increased demand for certified wood for green buildings, sustainable forest practices
- Genetic engineering--other regions moving to genetically engineered plantation model
- Forest health crisis on federal forestlands
- Advanced technology in manufacturing

Oregon Strengths

- Oregon is the largest lumber producer in the country
- Solid wood products, high wood quality
- High environmental standards and harvesting practices
- Best forestry school in the world (OSU)

Cluster Challenges

- Untapped capacity on federal lands: federal policy limits access to trees for lumber, biomass, plywood, panels, and pulp and paper. Loss of Eastside infrastructure
- Oregon is "high cost" producer
- Increased value of Oregon's forestland for non-forest uses
- Getting utilities to pay an acceptable price for biomass energy
- Inadequate transportation infrastructure--especially rail
- Regulatory instability and costs (related to chemicals, ESA, NEPA, storm water, etc.)
- Aging workforce, lack of reliable, drug-free workers interested in logging. (High schools and community colleges have cut forestry programs.)

Cluster Action Ideas

- Turn Oregon's high environmental standards into a competitive advantage
  - Recognize existing environmental contributions under Oregon Forest Practices Act
  - Strengthen relationship between Oregon's forest sector and "green building cluster"
  - Address exclusive reliance on LEEDS/FSC certification standard to measure sustainability
  - Explore opportunities to benefit from "carbon credits." Include recognition of existing forest management practices and forest products sequestration in carbon calculations.
  - Expand opportunities for woody biomass renewable energy production, including pre-95 cogen facilities and mill waste. Obtain federal assurance of long-term biomass supply.
  - Use wood innovation center/OSU College of Forestry to expand R&D on innovative wood products and forest productivity

- Support active management of federal forests to restore forest health and wildlife habitat, to reduce risk of severe fire and to stimulate rural prosperity. Obtain long-term supply commitments.
- Convene summit of diverse forestry stakeholders under Governor's leadership to recognize and develop common vision for the state regarding contributions of Oregon's forests and forest sector, along with a strategy to implement this vision.

OREGON CLUSTER ALIGNMENT

Green Development Cluster

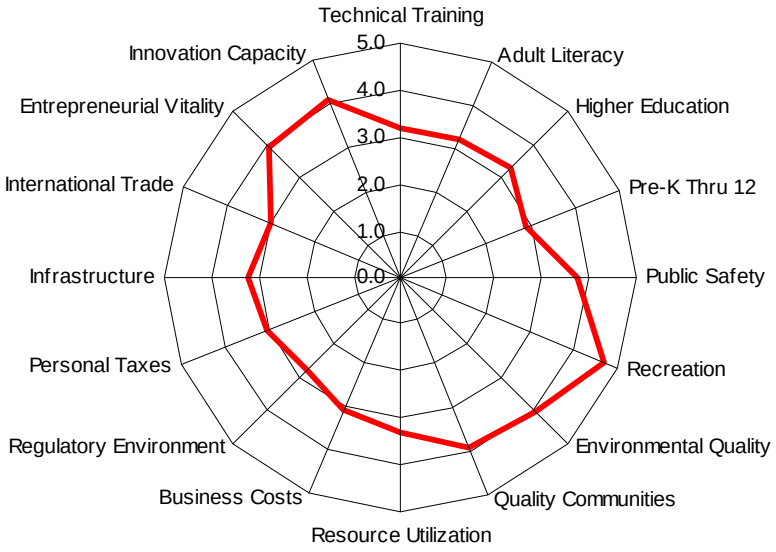
Key Cluster Components: Architects, developers, engineers, planners, product developers, higher education, community colleges, and service providers

Cluster Contact: Glenn Montgomery, Oregon Economic Community Development Department Glenn.Montgomery@state.or.us
www.pdxgreen.org

Geographic Location: Primarily Portland Metro with connections to Salem and Hood River

Background: The Green Development Cluster has been meeting since January of 2007. Convened by the Oregon Economic and Community Development Department, the cluster quickly organized itself and identified several key initiatives among a list of short and long-term goals that the group determined would accelerate green development in Oregon and strengthen Oregon's competitiveness in the global economy.

Cluster Perception of the Oregon Business Climate:



n = 13

The green development cluster includes specialized wood product manufacturing industries, architects, engineers and other professional services. About two thirds of employment in this cluster is in manufacturing industries with the other third coming from professional services.

Average Wage 2006: $43,335

Cluster Employment 2006: 41,909

Average Wage Growth 2003-2006: 9.36%

Cluster Employment Growth 2003-2006: 8.05%

Source: BLS, QCEW data based on cluster definition from 2005 Cogan Owens Cogen report for OECDD. Exact NAICS codes used available upon request.

OREGON CLUSTER ALIGNMENT

Resulting Information from the Cluster Focus Group

Oregon Advantages/Industry Drivers

- Political leadership (Governor Tom McCall, state & political leaders at all levels)
- Business Energy Tax Credit (BETC)
- Collaborative Culture—connections between industry, government & community organizations and connections with other industries (ex. Agriculture, forestry)
- Lower costs for professional services (designers, building, architects, etc.), electricity, and housing relative to other competitor regions (i.e., Bay Area)
- Intellectual Capital—workforce with sustainability skills, understanding, & attitudes
- Quality of Life/ Livability- transportation and land use planning
- Natural Resources: water, wind, waves, timber

Cluster Challenges

- Education and decreasing intellectual capital. Getting harder to find skills needed as the industry evolves quickly, people with talent leave, and the population ages.
- Quality of life and livability in jeopardy: A) Measure 37 creates problems; Measure 49 is not the ultimate solution. Need to continue to address land use planning and affordability issues. B) Must connect land use and transportation, and C) develop a vision of affordable walkable communities statewide (Good Models: Sweden, Curitiba, Brazil, Berkeley, Santa Monica)
- Divides/ voids between A) the natural resource community and the sustainability community and B) Urban/rural regions

