

# PDC

## PORTLAND DEVELOPMENT COMMISSION

**DATE:** December 9, 2009

**TO:** Board of Commissioners

**FROM:** Bruce A. Warner, Executive Director

**SUBJECT:** Report Number 09-135

Urban Development Department, Business & Industry Division:  
Introduction to Cleantech and Sustainable Industry Clusters.

### **EXECUTIVE SUMMARY**

#### **BOARD ACTION REQUESTED**

None — information only.

#### **SUMMARY**

This report is the third in a series of briefings on the cluster work of the Portland Development Commission (PDC) and focuses on the clean technology (cleantech) and sustainable industry clusters. The report includes a briefing on the industry, including statistics about the strength of Portland's cleantech and sustainable industry clusters. The report also provides a brief overview of PDC's cluster development framework and an update on the activities PDC is completing to create work plans for each of the cleantech and sustainable clusters. In addition, this report provides an overview of the initiatives identified in the City's five-year economic development strategy to support Portland's position as a leader of the emerging international green economy.

The Portland Economic Development Strategy (Strategy) identified cleantech and sustainable industry clusters as a target group of clusters that will grow employment in the city. The Strategy's goal is to create 10,000 net new jobs within five years by focusing its job growth and retention efforts on four clusters. Business & Industry Division cluster leads will provide detailed information about PDC's work within the software and advanced manufacturing clusters through upcoming briefings.

PDC's current approach to support job growth in the cleantech and sustainable industry clusters is to develop industry lead action plans that will increase Portland's capacity to be a globally competitive location for cluster firms to start, expand, grow, and attract talent.

### **BACKGROUND**

The Strategy is predicated on the implementation of a cluster approach to create jobs. By enhancing the competitive environment for firms in four target clusters – cleantech and sustainable industries, activewear, software, and advanced manufacturing – the city can foster growth in these promising sectors. In order to effectively pursue a cluster

strategy, PDC will tailor its business retention, expansion, and recruitment efforts to meet the needs of cluster firms. The Business & Industry Division (Division) has embarked on an effort to organize the majority of its work to meet the needs of the clusters as defined by the clusters themselves. In addition to having three separate teams focused exclusively on cluster work, the Division's business finance team and international business development efforts will have cluster growth as a primary objective.

### **Cleantech and Sustainable Industries (CTSI) Cluster Definitions**

- Based on industry feedback and an economic analysis, PDC includes 5 clusters under the cleantech and sustainable industries umbrella:
  - Electric Vehicles: companies that design or develop electric vehicles, energy storage technology, and vehicle charging infrastructure;
  - Energy Efficiency: companies that design or develop technologies to enhance the efficiency of energy generation and distribution and end-user energy consumption, as well as companies that provide services in connection with diagnosing and implementing potential energy savings;
  - Green Development: companies that design or develop high performing buildings, products, and materials for use in high performing buildings, infrastructure, and systems;
  - Solar Manufacturing: companies that manufacture and assemble solar energy products or that are part of the supply chain for manufacturing solar energy products; and
  - Wind Energy: companies that identify, develop, and exploit wind energy resources, or that manufacture components for initial turbine construction and ongoing turbine maintenance.

### **Why focus on the Cleantech and Sustainable Industry clusters?**

- **Statistics<sup>1</sup>:**
  - Portland is home to a significant number of cleantech and sustainable industry firms. As of 2007, there were more than 19,000 of these cluster jobs in the city.
  - Cleantech and sustainable industry firms are becoming a more important component to our economy:
    - Number of employees working in cleantech and sustainable industry companies grew 40% between 2001 and 2007; and
    - Cleantech and sustainable industry companies generated five percent of Portland's employment in 2007.

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<sup>1</sup> All data from this section is from QCEW data, Oregon Employment Department, 2007 for firms in a study PDC generated in March 2009.

