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**Workforce Training and
Education Coordinating Board**

Evergreen Jobs Initiative: Recovery Act Funds in Washington

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Third Annual Report on Performance and Outcomes (RCW 43.330.375)

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TABLE OF CONTENTS

The Evergreen Jobs Initiative [1](#)

The Green Terrain: State and Federal Green Job Definitions and Assessments [2](#)

Washington’s Grant and Job Performance in the Greening Economy [4](#)

Competitive Federal Recovery Act Funds in Washington [5](#)

Formula Federal Recovery Act Funds in Washington [12](#)

State Funded Projects [14](#)

Evergreen Jobs Leadership Team Recommendations [15](#)

Appendix

The Evergreen Jobs Initiative

The Evergreen Jobs Initiative is Washington's comprehensive strategy for capitalizing on green economy opportunities. This coordinated approach has helped state organizations procure and deploy over \$150 million in federal American Recovery and Reinvestment Act (Recovery Act) funds, and has drawn lessons from these investments that can enhance the state's green strategy going forward.

The Evergreen Jobs Leadership Team (Leadership Team), an interagency team headed by the Department of Commerce (Commerce) and the Workforce Training and Education Coordinating Board (Workforce Board) is responsible for coordinating this effort. In its first years of activities, the Leadership Team of business, labor, education, and government representatives has helped define green jobs, coordinated state efforts to apply for targeted Recovery Act jobs and job training grants, and tracked the progress of these grant programs as they were implemented throughout the state.

As of June 2012, these investments have resulted in over 2,600 jobs retained or created through Recovery Act competitive grants and over 1,200 jobs retained or created through Recovery Act formula funds. The total number of jobs created will be higher by the July 2013 end date for the Recovery Act green jobs grants. However, overall, job creation, has been lower than expected. The issue at this time is not only a need for more trained workers, but the need for more demand for green products and services and a rethinking of what we consider to be green jobs.

For more job growth to occur, Washington will need to be more assertive in developing the demand and application of clean energy technologies, including efficiencies in transportation, buildings and energy generation and distribution. But Washington could do even more by thinking outside the typical green industry sector for job creation opportunities. Many industries, not necessarily associated with energy production or efficiency, are putting greater emphasis on products that are produced and used in a way that consume less energy and cause less harm to the environment. Washington needs to look at how to enhance the state's competitive advantages by nurturing its own green-oriented marketplace, and fostering investment in the "greening" of its economy.

At the same time that Washington acts to boost green job opportunities, a skilled workforce will be needed to fill those jobs. The state's K-12 and beyond pipeline should be enhanced through programs of study that prepare students in applied STEM fields. Career and Technical Education (CTE) programs and pre-apprenticeships that apply STEM knowledge provide a smooth transition for students to postsecondary programs.

Postsecondary programs should include industry-based certifications that demonstrate graduates have mastered industry-defined skill standards, including green standards. Postsecondary institutions must also have the capacity to supply the numbers of graduates that match employer demand for workers trained with green skills. Postsecondary education includes apprenticeships and training for journey level workers that incorporate curricula that prepare workers with the latest green skills. Other incumbent workers also need access to continuing education that updates their skills, as many occupations will have more green elements as part of their work.

This is the third annual report prepared by the Leadership Team. In addition to providing grant summaries and performance results, this report offers recommendations to the Governor and Legislature as directed by statute (RCW 43.330.375). After reviewing last year's second annual report, the Leadership Team puts forth in this report the same set of recommendations from last year, with some minor editing. More Leadership Team information is available online on the [Workforce Board](#) and [Commerce](#) websites.

The Green Terrain: State and Federal Green Job Definitions and Assessments

Washington has been on the forefront nationally in defining green jobs to calculate and analyze the green economy. Since 2008, the state has defined green jobs as positions that are directly and predominantly engaged in at least one of four core areas of the economy:

- Increasing energy efficiency
- Producing renewable energy
- Preventing and reducing environmental pollution
- Providing mitigation or cleanup of environmental pollution

This definition was used by the Employment Security Department (ESD) in its *third* [Green-Economy Jobs Survey Report](#).

Data in the 2011 survey report came from two sources. First, the ESD conducted a survey of more than 21,000 public and private Washington employers covered by unemployment insurance. Analysts weighted results of the survey to produce estimates of the number of green jobs in Washington. Second, occupational data from the federal Bureau of Labor Statistics (BLS) was matched to the top 25 occupations identified in the survey to provide information about the earnings and education requirements of green jobs in these occupations.

Key Survey Findings: To date, green-job studies in Washington and across the nation have not identified any new industries and few occupations that are uniquely "green," such as wind-turbine technician or solar-panel designer. For the most part, employers are adding work responsibilities and activities identified as green to existing jobs. Employers appear to be "greening" jobs through their products and services and through the work practices they require of employees.

The 2011 Green-Jobs Survey identified an estimated 120,305 green jobs in Washington. Of these, an estimated 104,955 were in the private sector and about 15,350 were in the public sector. Altogether, these green jobs represented about 4 percent of total employment covered by unemployment insurance in Washington.

In 2011, one in every five jobs in the construction industry was a green job. The construction industry had more green jobs than any other industry, estimated at 29,865, and represented nearly one-quarter of total green jobs in the state. Among the industries that were surveyed by the ESD in both 2009 and 2011, green jobs declined by an estimated 18,300, or 18 percent. About 60 percent of the decline occurred in the government sector. But private sector green jobs shrank in industries that previously had reported increases.

Federal efforts to define and assess green jobs are also underway. The federal Bureau of Labor Statistics (BLS) received Fiscal Year 2010 funding to develop and implement a national [green jobs survey](#). To conduct the survey, BLS established a national definition for green jobs.