Cluster Action Initiatives

Current High Priority Initiatives

- Create an ecosystems services marketplace (will help rural communities, agriculture and forestry industry, environment) and Encourage more developers to be ecosystems-neutral
- Fast track permitting for green building
- Develop climate friendly mortgage, appraisal, and insurance products
- Commercial forum—Create a "commercial support forum"— an entity (physical & on-line) that will entertain inquiries regarding opportunities to fill market demands/create new businesses

Short-Term Initiatives

- Adopt a state policy platform, e.g., 2030 Challenge (all new buildings shall be carbon-neutral by 2030; all new buildings, developments and major renovations designed to meet a fossil fuel, GHG-emitting, energy consumption performance standard of 50% of the regional (or country) average for that building type)
- Buy Local Campaign- Keep more capital investment within the state (See Import Substitution study on green building products)
- Create mandatory re-commissioning incentives & retrofit programs to upgrade homes & commercial buildings
- Create a home Energy Performance Certificate – a "currency" valuation recognized in sales transactions

Long-Term Initiatives

- Integrate sustainability into our education system by making it a core part of K-20 educational curriculum, creating integrated degree programs and professional certifications for building trades, etc.
- Increase the cost of power to encourage energy efficiency in residential and commercial buildings. Include incentive programs to help less affluent citizens
- Promote the Oregon Small-Scale Energy Loan Program (SELP) and Energy Trust loans

OREGON CLUSTER ALIGNMENT

Heavy-Lift Helicopter Cluster

Key Cluster Components: Heavy-lift helicopters services including Wildland Firefighting, Power line construction the precision placement of HVAC units, Helicopter Logging, remote area operations, external cargo delivery of supplies and equipment.

Cluster Contact:

Andy Mills, Superior Helicopters LLC, amills@superiorhelicopter.com

Brian H. Beattie, Croman Corporation, bhbeattie@croman.net

Geographic Location: statewide

Background: The Oregon Heavy-Lift Helicopter Consortium (OHHC) consists of seven heavy lift helicopter companies headquartered in Oregon. These companies operate in excess of 70 heavy lift helicopters which represent more than 90% of the heavy lift helicopters in the US. These operators employ in excess of 2,250 pilots, mechanics and other support personnel. The Consortium has been formed to facilitate the efficient use of heavy lift helicopters by federal agencies in response to natural disasters.

The consortium is working with State and Federal agencies to establish a coordinated response capability to natural disasters. The capability could be similar to the dispatch of helicopters by National Interagency Fires Center in response to wildland fires.

Challenges:

- Workforce needs- all firms need qualified pilots and aircraft mechanics.
- Lack of federal coordination for relief services after natural disasters (apparent after hurricane Katrina)

Cluster Action Ideas

- Work with Rogue Community College to utilize the previously established Air Frame and Power Plant Apprenticeship Training Program. (RCC currently has 10 apprentices actively involved in the program and apprentices have to go through 4,812 hours of on-the-job training and 412 classroom training hours with an optional additional 40 classroom hours in Air Frame and Power Plant training.)
- Work with federal government to move aircraft & communications into place in a rapid, coordinated way after national disasters (the forest service has a great dispatch system in place and the helicopter group is trying to get FEMA to use the existing system or a similar, adapted version)
- Work with the Southern Oregon High Performance Enterprise Consortium to make sure manufacturing is being done in the best way possible

Heavy-Lift Helicopters: 70+

Cluster Employment 2006: 2,250

OREGON CLUSTER ALIGNMENT

High-Tech Industry Cluster

Key Cluster Components: Oregon's high-tech industry represents a broad cluster of companies in the information technology sector, including electronics hardware and medical device manufacturers, software producers, and internet-telecommunications firms. The largest single segment is semiconductor manufacturers (32%). Other important sectors include software publishers, display technology, printing and imaging, electronic design, and test and measurement. High tech is Oregon's leading industrial sector, responsible for more than 83,000 workers. End users of technology products are not included in the definition because technology is widely used by almost every industry. Notable companies include Intel, Hewlett Packard, Tektronix, ESI, RadiSys, FLIR, FEI, and TriQuint.

Cluster Contact: Jim Craven, American Electronics Association (AeA), Oregon Council, jim_craven@aeanet.org

Geographic Location: Oregon

Background: AeA is national trade association founded more than 60 years ago in the Bay Area by David Packard. AeA has been active in Oregon for 40 years. The organization sponsors industry education workshops, hosts networking events, and engages in public advocacy. Its tagline is "Advancing the Business of Technology."

Average Wage 2006: $72,800

Cluster Employment 2006: 83,000

Average Wage Growth 2003-2005: 3%

Cluster Employment Growth 2003-2005: 2%

NOTES

Data from AeA's CyberStates 2007

OREGON CLUSTER ALIGNMENT

Resulting Information from Cluster Focus Group

Oregon Advantages

- Lifestyle and quality of life are positive elements in recruiting talented people.
- Land availability and regulatory infrastructure.
- Because high-tech companies are diverse in Oregon (few head-to-head competitors) there is little inter-company disagreement on public policy issues.
- Existence of professional services expertise in such areas as law and accounting.
- Business tax structure, including the existence of targeted tax incentives.