- These clusters provide Portlanders with quality jobs:
  - 64% of the region's cleantech and sustainable industry cluster jobs were located in Portland in 2007; and
  - For 2007, the average cluster wage in Portland was \$69,759. Average cluster wages were \$24,743 higher than the average pay for the city during the same year.
- **Companies:**
  - Cleantech and sustainable industry companies connect Portland's economy to a global marketplace and reinforce Portland's brand as a place to grow companies that can succeed in the emerging green economy, including:
    - CH2M Hill, Vestas, Iberdrola, ReVolt Technology, Johnson Controls, David Evans & Associates, Skanska USA Building Inc, Gerding Edlen Development, Glumac Engineering, Green Building Services, SERA Architects, Ecos Consulting, Solaicx, SIC Processing; and
    - Outside of the City of Portland, the region includes significant players within the cluster including SolarWorld, Sanyo Solar, SunEdison, and Peak Sun Silicon.
- **Portland is poised to be a leader in the green economy:**
  - Portland's long standing history of growing tech companies has translated into opportunities for manufacturing firms to specialize in solar manufacturing and in the manufacturing of wind turbine components;
  - Oregon's existing workforce and our ability to attract highly educated talent aligns well with the needs of these clusters;
  - Oregon's incentives are growing market demand. These include the Business Energy Tax Credit, the Solar Feed In Tariff, State Energy Loan Program, and the Residential Energy Tax Credit;
  - Portland and the region is consistently ranked as one of the most sustainable cities in North America , creating an ideal launching place for businesses offering sustainable products and services;
  - Portland has the largest per capita number of hybrid vehicles in the U.S., making us an ideal launch location for next generation plug-in hybrid and electric vehicles, with Mitsubishi and others already planning to utilize Portland as a test market for upcoming vehicles;
  - Portland consistently ranks in the top five in number of U.S. Green Building Council LEED certified buildings in North America, which has in turn resulted in the growth of our Green Development cluster and these firms exporting their expertise to other parts of the country and globe; and

- Oregon's history in backing environmentally progressive legislation (including the Renewable Portfolio Standard) while also providing a lower cost business environment has made our region a logical choice for businesses whose technologies focus on reducing greenhouse gas emissions.

### **How does the cluster approach allow PDC to be more effective with these clusters?**

- Convening cluster leaders is allowing PDC to gain perspective on commonalities between firms and mechanisms that drive growth across the cluster. Both lead to the creation of industry-driven initiatives that serve a range of firms, instead of meeting the needs of just a few;
- The cluster development approach encourages staff to cultivate a deep understanding of cluster dynamics and strong relationships with cluster leaders. In this way, cluster development demonstrates a commitment to understanding the conditions that influence the growth of highly productive firms and to nurturing their ability to become more competitive. Cluster leaders appreciate this commitment and, in return, commit to working with PDC; and
- Finally, this approach is allowing PDC to target its investment in areas anticipated to have the most lasting economic impact for the City.

### **Cluster Framework Overview**

In August, Division staff completed a framework for working with clusters based on best practices throughout the world. This framework will serve as a playbook for PDC's work with all clusters and ensure that interventions in clusters follow a consistent methodology.

The cluster framework divides the work into two phases that include the following steps:

**Phase I** – Investigate, inventory, and convene clusters to:

- assemble a snapshot of an industry's growth potential;
- map individual firms active in the cluster, their position in the supply chain, and the system of relationships that make the cluster competitive in the region; and
- develop working partnerships with cluster entrepreneurs. These relationships become important for identifying cluster opportunities and gaps, as well as for creating an accurate asset map of resources in the city that contribute to its economic competitiveness and creating well-calibrated initiatives.

**Phase II** – Diagnose, act, and evaluate to:

- synthesize findings from quantitative and qualitative research;
- formulate a strategic plan that cluster entrepreneurs can have ownership of and collectively implement so that government resources are well leveraged;
- implement action plan; and

- determine if actions are meeting objectives and if cluster is capable of self-sustaining intervention.