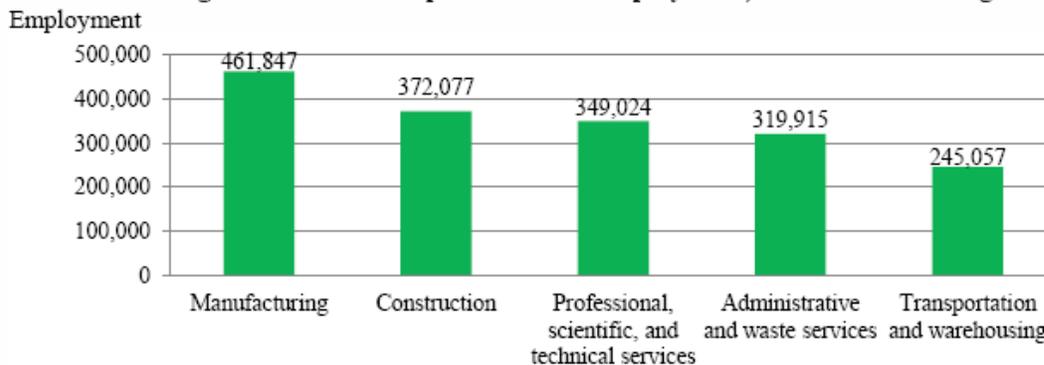
The BLS green jobs definition contains two components, an *output-based* approach and a *process-based* approach:

- 1) Output-based jobs are jobs associated with producing goods or providing services that that benefit the environment or conserve natural resources - Green Goods and Services (GGS).
- 2) Process-based jobs are jobs in which workers' duties involve making their establishment's production processes more environmentally friendly or use fewer natural resources.

In March 2012, BLS released its [first annual survey results for employment](#) in Green Goods and Services (GGS) output-based jobs. The BLS' survey of green process-based jobs will be released in the fall of 2012.

BLS' survey reports that in 2010, 3.1 million jobs in the United States were associated with the production of green jobs and services. Nationally, GGS jobs accounted for 2.4 percent of the total employment in 2010. The private sector had 2.3 million GGS jobs and the public sector had 860,300. Manufacturing had 461,800 GGS jobs. See Chart 1 below.

Chart 1. Green goods and services private sector employment, 2010 annual averages



Note: Table 4 in the BLS survey report shows the 2010 annual GGS total employment by state and Table 6 lists the GGS numbers in each state for those employed in various industry sectors.

The GGS survey estimates there are 333 industries that potentially provide goods and services that directly benefit the environment or conserve natural resources and that fall within one or more of the following five groups:

- 1) Energy from renewable sources.
- 2) Energy efficiency equipment, appliances, buildings and vehicles, and goods and services that improve the energy efficiency of buildings and the efficiency of energy storage and distribution.
- 3) Pollution reduction and removal, greenhouse gas reduction, and recycling and reuse goods and services.
- 4) Organic agriculture; sustainable forestry; and soil, water, and wildlife conservation.

- 5) Government and regulatory administration; and education, training, and advocacy goods and services.

The ESD will review BLS' output-based and process-based definitions and survey methodology once fully established. ESD will take those definitions and methodology into account when conducting future green jobs research efforts.

The Brookings Institution released a [Green Jobs Assessment](#) in July 2011, which highlighted the difficulties of assessing the green economy. Citing the breadth of industries that green jobs permeate, the report attempted to define and quantify the clean economy on a national level. The assessment found the national clean economy employment to be 2.7 million workers, and laid out several green economy trends, including:

- The clean economy offers more opportunities and better pay for low- and middle-skilled workers than the overall economy.
- Among regions, the South has the largest number of clean economy jobs, though the West has the largest share relative to its population.
- Most clean economy jobs and recent growth concentrate within the largest metropolitan areas.
- Strong industry clusters boost metros' growth performance in the clean economy.

Washington's Grant & Job Performance in the Greening Economy

The Leadership Team helped coordinate the state's applications for Recovery Act dollars and has continued to monitor the progress of the successful applications. **Competitive** grants were issued based on merit while **formula** grants were issued based on how each state's related program and needs met the grant criteria or formula.

Summary of Grant Results

- Over \$27 million in Recovery Act U.S. Department of Labor (DOL) and U. S. Department of Energy (DOE) green job training competitive grants—54 percent of the total requested and more than the state's "per capita" share of federal stimulus funds focused on green jobs creation.
 - Between December 2009 and July 2013, Recovery Act green jobs training grants are projected to serve more than 7,000 Washingtonians.
 - As of June 2012, over 2,600 Washingtonians have retained employment or found new employment due to green jobs training funded by competitive Recovery Act grants.
- Nearly \$67 million in DOE-administered Recovery Act formula funds for Low-Income Weatherization projects. Of those funds, \$10.4 million are for weatherization-related training and technical assistance activities. Through January 2012:
 - More than 13,400 low-income households were weatherized with Recovery Act funding, nearly twice the original target.
 - Created or retained 180 fulltime jobs and supported an additional 320 temporary jobs.

- Another \$60.9 million of federal formula Recovery Act State Energy Program (SEP) funds is accelerating job creation and retention in green sectors.
 - As of March 2012, nearly 1,000 jobs have been created or retained with SEP funds.

Competitive Federal Recovery Act Funds in Washington

Washington received over \$27 million—54 percent of its requested funds—in competitive Recovery Act grants focused on building a strong workforce skilled for the green economy through targeted job training and placement. The DOL and DOE are the federal administrative agencies for the state’s competitive grant Recovery Act funds.

From DOL grants alone, Washington received more than two times its per capita share of the \$500 million available nationally. Washington won a grant in each of the five major DOL grant categories. For the DOE programs, Washington received more than 10 percent of the national smart grid award total.

The state received seven competitive grants awarded by DOL and three competitive grants awarded by DOE. As of June 2012, five of the seven DOL grants have ended. The three DOE grants will end in mid-2013. Overall, measurable progress has been made in green job training and curriculum development, but the persistent economic downturn has stalled expected job placement rates.

The following tables and more detailed program summaries record progress as of mid-year 2012.

Washington’s Competitive Green Job Grants Funds Requested, Awarded, and Preliminary Results, Summer 2012

Federal Agency	Total State Recovery Act Applications	Total State Recovery Act Awards	Total Expected Participants Served	Participants Served to Date	Proposed Participants Employed	Participants Employed as of June 2012*
DOL	\$36,172,494	\$15,989,440	5,483	3,687	3,669	2,126
DOE	\$14,348,859	\$11,098,859	1,785	3,300	804	507
TOTAL	\$50,521,353	\$27,088,299	7,268	6,987	4,473	2,633

*Participants employed include bot incumbent workers who remain employed and new jobs employment once participants complete training.