Cluster Challenges

- "Doing business in a global economy" (outsourcing software development, competing with people who want to work hard in China and India, foreign students increasingly are getting educated here and returning to their own countries to set up businesses).
- Dispersed higher education funding and location (of eight public universities, none of them are world-class).
- Declining K-12 education system nationally and lower quality of science education.
- Transportation infrastructure—growing traffic congestion detracts from quality of life.
- Recruiting top talent and companies is hampered by a short supply of math and science educators at the K-12 level and lack of a world class engineering scholl in higher ed.
- Lack of political will and courage to make radical changes to the university system structure.
- Lack of diversity in Oregon means people from other countries don't have nearby communities and support networks as they do in other parts of the country.
- National skilled immigration policies are not supporting business growth to recruit top talent from around the globe.
- Venture capital is hard to attract because major venture capital firms are located in the Bay Area and there are some negative perceptions in that region about Oregon.
- A need for stronger mentoring connections between successful management and newcomers.
- Lack of critical mass may convince potential employers that they may be looking at a double-relocation if the job in Oregon doesn't work out.

Cluster Action Ideas

- Continue public-private partnership to invest in STEM education (Science, Technology, Engineering and Mathematics) at the K-12 level and in building public university engineering and computer science programs through the existing Engineering and Technology Industry Council (ETIC). Major investments have been made over the past 10 years in ETIC. Now is the time to consider doubling such investments.
- Foster an environment that is conducive to start-ups: Improve Oregon's access to capital, including venture capital and stage two funding, by demonstrating that the intellectual capital for success exists in Oregon.
- Continue to educate policymakers about the importance of the technology sector to Oregon's economy. Support efforts to encourage business attraction by articulating Oregon's high-tech strengths.
- Invest in and market Oregon's "lifestyle" advantage. Recognize the importance of low commute times (lower at least than in other major tech markets), quality schools, and environmental stewardship to Oregon's quality of life.

OREGON CLUSTER ALIGNMENT

Manufacturing Industry Cluster

Key Cluster Components: High Tech Computer & Electronic Products, Wood/Paper/Furniture and Related Products, Primary and Fabricated Metals , Food Processing, Transportation Equipment (RVs, heavy lift helicopters, light planes, jet aircraft engine parts, rail cars & barges), Mining equipment, Plastics, Fiberglass, Defense equipment, Apparel/Sporting Goods

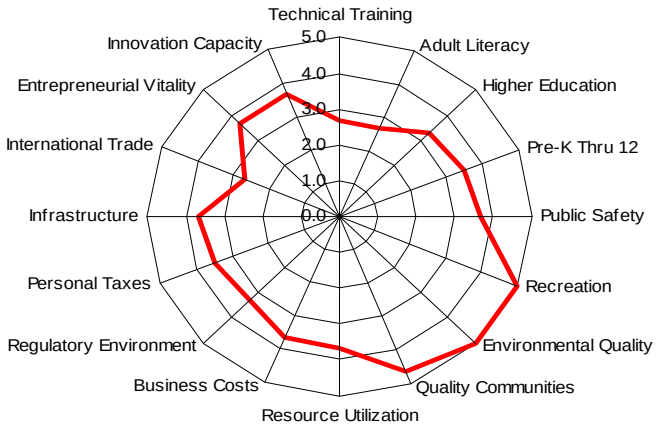
Cluster Contact: Norm Eder, Manufacturing 21 Coalition, www.manufacturing21.com
Audrey Theis, Oregon Manufacturing Workforce Strategy, www.oregonmanufacturing.org

Geographic Location: Statewide

Background: Created in 2004, the Manufacturing 21 Coalition (MFG 21) is a private-public partnership, including members from business, labor, education and training institutions, and local workforce development boards. It is an active and authentic advocate for Oregon's and Southwest Washington's manufacturing economy.

The Oregon Manufacturing Workforce Strategy is an industry-led plan to build competitive companies, fill the skilled worker shortage and provide high-wage jobs for Oregonians. The Steering Committee represents a cross section of key industries, association and regions across the state committed to expanding the reach of high-performance manufacturing, raising awareness of the importance of manufacturing and attracting workers to high-demand occupations.

Cluster Perception of the Oregon Business Climate:



n = 3

Manufacturing is made up of 21 distinct sectors ranging from transportation equipment to textile mills to chemical production. Within this broad category just three sectors, Computer and Electronic Product Manufacturing, Wood Product Manufacturing and Food Manufacturing, account for about half of all manufacturing employment in Oregon

Average Wage 2006: $49,706

Cluster Employment 2006: 206,645

Number of Establishments 2006: 6,061 companies

Average Wage Growth 2003-2006: 10.33%

Cluster Employment Growth 2003-2006: 6.29%

Source:
BLS, QCEW data (NAICS 32-33)

OREGON CLUSTER ALIGNMENT

Resulting Information from Cluster Focus Group

Oregon Advantages

- Quality of life
- Easy to recruit engineering talent- low traffic congestion, lower cost of living, nearby skiing and recreation, diversity of restaurants and coffee shops
- Historically lower-cost power, wages, and workers comp than California
- Proximity to coast: raw materials imports and final product exports
- Niche companies with high quality products

Industry Drivers

- Productivity
- Innovation: adaptability & agility
- Product Quality

Cluster Challenges

- Access to skilled, drug-free workforce: a) manufacturers compete for same employees, b) workforce is aging, c) diverse workforce creates language barriers
- Connection between educational institutions/ workforce training providers & industry: a) Lack of coordination among community colleges and universities, b) Regionalization of education and workforce- hard to find out who does what, c) Need for flexible education programs that evolve with the industry
- Transportation: a) Air travel: not enough direct flights from Portland to/from East Coast, Europe, & China b) Rail c) Mass transit accessibility, d) Port prices
- Image of manufacturing industry in general and historical absence of industry "voice" in Oregon
- Lack of awareness and financial commitment to support a long-term high-performance agenda, which is critical to maintaining competitive advantage.