### **Progress Made to Organize the Cleantech and Sustainable Industry Clusters**

- Investigate:
  - As part of the Portland Economic Development Strategy and ongoing economic trend analysis, PDC has identified indicators to measure the success of this cluster and have benchmarking statistics from which to measure future growth.
    - PDC annually reviews the location quotient, shift-share, average annual wages and average annual payroll for these clusters.
      - This work presents some difficulty: there are no federal, state, or local definitions to distinguish “green” companies from their counterparts. Voids in industry classification and occupation codes make it impossible to separate cleantech and sustainable firms from their non-green cohorts and standardize definitions for cluster, making it highly difficult to create a completely accurate snapshot of firm activity.
- Inventory:
  - A preliminary Electronic vehicles directory is complete;
    - Currently developing a supply chain map to identify gaps and opportunities to grow existing firm capacity or to recruit firms to fill in gaps.
  - Currently developing a statewide database of wind energy cluster companies, suppliers, and manufacturers to build awareness of industry and build collaboration;
  - A green development inventory project has begun. PDC is working to build support for the effort with regional partners;
  - An inventory of solar companies is complete; and
    - Currently developing a supply chain map to identify gaps and opportunities to grow existing firm capacity or to recruit firms to fill in gaps.
  - The process has begun to develop an inventory of energy efficiency firms.
- Convene:
  - Each of the clusters, except green development, is in the process of convening cluster leaders;
  - Electric vehicles:
    - Currently holding monthly steering committee meetings and quarterly roundtables to identify, support, and move forward with group priorities.
      - Have held six steering committee meetings and three roundtables since beginning of calendar year. Next roundtable is scheduled likely 1Q 2010; and
      - Also working to expand participation on an on-going basis.
  - Wind energy:
    - PDC hosts monthly meetings of stakeholders to collaborate on industry events and initiatives and to share information on emerging wind cluster groups, legislation, and projects.

- Also working to encourage dialogue between the wind energy cluster and the advanced manufacturing to broaden the scope of each and create opportunities to strengthen the local advantage for each.
    - Solar:
      - Currently engaging key partners and working to secure commitments from government and other key private sector partners to participate in two cluster roundtables.
        - Roundtables to be held in December and January
      - Formally coordinating convening actions with existing industry association (Oregon Solar Energy Industry Association - OSEIA) and Business Oregon (OBDD)
    - Energy efficiency:
      - In the process of scheduling a session with partners to identify compelling reasons for cluster participants to convene, a necessary precursor to gaining support for engagement activities.
  - Act:
    - Green Development:
      - Based on industry interest, PDC has put its support behind the industry-championed Oregon Sustainability Center, which will be the nation’s first living building and highlight the specialization of Portland’s green development firms.
        - Staff from across PDC’s Urban Development Department support this initiative.

Portland Economic Development Cleantech and Sustainable Industry (CTSI) Clusters Initiatives		
<b>Phase 1 of Cluster Development:</b> <i>Investigate, inventory and convene clusters</i>	<i>Facilitate employment growth of CTSI sectors through extensive cluster organizing and implementation of industry-driven action plans.</i>	Deliverables include: <ul style="list-style-type: none"> <li>• The solar manufacturing, wind energy, electric vehicle and energy efficiency clusters will each:                             <ul style="list-style-type: none"> <li>○ Host industry roundtables to convene cluster leaders;</li> <li>○ Compile cluster leader’s feedback into reports of the clusters’ general needs, opportunities for expansion and cluster obstacles; and</li> <li>○ Create a work plan to grow cluster jobs.</li> </ul> </li> </ul>
	Progress to Date	<ul style="list-style-type: none"> <li>• Solar manufacturing: Initial roundtable taking place on December 10;                             <ul style="list-style-type: none"> <li>○ Draft supply chain map and inventory complete.</li> </ul> </li> <li>• Electric vehicle cluster: Quarterly roundtables in progress. Currently identifying firms that could conduct cluster strategy work;                             <ul style="list-style-type: none"> <li>○ Successful recruitment of ReVolt Technology to Portland (Swiss EV battery company).</li> </ul> </li> <li>• Wind energy cluster roundtable taking place on December 9 at the supply; and</li> <li>• Energy efficiency cluster: Brainstorming session tentatively scheduled for late November/early December.</li> </ul>