U.S. Department of Labor Recovery Act Competitive Grants

Grant Recipient	Name of Project	Grant Award	Grant Start/ End Date	Project Description	Proposed Served	Served as of June 2012*	Proposed Employed by grant end date**	Employed as of June 2012**
SEIU 1199 NW Healthcare	Healthcare Career Advancement Program	\$500,000	1/2010 – 6/2012 Closed	Train emerging green occupations in health care	410	333	310	310
Northwest Energy Efficiency Council	Sound Energy Efficiency Development (SEED)	\$3.8 million	12/2009 – 3/2012 Closed	Train and place targeted groups in energy efficiency occupations	750	769	473	288
Southwest Workforce Development Council	Renewable Northwest (ReNW)	\$959,000	1/2010 – 9/2012	Support renewable energy companies and manufacturers by retooling local workforces	261	418	250	418
Workforce Development Council of Seattle-King County	Pathways Out of Poverty GreenLight Project	\$3.6 million	2/2010 – 3/2012 Closed	Train low-income and unemployed in deconstruction and materials use, green construction, and sustainable manufacturing	450	491	365	256
Workforce Training and Education Coordinating Board	Energy Sector Partnership Grant	\$5.9 million	1/2010 – 6/2013 (new end date via grant mod.)	Train targeted populations in professional-technical occupations in commercial and public building energy efficiency	3,612 via grant modification	1,676	2,271 via grant modification	854
Employment Security Department	WA Labor Market Improvement Grant	\$1 million	1/2010-12/2011 Closed	Create tools and reports that assist job seekers and professionals working to transition people to green jobs	n/a	n/a	n/a	n/a
Apprenticeship and Nontraditional Employment for Women (ANEW)	Green Capacity Building Grant	\$60,000	12/2009 – 5/2011 Closed	Create recruitment tools and enhance green curriculum that will be integrated into pre-apprenticeships serving women, including low income, hard-to-serve, veteran and youth target groups.	n/a capacity building grant	n/a	n/a	n/a

*Participants served to date includes participants who are still in training and therefore not yet looking for work.

**Participants employed includes incumbent workers who remain employed and new job employment once participants complete training. Given the recession's low levels of job growth and grantees' reluctance to train for jobs that won't be there once participants complete training, several grantees decided to focus on training incumbent workers to meet consumer and employer demands for green products and services, i.e., the general greening of the economy. The number of incumbent jobs and new job employment are broken down in the grant descriptions below.

U.S. Department of Labor Recovery Act Competitive Grants Descriptions

- **Service Employees International Union (SEIU) Health Care 1199NW** was awarded a Recovery Act subgrant from a national organization called Healthcare Career Advancement Program (H-CAP). SEIU Health Care 1199NW provided training in emerging green occupations in health care to health care workers in King County, Washington. Nationwide, approximately 3,000 job seekers receive training through H-CAP and its subgrantees. In Washington, the Service Employees International Union Health Care 1199NW developed a curriculum focusing on training hospital employees in green practices and cleaning methods like waste management, recycling, and worker safety to reduce pollution, waste, and water usage.

Grant start/end date: 1/2010 – 6/2012

Proposed/expected participants served: 410 (includes 310 incumbent workers retained and 100 new hires)

Participants served to date: 333

Proposed/expected participants employed: 310 incumbent workers retained (7 job seekers completed training; 0 new hires)

Participants employed to date: 310 incumbent workers retained

Training credentials: Three types of training were offered. All 310 workers completed the incumbent worker training (IWT) and received a certificate of Basic Green training. Eleven workers were awarded a Train-The Trainer certificate. Twenty-one workers completed a five credit college “Sustainability in Healthcare” course through a certificate program developed by H-CAP and North Seattle Community College.

- **The Northwest Energy Efficiency Council** received \$3.87 million from the Department of Labor for the Sound Energy Efficiency Development (SEED) project. SEED trains and places older youth, dislocated workers, incumbent workers, veterans, women, individuals with disabilities, and others in energy efficiency occupations. The project partners with multiple cities, counties, colleges, workforce agencies, labor unions, and others to help recipients earn industry-recognized certificates in residential and commercial energy auditing, building operations, and OSHA safety. SEED recruitment efforts to target populations occurred in all five counties served by the grant – King, Snohomish, Pierce, Kitsap, and Clallam. The program was informed by consistent communications with industry employers to ensure that training programs met their needs. NEEC and the grant partners worked aggressively to place participants. Activities:
 - Job readiness workshops to help participants with interviewing, networking, and resumes
 - Competitiveness workshops that provide one-on-one counseling with employment specialists for participants to prepare for job search activities and job fairs
 - Weekly job clubs by employment specialists that provide participants a forum to discuss job search related issues and receive advice from experts

More on SEED in the Appendix

Grant start/end date: 12/2009 – 3/2012

Proposed/expected participants served: 750

Participants served to date: 769

Proposed/expected participants employed: 473

Participants employed to date: 288

Training credentials: Building Performance Institute; Building Operator Certification; OSHA 10 Safety; Hazardous Waste Operations and Emergency Response; and Flagging.

- **Southwest Workforce Development Council (SWWDC)** administered \$959,000 of the \$5 million bi-state “green jobs” grant awarded to Oregon Manufacturing Extension Partnership funded by the Recovery Act.

The project—called Renewable Northwest (ReNW)—aimed to preserve and create over 1,700 jobs in a nine-county region in the renewable energy industry (electric power and biofuels) by building a skilled workforce to support companies that generate power and by assisting local manufacturers with retraining their workforce to produce products in support of the industry. Participants earn certificates and degrees which meet industry and state-defined standards.

For the Southwest Washington component of the project, SWWDC partnered with Clark College, Lower Columbia College, Impact Washington, WorkSource, Cowlitz County Economic Development Council and the Columbia River Economic Development Council to deliver training to 192 individual in Southwest Washington. Approximately 261 are targeted to incumbent workers and 69 to unemployment workers. These numbers may be adjusted based on input from the business community.

Grant start/end date: 1/2010 - 9/2012

Proposed/expected participants served: 261

Participants served to date: 418

Proposed/expected participants employed: 58 (of 69 unemployed), 192 incumbent workers retained employment of 192 trained

Participants employed to date: 33 newly employed workers. 385 incumbent workers have retained employment.