Cluster Action Ideas

- Utilize November 13, December 3, and Spring Summits to develop a comprehensive manufacturing workforce & workplace strategy linked to education and training:

Workforce:

- *Workforce Pipeline:* a) Align employer demand for skills/careers, b) Replicate and expand Manufacturing 21 high school outreach program; c) More effectively link manufacturers with community colleges and universities to develop curriculum that meets industry needs/ improves communications between the sectors; d) Identify and share, replicable models (ESL/ Lean manufacturing at PCC), or lean manufacturing curriculum (OIT); e) Further develop alignment of high school diploma requirements with industry needs.
- *Incumbent Workforce:* a) develop programs to bring back or hire retirees, b) reform immigration policies, c) explore opportunities for employment & advancement of people with disabilities; d) expand workplace skills training.

Workplace:

- Increase Innovation & Improve Productivity by replicating & expanding High Performance Enterprise Consortia throughout state (HPEC).
- Work collaboratively with business associations to coordinate marketing.
- Expand the reach of high performance/lean manufacturing training offered through the Oregon Manufacturing Extension Partnership (OMEP).

OREGON CLUSTER ALIGNMENT

Nursery Industry Cluster

Key Cluster Components: Greenhouse and ornamental landscape plants, including sub-elements such as shade trees (Oregon is #1 in nation), potted florist azaleas, root stock (for fruit & nuts), flowering shrubs, evergreens (grafted conifers & broadleaf evergreens), and perennials.

Cluster Contact: John Aguirre, Executive Director,
Oregon Association of Nurseries jaguirre@oan.org, www.oan.org

Geographic Location: Oregon, primarily in the Willamette Valley

Background: The Oregon Association of Nurseries (OAN) is a non-profit trade association that represents more than 1,600 individual nursery stock producers, retailers, landscapers and related companies serving the nursery and greenhouse industry. The OAN is the main voice for Oregon's nursery and greenhouse producers, re-sellers, transporters, retailers and suppliers. It is governed by a volunteer Board of Directors with oversight by a seven-member Executive Committee.

Oregon is the 2nd largest nursery grower behind California and the state exports 75% of their nursery products.

Average Wage 2006: $24,258

Cluster Employment 2006: 13, 777

Average Wage Growth 2003-2006: 6.64%

Cluster Employment Growth 2003-2006: 5.08%

NOTES
Source: BLS, QCEW data based on cluster definition from 2003 Impressa Consulting report "Oregon Industry Clusters" for OECDD

Resulting Information from Cluster Focus Group

Oregon Advantages

- Climate, Rain, Temperature—18 hour growing days, 9 month growing season
- Quality of the soil
- Limited size of the valley means nurseries are close to each other
- OAN's culture of collaboration (growers share truckloads, technologies, best practices, etc.)
- The Oregon mystique: Commercial buyers in the East Coast and Midwest perceive something special about Oregon plan

Cluster Challenges

- Labor Costs & Shortages
  High minimum wages drive up costs, without attracting new workers.
  Oregon's plant prices are becoming less competitive with other states that have lower labor costs.
  Seasonal nature of industry - Everything is very time dependant and lost time can not be made up.
  Immigration policy – tighter borders make it harder to find workers. Nursery is competing with other industries that rely on the same type of labor force
  Aging workforce and no technical training in Oregon for young people

- Transportation

Seasonal nature of industry—growers are all competing for trucks to export products at the same time, driving up prices.

Nursery products are less desirable products for truckers to ship because plants dirty the trucks, Plants are perishable and need to be shipped in refrigerated trucks with the right temperatures and unloaded promptly, and it takes a long time to load trucks (between 2 to 6 hours) due to the variable sizes of plants.

- Public Research capabilities

research facilities at OSU are eroding due to lack of funding and ability to retain talented individuals
Research has been privatized (industry now relies on consultants, company research)

OSU Extension Service has lost integrity- Provides outdated information, Losing staff in the horticulture department, Decreased Budget for research

- Increased competition—East Coast growers have started to figure out how to grow quality plants so Oregon's quality is no longer enough to offset higher prices due to labor and transportation costs
- Hard to predict future demand because of the long time horizon for plant growth (3-6 years).

Opportunities & Cluster Action Ideas

- Do more with less (More Innovation with less public research; More mechanization and technology with less labor; more pest control with less chemicals)
- Turn interest in sustainability into a competitive advantage for the Oregon nursery industry.

— Respond to the demand for sustainable products: Create a commonly accepted definition for the nursery industry and collaborate with other stakeholders and industries to learn from them.
— Educate the public about how plants can save the planet. (i.e., Tree canopies can be used to shield houses & streets from the sun and decrease energy use, Green buildings have plants inside, green roofs, Dwarf varieties can accommodate the smaller yards and smaller living spaces required by high-density living, Plant shrubs on highways capture carbon, Shipping by rail instead of truck reduces emissions)
— Use sustainability as a marketing strategy. Be able to sell to vendors that look at suppliers' sustainability practices and dispel the notion that the industry is polluting.

- Improve Water & Energy Efficiency:
  — Invest in drip irrigation systems where applicable.
  — Educate growers about the electricity savings form using variable water pumps

- Take a holistic look at water conservation and storage. Work with legislators and Governor to address competing claims for a limited supply of water.

- Educate growers about new forms of marketing. Use the internet and new technologies to develop innovative business management tools.