	<p>Role of Partners</p>	<ul style="list-style-type: none"> <li>• Oregon Business Development Department is co-leading all of these cluster activities with PDC. Funding and leading development of statewide database of wind cluster companies and suppliers;</li> <li>• Greenlight Greater Portland has produced a marketing brochure to promote the region’s Solar Manufacturing cluster and is developing collateral material for the Green Development and Electric Vehicle clusters;</li> <li>• Regional Partners, including the Cities of Hillsboro, Gresham and Salem are actively engaged in the Solar cluster activities;</li> <li>• The Wind cluster activities have several partners including the Oregon Manufacturing Extension Partnership, Worksource Oregon and numerous others; and</li> <li>• We are creating partnerships with existing industry association where relevant, including the Oregon Solar Energy Industry Association, the Wind Industry Alliance, Oregon Small Wind Energy Alliance and the Pacific Northwest Defense Council.</li> </ul>
	<p><i>Expand demand for energy efficiency products and services through investment in retrofits of existing building stock.</i></p>	<p>Deliverables for the Portland Clean Energy Works program include:</p> <ul style="list-style-type: none"> <li>• Providing easy access to financing and reliable service providers to enable approximately 100,000 homeowners to retrofit their homes to maximize energy efficiency; and</li> <li>• Marketing campaign to increase awareness of the program and that energy savings will pay for the full cost of the upgrades, resulting in zero out-of-pocket costs for homeowners.</li> </ul>
	<p>Progress to Date</p>	<ul style="list-style-type: none"> <li>• Clean Energy Works is utilizing \$2.5 million of the federal stimulus package to implement a pilot program for 500 homes.</li> </ul>
	<p>Role of Partners</p>	<ul style="list-style-type: none"> <li>• The City of Portland Bureau of Planning and Sustainability is lead organizing agency for the project;</li> <li>• Shorebank Enterprise Cascadia, Portland General Electric, and Northwest Natural are coordinating the financing and repayment aspects of the project; and</li> <li>• Green For All and Work Systems are developing programs to ensure an adequate supply of trained and skilled workers.</li> </ul>
<p><b>Phase 2 of Cluster Development: Diagnose, Act and Evaluate</b></p>		<ul style="list-style-type: none"> <li>• The green development cluster: Oregon Sustainability Center—private sector engagement and involvement in project; and                         <ul style="list-style-type: none"> <li>○ Eco Districts feasibility pilot studies.</li> <li>○ Permanent networking space for cluster space businesses (VOISBox Ballroom).</li> </ul> </li> </ul>
	<p>Progress to Date</p>	<p>Green development cluster: Oregon Sustainability Center, meetings with private sector partners to discuss in-kind donations to the project; Opening of VOISBox Ballroom (Voice for Oregon Innovation and Sustainability) at Leftbank Project in January 2010.</p>

	Role of Partners	<ul style="list-style-type: none"><li>• Oregon University System is taking a lead role in the Oregon Sustainability Center project with plans to secure \$80 million in bond financing;</li><li>• The City of Portland Bureau of Planning and Sustainability and the Portland + Oregon Sustainability Institute are partnering on the Eco Districts;</li><li>• Voice for Oregon Innovation and Sustainability (VOIS) is in the final stages of building out the VOISBox Ballroom and will manage the facility upon its completion.</li></ul>
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**Conclusion**

Firms within the cleantech and sustainable industry clusters are dynamic and evolving rapidly. PDC is poised to respond to the needs of cluster firms and is committed to developing the partnerships needed to implement the Strategy’s initiatives.

**ATTACHMENTS:**

- A. Solar Manufacturing Cluster – Convene Stage Work Plan (Draft)
- B. Electric Vehicle Cluster – Convene Stage Work Plan (Draft)
- C. Wind Energy Cluster – Convene Stage Work Plan (Draft)
- D. Energy Efficiency Cluster – Inventory Stage Work Plan (Draft)
- E. Energy Efficiency Cluster – Convene Stage Work Plan (Draft)
- F. Green Development Cluster – Act Stage Work Plan (Draft)