Training credentials: Lean Ecology and Sustainable Manufacturing; Enhanced Lean Enterprise Certificate; Process Manufacturing and Sustainability Certificate; Project Management; ISO Certification.

- **The Workforce Development Council of Seattle-King County** received a \$3.6 million Recovery Act Pathways Out of Poverty grant for the [GreenLight Project](#). Pathways out of Poverty grants integrate training and supportive services into cohesive programs that help targeted populations move out of poverty into economic self-sufficiency through employment in energy efficiency and renewable energy industries. The King County project trained low-income and unemployed individuals for jobs in deconstruction and materials use, green construction, and sustainable manufacturing. It brought together local government,, labor organizations, grassroots and community development partners, education and training institutions, and the Workforce Development Council of Seattle-King County. A Green Light Project highlight brief is in the Appendix.

Grant start/end date: 2/2010 – 3/2012

Proposed/expected participants served: 450

Participants served to date: 491

Proposed/expected participants employed: 365

Participants employed to date: 256

Training credentials: OSHA 10 Safety; CPR/First Aid; Hazardous Communications and Falling Safely; Deconstruction and Materials Reuse; Forklift Operator; Asbestos Worker; Lead-Safe Practices; Flagging; Lift Awareness; Portable Fire Extinguisher; Six Sigma Yellow Belt; Hazardous Waste Operations and Emergency Response Awareness; Lead Safe Weatherization Worker; Lead Renovation, Repair and Painting (Lead RRP).

- **The Workforce Training and Education Coordinating Board** received a \$5.9 million [Energy Sector Partnership Grant](#) from the Department of Labor to provide training for targeted populations in high demand, professional-technical occupations needed for energy efficiency in commercial and public buildings. This training targets dislocated construction workers, incumbent workers who want to update their skills to include energy efficient construction, at-risk youth, low-income adults, people with disabilities, and veterans. The program recruits with news releases, electronic flyers to WorkSource users, and informational sessions at WorkSource centers. Staff also watches labor market data and talks to local employers to predict where jobs will be available. See *summary in the Appendix*.

Grant start/end date: 1/2010 – 1/2013 (extension request through 6/2013 in process)

Proposed/expected participants served: 3,612

Participants served to date: 1,676

Proposed/expected participants employed: 2,271

Participants employed to date: 854 (includes 375 newly employed workers and 479 incumbent workers retained)

Training credentials include: Building Operator; Commercial Building Engineer; Energy Efficiency Technician; Lighting Design; Pervious Concrete Installer; Photovoltaic System Installation Energy Management; and Commercial and Residential Energy Auditing.

- **The Employment Security Department** received \$1 million for [Washington State Labor Market Information Improvement](#) to create a set of tools and reports that assist job seekers and professionals working to transition people into jobs in green sectors. Project deliverables include an enhanced green occupational profile and comparison reports, integrated data services to exchange information with other state systems, enhanced and integrated workforce and economic monitoring and analytical tools, a green flag indicating green jobs on all occupational data tools, and an online training resource to promote the understanding of workforce and economic concepts and the green economy. These tools have been completed, and integrated into a [new labor market information website](#) which underwent extensive usability testing under the auspices of this grant. The Employment Security Department met all the deliverables and expectations of the grant.

- **Apprenticeship and Non-Traditional Employment for Women (ANEW)** received \$60,000 of a \$100,000 *Green Jobs* - Green Capacity Building Grant awarded to ANEW and its sister program, Oregon Tradeswomen, Incorporated (OTI). This grant assisted these non-profits in enhancing green curricula and developing innovative training tools; specifically, ANEW updated and integrated OTI green curriculum with its current green courses; it developed a Military Occupation Crosswalk with Helmets to Hardhats input; it launched the "Recruitment & Retention of Women in Washington's Apprenticeships" technical assistance workshop with some Green Capacity support; and it developed its anewaop.org website and corresponding *Green Jobs* web page. These materials helped ANEW strengthen the resources it provides to its Registered Apprenticeship Partners and improved recruitment, assessment and retention efforts for female talent.

Grant start/end date: 12/2009 – 5/2011

Proposed/expected participants served: N/A This was a capacity building grant

Participants served to date: N/A

Proposed/expected participants employed: N/A

Participants employed to date: N/A

Training credentials: Industrial Safety; OSHA training; Forklift Certification; Washington State Flagger Control certification; LNI safety courses; First-Aid/CPR; and *Introduction to Green Jobs*.

Department of Energy Competitive Smart Grid Grants

Grant Recipient	Grant Award	Grant Start/End Date	Project Description	Proposed Participants Served	Participants Served to Date*	Proposed Participants Employed by 7/13	Participants Employed to Date
University of Washington and Washington State University	\$2.5 million	8/2010 – 7/2013	Strengthen B.S., M.S. and Ph.D degrees specializing in power engineering, create undergraduate and graduate programs in clean energy smart grid engineering	450	350	450**	350**
Incremental Systems Corporation	\$3.6 million	7/2010 – 6/2013	Develop real-time training simulations for smart grid operators so that operators, engineers, and students can learn to prevent major power system events	120	135	120	30
The Pacific NW Center of Excellence for Clean Energy	\$4.9 million	8/2010 – 7/2013	Deliver flexible, customized, and accessible training to potential and current employees, including underserved populations	1,215	2,815	234	127

*Participants served to date includes participants who are still in training and therefore not yet looking for work.

** The WSU & UW project was intended to be a training project for individuals already employed in the electric power industry.

- **Washington State University** and the **University of Washington** received \$2.5 million in Recovery Act Smart Grid funding to develop the Northwest Workforce Training Center in Electric Power Engineering. The center strengthens B.S., M.S. and Ph.D degrees specializing in power engineering and creating undergraduate and graduate programs in clean energy smart grid engineering. Partners include a national laboratory, utilities, business, industry and the Bonneville Power Administration. A grant summary is in the Appendix.