OREGON CLUSTER ALIGNMENT

Software Industry Cluster

Cluster Contact: Harvey Mathews, Software Association of Oregon harvey.mathews@sao.org www.sao.org

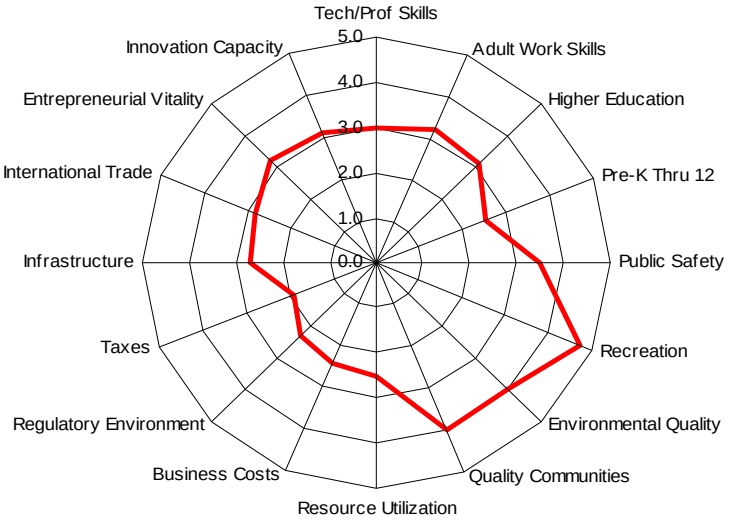
Geographic Location: Hillsboro, Portland, Beaverton, Wilsonville, Corvallis, Eugene-Springfield, Central Oregon and The Gorge.

Background:
The software industry in Oregon had its roots early in the region's semiconductor era. Formally organized into an industry association in 1989 as The Software Association of Oregon, the industry has become a leading advocated for tax reform and educational funding for the area's knowledge workers and entrepreneurs.

Software is everywhere today and represents a significant ($9 billion and growing!) financial impact to the state. Skilled software workers in Oregon produce the code that makes medical equipment, websites, automotives, computer chips and a host of other products viable in today's market.

Currently the software industry is composed of those that publish and sell software, those who have web-based companies ("Web 2.0"), those that embed software in their products and Information Technology (IT) professionals that support a businesses' technological infrastructure, which is inclusive of both high-tech and traditional businesses.

Cluster Perception of the Oregon Business Climate:



Average Wage 2006: $72,900

Cluster Employment 2006: 52,000

Average Wage Growth 2003-2006: 13.4% total payroll growth.

Cluster Employment Growth 2003-2006: 11.2%

Competitive Share Growth: 7.4% greater than the national average.

NOTES:

- Every 10 software related jobs in Oregon supports an additional 13 jobs in other sectors of the economy.
- Software Industry produced over $833 million in state and local tax revenue in 2005.
- $9.2 billion in aggregate economic impact from the software industry in 2005
- 2005 Aggregate Wages = $3.2 billion
- Between 2004-2014 employment in the software publishing industry is forecast to rise by 22.7% and employment in computer systems design and related services will increase 30.1%.

OREGON CLUSTER ALIGNMENT

Resulting Information from Cluster Focus Group

Oregon Advantages:

- Networking opportunities – Oregon has an active network of people that organize social events critical to progress in development.
- Significant Research and Development – HP, Intel and other major high-tech companies do their research and development in Oregon due to our human capital and tax credits.
- Open Source – two of the greatest minds in Open Source reside in Oregon: Ward Cunningham (father of the Wiki) and Linus Torvalds (father of Linux), as well the Open Source Lab at Oregon State University and many open-source start-up companies
- Sub-clusters in collaboration, financial, education, construction, medical, automated flight, gaming, sustainability, G.I.S., insurance and talent management software development
- Progressive mentality – Software professionals value creativity, freedom, originality, education, artistic endeavors and appreciate nature/sustainability.

Cluster Challenges

- Financial Capital
    - Less local capital available to entrepreneurs on a per-capita basis than neighboring states Result: companies move out of the state in order to obtain necessary funding.
    - Oregon's nation-leading capital gains tax causes tax advisers who exercise fiscal prudence to encourage high tech entrepreneurs to leave the state before selling their business.
    - The Oregon Investment Fund, with over $150 million in capital, invests a small percentage into Oregon-based start-ups, in spite of a legislative mandate to do so.
- Human Capital
    - Qualified workers – Local companies must import qualified workers.
    - Few students pursuing degrees – the demand for computer science degrees lags far behind the demand for these skilled workers. Many students and parents are still under the (incorrect) impression that outsourcing will make these jobs nonexistent.
    - Math, Science, Technology and Engineering education in K-12 lacks strong emphasis and funding. Lower rate of women and minorities in these classes.

Cluster Trends & Opportunities

- Utilization of "Web 2.0" platforms to create businesses with very little up-front capital required.
- With the growth of social networks (FaceBook, LinkedIn, MySpace, etc.), local companies with expertise in these applications have enjoyed large rounds of investment.
- Large data centers (like Google's in The Dalles) are the future of IT. Oregon's inexpensive hydroelectric power and access to significant data grids makes it a top location for these centers.
- Retirees with technical expertise, investment capital and time on their hands are moving to Oregon in droves, looking to put their resources to work in an active retirement.
- The Engineering Technology Industrial Council worked hard to receive an increase in funding for engineering programs at our state universities from the Oregon Legislature in 2007.

Cluster Action Ideas

- Invest in Science, Math, Engineering & Technology education in pre-K through post-graduate educational system. Make policy leaders, foundations, universities, teacher training programs, educators, career counselors and parents/guardians aware of and committed to encouraging the pursuit of the education required to obtain these great jobs.
- Secure Workforce Development dollars to improve the skills of existing knowledge workers.
- Provide a range of economic development tools to keep companies in the region, give incentives for companies to relocate here, and decrease taxes that cause investment capital to flee.