Grant start/end date: 8/2010 – 7/2013

Proposed/expected participants served: 450

Participants served to date: 350

Proposed/expected participants employed: 450

Participants employed to date: 350

Training credentials: Clean energy smart grid engineering

- **Incremental Systems Corporation** received \$3.6 million in Recovery Act funding. Located in Issaquah, the company has developed massive real-time simulations for training smart grid operators. *Power4Vets™: Retraining Veterans for Smart Grid Operations*. Real-time simulations have been updated with specific and realistic models of the nine North American Electric Reliability Corporation's regions so that system operators, engineers, and students can experience and learn to prevent major power system events. As a demonstration, the simulations are being used to train and certify 120 military veterans as North American Electric Reliability Corporation's system operators and place them in energy industry jobs. *More grant information is included in the Appendix.*

Grant start/end date: 7/2010 – 6/2013

Proposed/expected participants served: 120

Participants served to date: 135

Proposed/expected participants employed: 120

Participants employed to date: 30

Training credentials: North American Electric Reliability Corporation System Operator Certification

The Pacific Northwest Center of Excellence for Clean Energy (PNCECE), "A Centralia College Partnership" headquartered in Centralia received a \$5 million grant, leveraged to \$12 million awarded in 2010 by the U.S. Department of Energy. PNCECE leads a consortium of industry, labor and education partners working to build and sustain Washington's competitive advantage through statewide and regional leadership. The consortium includes: consumer-owned and investor-owned utilities; a federal power-marketing administration (the Bonneville Power Administration); organized labor; a national laboratory (Pacific Northwest National Laboratory); numerous community colleges and universities, workforce and economic development councils located in the Pacific Northwest region represented by Washington, Oregon, Idaho, Montana and Utah. Project research has resulted in an [interactive Career Lattice](#) depicting the relationship among and between key energy careers accompanied by narrative descriptions and overviews of the supply and demand side occupations. Research revealed that jobs are distinct, jobs are changing, occupations vary among employers, and Smart Grid will require more IT, Data Management & Analysis, and Communication Skills. *More grant information is included in the Appendix.*

Grant start/end date: 8/2010 – 7/2013

Proposed/expected participants served: 1,215

Participants served to date: 2815 (291 completed pre-apprenticeships and were eligible for hire)

Proposed/expected participants employed: 234

Participants employed to date: 127

Formula Federal Recovery Act Funds in Washington

Washington also qualified for green job and green economic development Recovery Act funds through formula grants. Washington's performance in some formula programs, like the Weatherization Assistance Program, qualified the state for additional performance-based funds.

- **Washington's Low-Income Weatherization Assistance Program** received \$59.5 million through the Recovery Act and administered by DOE. A \$10.4 million portion of that funding was targeted to support weatherization-related Training and Technical Assistance activities. Washington's weatherization program incorporated the following fields: energy and resource conservation; energy efficiency improvements; weatherization-related repairs; indoor air quality improvements; health and safety improvements; and client conservation education. During the Recovery Act period, weatherization service providers logged more than 48,000 hours of training in these job categories. More than 13,400 low-income households were weatherized with Recovery Act funding, nearly twice the goal set in Washington's Recovery Act plan. Commerce moved nearly \$2 million from training to weatherization services to serve more families and to retain jobs longer. Recovery Act funding created or retained 180 full-time jobs and supported an additional 320 temporary jobs.

In August 2010, Commerce awarded \$7 million in additional DOE Recovery Act funds to complement and expand the existing Weatherization Assistance Program. States with high performing weatherization programs qualified to compete for this additional Sustainable Energy Resources for Consumers (SERC) funding. Commerce administered the SERC awards through 11 local weatherization contractors. The contractors installed renewable energy systems and cutting-edge energy efficiency technologies in homes to help families save more on their energy bills. Examples of sustainable energy systems that qualified for the SERC funds include solar heating systems, solar photovoltaic panels, insulation technologies, high-efficiency appliances, tankless hot water systems, high-efficiency combination boilers for hot water and heat, and ductless heat pump systems.

Washington was consistently among the top 12 Recovery Act Weatherization producers in the nation, according to the U.S. Department of Energy (DOE), which recognized the state as "exceeding production expectations." Washington spent all Recovery Act funds for weatherization services by January 2012, three months ahead of DOE's deadline.

- **The State Energy Office** within Commerce received \$60.9 million in Recovery Act State Energy Program (SEP) formula funding. This funds a variety of innovative programs and projects including \$38.5 million in a grant and loan program and \$14.5 million to support the Community Energy Efficiency Pilot program.

As of March 2012, 1,200 jobs have been created or retained through Recovery Act programs administered by the State Energy Office, nearly 1,000 of which were generated by the SEP program. The SEP Grant and Loan Program awards are funding 35 energy efficiency, renewable and clean technology projects. Examples include:

The **grant and loan program** issued awards to 35 energy efficiency, renewable and clean technology projects. Private businesses received over 85 percent of this funding. Examples of projects include:

- **The Center for Advanced Manufacturing Puget Sound** received \$1 million in SEP funds to assist Washington manufacturing businesses in developing and marketing their energy related products.
 - **Kadlec Regional Medical Center** is using SEP funding to improve the energy efficiency of their building as well as add small scale wind and solar projects.
 - **Borgford Bioenergy** in Stevens County has purchased a closed mill and installed a combined heat and power system with SEP and other federal funds and as a result has employed 75 people.
- The **Community Energy Efficiency Pilot** program offers a neighborhood-level approach to residential and small commercial energy efficiency retrofits. The \$14.5 million funds eight public and private projects statewide. As of March 2012, program highlights include:
- 12,974 residential retrofits representing 15,607,690 sq ft
 - 241 commercial retrofits representing 2,390,815 square feet.

State-Funded Projects

- **Washington Public School Energy Efficiency** - Washington's 2010 Supplemental Capital Budget included an appropriation of \$100 million for energy cost savings grants for K-12 public schools and higher education facilities. Commerce coordinated \$50 million of the competitive Jobs Act for Public K-12 and Higher Education grants. The Superintendent of Public Instruction awarded an additional \$50 million for performance-based contracts to deliver operational cost savings at school facilities. The immediate goal of the funds was to create family-wage jobs; the long-term goal was to reduce the energy costs at state education facilities. The Jobs Act funds have enhanced Washington's learning and teaching environments and created more than 940 family-wage jobs and 71 apprenticeships.

Commerce's grants final leverage ratio was 1.74 to 1. The project's total construction costs was \$116 million. The Jobs Act awarded grants of up to \$5 million. At least 5 percent of each grant-round award went to small public school districts with fewer than 1,000 full-time equivalent students. Commerce executed 77 contracts totaling \$42,561,459. As an added value, these projects generated over \$8 million in sales tax revenues. The Jobs Act for Public K-12 and Higher Education successfully mobilized and enhanced local assets that strengthen community ability to meet the economic and social needs of families, workers, and employers.

- **2012 Energy Efficiency Grants for Higher Education and Local Governments** - Engrossed Senate Bill 5127 as passed by the 2012 Legislature includes an appropriation for \$38 million to the Washington State Department of Commerce for energy cost savings. Section 301 appropriates \$18 million to local governments (at least 10 percent set aside for small cities or towns, population of 5,000 or less). Section 307 appropriates \$20 million to higher education. The grants will be awarded through a competitive process, and may be used solely for energy and operational cost savings improvements. Related projects necessary to implement energy efficiency improvements may also be considered for funding. The immediate goal of the program is to stimulate

Washington's economy by creating jobs. The long-term goal is to reduce energy costs at the state's public education facilities and local agencies. Grants will be awarded in two rounds: Round One applications are due July 2, 2012; Round Two applications are due December 31, 2012.

- **State-Funded Energy Operational Cost Savings Projects for K-12 Schools** - Washington's 2011-2013 Capital Budget appropriated \$20 million in grant funding to the Office of Superintendent of Public Instruction solely for energy operational cost savings improvements to K-12 school facilities. An additional \$40 million was appropriated in the 2012 Jobs Now Act. The immediate goals of the funds are to stimulate building construction-industry jobs and reduce the energy-use costs of schools. Long-term economic, environmental and social benefits include much needed improvements to the indoor environmental qualities of the school buildings, i.e., comfort and air quality; reductions in CO₂ emissions; and increased life of the buildings systems.

A maximum award of \$1 million was competitively awarded to school districts to make energy-related infrastructure and building system improvements. Seventy school districts applied for grant funding in March, 2012: 50 school districts were awarded \$25.7 million in grants.

Approximately 34 percent of the awards were to schools with an enrollment of less than 1,000 students. Grants were fairly evenly dispersed throughout the southwest, the northwest and the eastern regions of the state.

To qualify for the funds, school districts conducted preliminary and investment-grade audits of their facilities identifying energy and water conservation measures ranging from lighting updates to heating and cooling system replacements. The grant funding, leveraged with utility-provider incentives, annual energy savings and local district funds, will result in over \$52 million in building improvements, supporting 534 building industry jobs. Projects began in June, 2012 with completion dates averaging December 2012.

Over 75 percent of the districts awarded grants in 2012 had not received earlier energy grant funding. Since the energy grant program began, in 2009 OSPI has awarded over \$90 million in energy grant funding to 129 unique K-12 school districts across the state.

Evergreen Jobs Leadership Team Recommendations

As the green economy continues to emerge and grow, our state's policymakers can continue to foster it through investments, policy emphasis and guidance. The Evergreen Jobs Leadership Team recommends the following:

I. Washington must pursue policies that support green jobs across a wide range of industries as the economy is "greening" broadly.

There are few exclusively green industries that boast significant new job creation, especially in this recession. Rather, many industries that are not traditionally thought of as green are "greening up," creating new job pathways and investment opportunities. Washington must be smarter about predicting where future green jobs will be. Rather than focus only on traditional notions of green industries, e.g., wind turbines, Washington should look to competitive, promising industries that are growing rapidly. Aerospace, for example, is an industry not

commonly thought of as a green industry, but is nonetheless greening to meet consumer demand for energy efficiency (the Boeing 787 is 20 percent more fuel-efficient than its competitor) and green manufacturing processes.

II. Scale up the green economy by using the public sector as a source of demand for cost-effective, environmentally-friendly goods and services.

Washingtonians fuel a large demand for green products and processes compared to other states. Also, Washington's state government has been a leader nationally in recognizing and fostering its green economy. The state should explore other ways of incenting and taking advantage of demand for green goods and services such as cost-effective energy retrofits and acquisition of low-carbon fleet vehicles. As a green promoter and policy maker, the state can commit to enduring incentives that support the green economy. As a customer, the state can support green products and processes.

III. Support Innovate Washington as it implements the Clean Energy Leadership Council's recommendations to grow globally competitive, export-oriented clean energy companies.

The Legislature in 2011 formed Innovate Washington as a statewide non-profit and tasked the new organization with implementing the 2010 recommendations of the Clean Energy Leadership Council. That group had identified three clean-tech industries as particularly ripe for long-term job growth in the state:

- a) Integrating energy efficiency and renewable energy in buildings.
- b) Integrating renewable energy into the regional electrical grid.
- c) Advancing bioenergy in the state.

Innovate Washington has had early success in attracting outside funding to support their efforts on these three goals with the award in the summer of 2011 with a so-called "i6" grant from the U.S. Economic Development Administration for the Washington Clean Energy Partnership. Project activities include development of resources for testing energy-efficiency solutions, establishment of a public-private partnership focused on the clean energy industry, and facilitation of high performance building products and services testing to enable their commercialization. As allocated through the 2011 Capital Budget, the Department of Commerce is providing \$5.5 million in matching funds to the Clean Energy Partnership for this effort.