Solar Energy Industry Cluster

Key Cluster Components: Manufacturing sector: Solar cells, inverter, and racking materials, solar hot water collectors
Installation sector: Photovoltaic (PV), solar thermal, distributors,, solar energy design and consultant professionals

Cluster Contact: Jon Miller, Oregon Solar Energy Industry Association
oseia@oseia.org www.oseia.org

Geographic Location: Statewide

Background: Founded in 1981, OSEIA is a non-profit industry association dedicated to developing a strong renewable energy industry in Oregon. OSEIA represents a range of solar industry companies, from solar panel installation to solar water heating. Oregon's existing semiconductor industry provides a natural fit for attracting solar PV manufacturers. Competition for solar manufacturers is high as many others see the advantages of starting a cluster at this early stage to take advantage of the economic opportunities and jobs and reap future rewards as the solar industry continues to mature.

Solar energy is one of the fastest growing industries worldwide. The PV manufacturing and installation sector in particular has grown over 30% annually for the past 10 years. Recent growth rates exceed 40%.

The following data includes all Renewable Energy Production industries in Oregon.

This cluster is composed of industries that focus on utility and power construction, energy production, and professional and technical services. Half of the employment in this cluster is from energy-related manufacturing. Professional and technical services account for 30%, and construction makes up the balance with 20%.

Average Wage 2006:
$59,149

Cluster Employment 2006:
27,893

Average Wage Growth 2003-2006:
9.62%

Cluster Employment Growth 2003-2006:
8.12%

Source:
BLS, QCEW data based on cluster definition from 2005 Cogan Owens Cogen report for OECDD. NAICS codes used are available upon request.

OREGON CLUSTER ALIGNMENT

Resulting Information from Cluster Focus Group

Trends

- Renewable Portfolio Standards
- People will pay more for renewable energy
- Far greater interest and demand for solar energy products

Oregon Advantages

- Good infrastructure and suppliers here due to Oregon's semi-conductor industry base (materials and manufacturing process are very similar)
- Solar PV is in a great position to take advantage of a previous slump in the semiconductor industry (former semiconductor manufacturing plants can be used to make solar cells)
- Existing workforce has skill sets and education needed by solar PV manufacturing because of semiconductor industry here.
- Less traffic and travel time than in the Bay area (a competing semiconductor manufacturing hub)
- Policies & Tax Credits: BETC, RPS

Cluster Challenges

- Deployment factor and installation capabilities—There are not enough trained people in Oregon to meet rapidly growing installation needs.
- Restrictive labor limits on installations both drives up the cost and inhibits the growth of both solar hot water and solar PV penetration.
- Renewable energy limited licenses must be changed to be more effective (LRT—Limited Renewable Energy Technician and STL Solar Thermal License)
- Varied utility connection standards and utility resistance to statewide standards (net metering and interconnection)—Oregon has approx. 40 utilizes with 75% of Oregon population served by Investor owned utilities (IOUS) and 25% by Public utilities
- Developing a skilled workforce throughout Oregon. Solar systems have been installed throughout Oregon in over 100 cities. However, the workforce in rural areas in particular must be developed to meet large demand.
- Insuring the Business Energy Tax Credit (BETC) is sufficient to drive both solar PV and thermal projects forward.

Cluster Action Ideas

- Affect federal tax legislation collectively
- Find a tool to incentivize local purchasing- Buy Oregon, Buy Green campaign
- Address Deployment/Installation by adopting installation standards seen in other states and improving the renewable energy licenses (LRT and STL)
- Improve utility interconnection standards in public utilities(alignment of standards would benefit all the renewable energy industries)
- Increase the training opportunities for installers. Develop courses and deliver them throughout Oregon. Work with the existing Renewable Energy JATC and other training centers on course development.
- Expand Sharing & Learning Networks about lean manufacturing and Renewable energy
- Partner with universities for R&D
- Streamline Oregon's varied permit requirements for PV and hot water installations. Waive onerous fees and requirements. Work with Building Codes Division and other stakeholders to develop progressive permit policies.

OREGON CLUSTER ALIGNMENT

Tourism & Hospitality Cluster

Key Cluster Components: Entertainment, Recreation, Accommodations, Culinary, Meeting Facilities &Venues, Cultural & Heritage, Retail, Transportation, and Marketing & Public Relations. Notable cluster members include McCormick & Schmicks, OMSI, Bandon Dunes, Oregon Zoo, Widmer Brewing, Oregon Coast Aquarium, Timberline Lodge, McMennamin's, Wildlife Safari, Sunriver Resort, Oregon Convention Center, Shakespeare Festival, The Bite of Oregon.

Cluster Contact: Scott West, Travel Oregon
www.TravelOregon.com, Scott@traveloregon.com

Geographic Location: Statewide

Background: Approved by the Oregon legislature in August 2003, a dedicated 1% statewide lodging tax provided additional resources to the Oregon Tourism Commission in June 2004. The impact of this dedicated revenue moved Oregon's tourism marketing budget from 46th in the nation to 28th. The new opportunities for Oregon's Tourism industry led industry leaders to form the Tourism and Hospitality Consortium. Today, the consortium's steering committee meets quarterly, is made up of approximately 12 organizations representing both public and private interest, and recognizes more than 60 components of the tourism industry.

The tourism cluster includes a diverse set of interrelated industries including retail establishments, hotels, restaurants, transportation services, and arts & entertainment venues. The relatively low average wage in this cluster results from a high concentration of part-time and seasonal workers. Restaurants account for over 40% of the employment in the cluster.

Average Wage 2006:
$18,010

Cluster Employment 2006:
88,900

Average Wage Growth 2003-2006:
7.22%

Cluster Employment Growth 2003-2006:
6.64%

Source:
BLS, QCEW data based on cluster definition from 2007 Dean Runyan Associates report for the Oregon Tourism Commission. Exact NAICS codes used are available upon request.

NOTES:
Total direct travel spending in Oregon was $7.9 billion in 2006. This represents a 6.7 percent increase over the preceding year. This is the third consecutive year of growth exceeding 6 percent.

OREGON CLUSTER ALIGNMENT

Resulting Information from Cluster Focus Group

Joint Cluster Opportunities

- Communications: a) recognition of cluster contribution, size and scope, b) consistent verbal & written messaging about the Oregon Brand/Experience/Industry's Economic Impact
- Address research gaps and conduct economic impact research.

Major Recent Achievements

- Governor's commitment to and recognition of the relationship between transportation, tourism and hospitality: creation of the Governor's Transportation and Tourism Task Force in 2006.
- Establishment of a welcome center at the Southern entrance to Oregon as the Governor's Transportation Tourism Task Force top priority.
- Successful public/private partnership in statewide marketing efforts, lift in visitor spending.
- Tourism and Hospitality Consortium Perception survey results: Oregonians overwhelmingly see the value and role of the industry.

Cluster Challenges

- Education of policy makers and other industry about the importance of tourism to the Oregon economy.
- Understanding the total tourism resource locally and statewide: creating increased public/private successes, helping local governments to maximize return on reinvestment of revenues raised through lodging taxes and used for tourism purposes.
- Availability of a well-trained workforce: a) Oregon no longer has a 4-year tourism and hospitality program, b) Need for improved connection between higher education & tourism industry
- Getting vast and diverse industry largely made up of small, fiercely independent entrepreneurs to see themselves as part of the "whole."
- Conveying the positive aspects about industry employment/flexibility, upward opportunity. Often the first entry into the workforce where foundational skills are established.

Cluster Action Ideas

- Educate people outside the industry (business & thought leaders, legislators, economic development organizations) about the socio-economic impact of the tourism/ hospitality industry. Recognition of tourism as a core traded-sector cluster with major impacts on the Oregon economy.
- Pursue a major transportation funding package (roads, rail, rest stations, etc.)
- Create synergies among diverse marketing entities. Use destination marketing organizations (DMOs) to get word out and centralize the branding effort.
- Create career pathways from high schools to higher education to industry. Connect industry with post high school programs on hospitality & tourism
- Support federal legislation: Travel and Promotion Act of 2007. (A bill to communicate United States travel policies and improve marketing and other activities designed to increase travel in the United States from abroad)
- Participate in future decisions related to statewide land use law. Understand and communicate future issues resulting from changing land-use environment.

O R E G O N
CLUSTER
ALIGNMENT

Wave Energy Industry Cluster

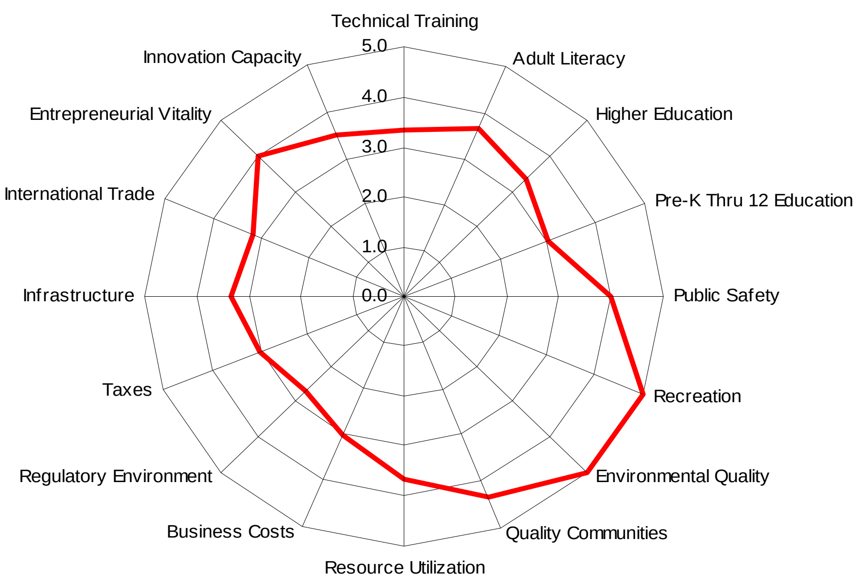
Key Cluster Components: Wave energy developers, academia, environmental, metals manufacturing, utilities, naval architecture, government, finance, fishing and ports. Wave energy companies include: Finavera Renewables, Ocean Power Technologies, Pelamis Wave Power, and Oceanlynx.

Cluster Contact: Justin Klure, Oregon Wave Energy Trust
jklure@peventuresllc.com

Geographic Location: Coastal Oregon and Portland Metro

Background: The State of Oregon and its stakeholders have been exploring the development of wave energy for over three years, and Oregon State University has been focusing on wave energy technology development for over ten years. Since January 2005, a group of stakeholders have been networking to learn about each other's businesses, discover synergies, and explore the potential of developing the wave energy industry as an economic driver for the Oregon coast and State in general.