IV. Implement the State Energy Strategy's recommendations in three areas of emphasis.

The Legislature tasked the Department of Commerce with updating the State's Energy Strategy, also delivered in December 2011. That document provides a broad policy framework for meeting three goals of competitive energy prices, job growth, and meeting greenhouse gas reduction targets. The strategy identified the following areas for particular attention:

- a) **Transportation**—Transportation is the state's largest energy use sector, and the least-efficient sector. Beginning with the first Washington State Energy Strategy in 1993, state policy

makers have recognized the key role of transportation in energy planning, and the current energy strategy expands upon that emphasis.

b) **Building retrofits**—The buildings component of the energy strategy starts with a strong foundation – three decades of effort to improve how efficiently energy is used to heat, cool, illuminate, and power homes, and businesses. In addition to saving energy, making buildings more energy efficient is an effective job-creation strategy. Energy retrofit work promises to help restore employment in the construction industry, where employment is down by one third since the beginning of the recession in 2007.

c) **Distributed energy**—The third component of the 2011 State Energy Strategy focuses on energy supply—specifically the potential to increase the amount of local district heating and cooling and energy produced using smaller, alternative, and renewable resources such as solar, wind, manure, or waste industrial heat. These locally-generated and circulated energy systems are collectively referred to as distributed energy. Distributed energy resources align with the goals to increase jobs in new clean energy industries and to reduce negative climate impacts by displacing fossil fuels. Realizing this potential will require improving the ability to cost-effectively integrate alternative resources into the state’s overall energy supply system.

e) **Support state and federal efforts to put a price on carbon**—Reducing carbon emissions is an integral goal of the State Energy Strategy and cuts across all three of the areas listed above. Carbon pricing helps reduce carbon emissions, stimulates the energy market to make clean energy more viable and affordable, and supports the creation of clean energy jobs. Washington should continue exploring carbon pricing options.

V. Continue to prepare Washington’s workforce for the green economy.

In concert with boosting green job opportunities, Washington must continue to take steps to supply the skilled workforce needed to fill those jobs. The state must continue to build the K-12 and beyond pipeline by developing and implementing programs of study in STEM with curricula that prepare students for the green economy. This includes Career and Technical Education programs and pre-apprenticeships that apply STEM knowledge.

- Increase the number of school districts providing a Career and Technical Education exploratory course in green design and technology.
- Create and offer Programs of Study that provide sequences of green technology and related courses that articulate from secondary to postsecondary.
- Identify energy sector foundation skill standards and incorporate the standards into appropriate curriculum at skill centers, comprehensive high schools, and colleges.
- Expand apprenticeship preparation opportunities for youth including green economy pre-apprenticeships for the building trades and clean energy occupations.

Programs of Study are not limited to K-12 but include postsecondary programs. These programs should include industry-based endorsements and certifications that demonstrate graduates have mastered industry-defined skill standards, including green economy competencies such as sustainable business practices, and lean production methods and

standards. Postsecondary institutions must also have the capacity to supply the numbers of completers that match employer demand for workers with the required skill sets.

- Identify the postsecondary offerings that are part of Programs of Study to prepare Washingtonians for careers in the state’s green economy .
- Support skills certification laddering for trades employees and expand the number and use of portable skills certifications linked to industry skill standards.
- Maintain and consider increasing the capacity of the community and technical colleges, and four-year colleges and universities to deliver training for occupations related to renewable energy, energy efficiency, and pollution prevention and mitigation.
- Create additional regional skill panels--partnerships of business, labor, Workforce Development Councils, and education and training providers—to assess regional employers’ needs for new and enhanced skills and to develop and implement plans to meet the needs.
- Postsecondary education includes apprenticeships and training for journey level workers that equips them with the latest skills needed to keep pace with changes in technology, product development and business practices Other incumbent and dislocated workers need access to continuing education that updates their skills; the workplace competencies, practices and skill requirements for many occupations will need to adapt to future changes in Washington’s green economy. Continue and consider increasing investments in Joint Apprenticeship Training Committees’ skill enhancement initiatives for registered apprentices and journey workers in building and construction trades.
- Maintain and consider increased funding for the Job Skills Program in order to provide customized training for employers who want to develop the skills in their workforce needed to compete successfully in the green economy.

Appendix

Features and Highlights of Recovery Act

U.S. Department of Labor and Department of Energy Projects

Featured Projects:

- Northwest Energy Efficiency Council, Sound Energy Efficiency Development (SEED) Project
- Workforce Development Council Seattle-King County, GreenLight Project
- Washington Workforce Training and Education Coordinating Board, State Energy Sector Partnership Grant
- WSU and UW, Workforce Training In Clean Energy Smart Grid Engineering
- Incremental Systems Corporation, Power4Vets™
- Pacific Northwest Center Of Excellence For Clean Energy, "A Centralia College Partnership"

Northwest Energy Efficiency Council, Sound Energy Efficiency Development (SEED)

Overview: This grant established a five-county network of training providers and workforce centers to meet the deliverables of the grant. The grant had a strong response to training (93 percent of credentialing goal) but the placement rate was 61 percent of the placement goal due to economic conditions. The grant helped participants gain employment with job fairs, employer networking events, employer panels and one-on-one job search guidance.

Participant Success Story: Bill came into the SEED program and did not want to ask for help. He grew up in a low income home but as he got older he opened his own business as a contractor/designer for new homes and became a self-made millionaire. When the housing market crashed so did his business. A single dad with no income, he and his daughter were staying from house to house. After training through SEED, he was hired by Matthews Construction doing Weatherization for the re-power Bainbridge Grant with a starting pay of \$20 an hour.

Workforce Development Council Seattle-King County, GreenLight Project

Status Update for Pathways out of Poverty Grant, Jan. 29, 2010 – March 31, 2012, 2012 (end of grant)

Overview: The implementation of the Pathways out of Poverty grant focused on residents of specific areas of Seattle and connected disadvantaged individuals with training and certifications in green construction, deconstruction, manufacturing and weatherization, and ultimately to green sector jobs. The project included 12 partners representing community-based organizations, training providers, case management agencies, and labor and employer outreach agencies.

Successes: The WDC partnered with South Seattle Community College (SSCC), the union instructors, the Manufacturing Industrial Council (MIC), and the Aerospace Joint Apprenticeship Committee (the training program content developer) to implement SODO, Inc – a program viewed as a best practice by the DOL. Both the SODO, Inc. program through King County Work Training Program (ages 18 through 24) and a Green Manufacturing program for adults are taught at SSCC. The MIC provides employer outreach and identifies post-training internships for the program graduates.

Asian Counseling Referral Service (ACRS), one of the WDC partners, was approved by the DOL as an additional training provider. ACRS delivered four two-week courses on Green Building Maintenance. The training program included an overview of “green” cleaning, basic math and ESL for maintenance jobs, mechanical and structural repairs, and the safe use of hand tools. Participants received certifications in OSHA 10 Safety, CPR/First Aid, Hazardous Communications and falling safely.

Grant Metrics: The grant ended on March 31, 2012 and achieved the following metrics: 491 participants served, 442 completing education and job training activities, and 256 entering employment.