Cluster Perception of the Oregon Business Climate:



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OREGON CLUSTER ALIGNMENT

Resulting Information from the Cluster Focus Group

Oregon Advantages

- Wave energy resource
- Port capacity—can build, deploy, and maintain devices
- Transmission infrastructure—population and load centers close to resource
- Applied research capabilities
- Renewable energy portfolio standards
- Business Energy Tax Credit (BETC)
- Social change: People willing to pay more for renewable energy

Oregon Weaknesses/Cluster Challenges

- Missing Cluster Components- naval architecture and mooring design
- Regulatory Processes—cost of permitting, FERC and Oregon State licensing processes
- Ecological study plan development
- Long term production tax credits (PTC)
- Workforce—need marine operations, merchant mariners, generation and transmission engineers

Cluster Action Initiatives

- Advocate for production incentives to offset above-market costs: a) Reform federal statutes to include wave energy as renewable, b) Create guaranteed loan programs like Europe has, c) Offer retooling grants for advanced techniques
- Regulatory & Permitting: Create "shovel ready sites" for wave development, designate an offshore renewable energy "zone" just like an urban renewal zone
- R&D & Innovation—a) Work with Oregon University System on design of a wave energy research center, b) Create incubator space near/on a university campus in Portland or Newport, c) Make tenured faculty slots available for professors with wave energy expertise
- Workforce & Education: Do a workforce needs assessment looking at the companies that are already here that are expanding, Port of Portland, etc.
- Collect industry data and create a clearinghouse of information
- Community outreach with existing ocean users
- Prioritize and design ecological studies

OREGON CLUSTER ALIGNMENT

Wind Energy Cluster

Key Cluster Components: Manufacturing (turbine, corporate headquarters, but not currently manufacturing), development, legal services, environmental consulting, operations & maintenance, transportation, market, policymakers Major developers include Horizon Wind Energy, PPM Energy (Iberdrola) Energy, RES, Columbia Energy Partners, EnXco, Vestas, and Momentum Energy.

Cluster Contact: Rachel Shimshak, Executive Director, Renewable NW Project, rachel@rnp.org, www.rnp.org

Geographic Location: Statewide

Background: In 1994, a broad coalition of public-interest organizations and energy companies created the Renewable Northwest Project (RNP) to actively promote development of the region's untapped renewable resources. RNP has proven to be a forceful advocate for expanding solar, wind and geothermal energy in the Northwest.

Resulting Information from Cluster Focus Group

Oregon Advantages

- Logistics and Ports (especially Port of Vancouver)
- Renewable Energy Policies and Tax Credits (Renewable Energy Standard, BETC)
- Local market
- People (skills, expertise and values)
- Transportation policies for trucks are better than Washington's (easier to haul turbines)
- Portland is the headquarters for three major utilities
- Presence of the steel Industry
- Predictable siting regime through EFSC
- Wind resources and compatible land uses
- Portland has most of the USA's major developers and is N. American headquarters for the largest turbine manufacturer.

A Renewable Northwest Project's study shows that there was:

- $1.38 billion in new capital investment between October 2005 and October 2006 in the region just on wind projects
- $2 -$3 million in annual royalty payments to rural landowners
- $6-$7 million each year in local property tax revenues
- nearly 1400 construction jobs during peak construction periods
- and roughly 80 new permanent family-wage jobs for operation and maintenance. There are no Oregon-only figures available at this time.

SOURCE: "Wind Power and Economic Development: Real Examples from the Pacific Northwest." Renewable Northwest Project (January 2007).

Trends

- Retiring population (fewer engineers available)
- Increases in gas prices, Climate change, & Fear of future carbon constraints →1/2 of states have some kind of renewable energy policy → Increased demand for operating turbines → Rising prices of components & turbines
- Consolidation in the wind energy industry- esp. on the developer-owner side.
- Manufacturing offshore → longer wait times and more expensive parts
- European investment into American companies.
- Exchange rate making manufacturing in the US more desireable

Cluster Challenges

- Lack of certainty around federal tax policy and government leadership
- Lack of skilled workforce (Need GIS and operating technicians, Electrical, energy, environmental engineers, Meteorologists, and MBAs with an understanding of renewable energy, project finance, & engineering)
- Very few university programs focused on renewable energy (except OIT & Columbia Gorge Community College)
- Equipment—Difficult to get the turbine component parts because they are not manufactured here. Exchange rates make them very expensive and there are long wait times (2-3 years)
- Physical Infrastructure Constraints - Shortage of cranes & limited number of trailers to move the heaviest turbines
- Transmission constraints on the grid are becoming a problem- need more transmission built

Cluster Action Ideas

- Collaborate with other Oregon industries to create new business opportunities
    - Start a conversation with Oregon manufacturers of steel, transportation equipment, cast parts components, and transformers to make wind turbine parts in Oregon
    - More local construction—local firms should be winning more of the big contracts for BOP—civil, electrical, erection, etc.
    - Talk with heavy lift helicopters about other methods for turbine transportation (hard to believe this will be a cost saving!)
- Develop Education & Workforce Training programs with a focus on renewable energy
    - Key components include: Continued funding for Columbia Gorge C.C. wind technician training and OIT engineering programs, Sustainability & alternative energy curriculum in all universities, a Project Management or MBA program with a renewable energy focus, Meteorology program at OSU (Look at University of Arizona for a model), Marketing to students about electrical engineering opportunities, Demonstration of demand through Coordinated Internships, Bringing students to wind conferences
- Policy: Pass RPS, production tax credits and climate legislation at the national level, Expand the BETC in Oregon
- Address issue of cost and interconnection standards/rules with the PUC and utilities

Hire a "go-to" person in the Governor's Office to connect policies with agency implementation, create policies to support new projects, set priorities, and encourage collaboration between OECDD, Siting Council, Fish & Wildlife, ODOT, and PUC, Create an expedited energy permit process (Goal 3 of LCDC is an obstruction