Washington Workforce Training and Education Coordinating Board, State Energy Sector Partnership Grant

Funding: \$5.9 million from the U.S. Department of Labor.

Grant Period: January 29, 2010 – January 28, 2013 (extension request through 6/2013 in process)

Areas Served: Spokane, King and Snohomish counties, as well as statewide access through building and construction trades organizations (Joint Apprenticeship Training Committees).

Learning Goals:

- To examine and define “green jobs” in the building and construction industry.
- To test a state-wide coordinated approach to providing energy efficiency training through building and construction trades’ Joint Apprenticeship Training Committees (JATCs).

Synopsis of Activities: The Workforce Training and Education Coordinating Board funds three regional Workforce Development Councils (WDCs) to provide energy efficiency training for construction and manufacturing industry incumbent workers, dislocated workers, unemployed individuals, and people needing training to become economically self-sufficient. These WDCs (Spokane Area, Snohomish, Seattle-King) each contract with Build It Smart, a labor-management, nonprofit organization, to facilitate training of building and construction trades journey-level workers and apprentices for in-demand green and energy efficiency skills. Build It Smart is also working with the state’s Helmets to Hardhats program to ensure apprenticeship placements for veterans transitioning out of military service. The participating WDCs also contract with the state’s community and technical colleges, and other training organizations, to offer energy efficiency training courses.

PROJECTED TRAINING AND PLACEMENT OUTCOMES:

PARTICIPANTS SERVED			
WDC of Snohomish County	WDC of Seattle-King County	Spokane Area WDC	Statewide Build It Smart Project
284	270	256	2,802
Total of all participants served: 3,612			
2,271 are projected to be placed in/retain employment after training			

SAMPLE OF TRAINING AND CREDENTIALS OFFERED:

- American Clay
- Building Operator
- Commercial Building Engineer
- Concrete Polishing
- Controls: Basics of Building Automation
- Duct Testing Certification
- Energy Auditing – Residential and Commercial
- Energy Systems for Sustainable Works
- EPA and LIUNA Lead Renovator
- Floor Polishing Technician
- Green Construction for Ironworkers
- Healthy Homes Training for Building Professionals
- International Masonry Institute Green Craft Training
- High Performance Building
- Pervious Concrete
- Submerged Arc Welding

WSU and UW, Workforce Training In Clean Energy Smart Grid Engineering

The creation of the Northwest Workforce Training Center for Electric Power Engineering will provide a comprehensive training program in electric power engineering that covers the breadth of the subject matter including the emerging technologies in renewable generation and smart grid. It also addresses the depth of the subject matter by training engineers from the undergraduate level to the doctoral level covering the workforce needs of electric utilities, technology vendors to the power industry, research laboratories and universities.

The training program is managed by Washington State and University of Washington in collaboration with Pacific Northwest National Labs, Incremental Systems, Inc., Areva T&D, Bonneville Power Administration, Avista Utilities, Puget Sound Energy, Tacoma Power, Snohomish PUD, Schweitzer Engineering Laboratories and Northwest Public Power Association. Three courses were introduced fall of 2011 and 180 students registered for Power Engineering Fundamentals, Power Electronics for the Smart Grid and Cleaning Traditional Energy Systems. Another 165 students enrolled spring of 2012.

The purpose is not only to strengthen the BS, MS and PhD degrees specializing in power engineering but also to provide (a) an undergraduate certificate, (b) four graduate level certificates, and (c) a Professional MS, all in the area of clean energy smart grid engineering. The courseware will all be available in computerized asynchronous formats to enable people in industry to acquire this training.

Incremental Systems Corporation, Power4Vets™ Retraining Veterans for Smart Grid Operations

Incremental Systems Corporation and its partners are *retraining veterans for smart grid operations* by providing training with real-time simulations that enable students to learn how to prevent major power system events. The goal of the Power4Vets™ program is to match the human talent needs of America's electric power organizations with the talent, experience, knowledge and skills available in United States Military Veterans. The Power4Vets™ students are trained with the PowerSimulator™ that can run massive drills with hundreds of operators using web-enabled simulations of complete interconnections. These simulations are being extended to include smart grid technologies such as wind farms, solar farms, demand side management, smart micro-grids, plug-in hybrid electric vehicles and models for cascading outages. This training enables veterans to become NERC certified, working as real-time system operators.

To date, 19 Power4Vets students have received their NERC certification; 95% of the candidates that took the NERC test have passed. The Power4Vets™ program is currently training more than 300 students. To date, 135 veterans have completed the introductory simulation course and 52 veterans have completed the intermediate-level course. Thirty Power4Vets™ program graduates have been hired or promoted in companies that include: Avista, Bonneville Power Administration, Puget Sound Energy, Los Angeles Department of Water and Power, EDP Texas, Indianapolis Power and Light, Lower Colorado River Authority, Sharyland Utilities, Public Service Company of New Hampshire, Lafayette Utilities System, Pend Oreille PUD, Portland General Electric, Alcoa, Xcel Energy, MidAmerican Energy, Wind Energy Transmission Texas and NERC. The placements have been made in positions that have been highly contested with salaries in the range of \$65,000 to

\$100,000. Read more about Incremental Systems' Power4Vets™ program at <http://www.incsys.com/power4vets/index.htm>.

The Pacific Northwest Center Of Excellence For Clean Energy

The Pacific Northwest Center of Excellence for Clean Energy (PNCECE) is a Centralia College Partnership that includes: consumer-owned and investor-owned utilities; a federal power-marketing administration (the Bonneville Power Administration); organized labor; a national laboratory (Pacific Northwest National Laboratory); and numerous community colleges and universities located in the Pacific Northwest region represented by Washington, Oregon, Idaho, Montana and Utah. Together, this industry and educational partnership provides comprehensive degree and certificate programs through a combination of classroom, online, and interactive television (ITV) broadcast. The Washington State Center of Excellence model is being replicated to serve the five partner states in the Pacific Northwest and establish energy training satellites to identify Smart Grid training needs across select supply and demand-side energy occupations.

Training is being designed to improve internal job progression in utilities and to create a centralized training and recruiting portal. The Northwest Energy Efficiency Taskforce consists of a regional executive committee of 28 senior-level representatives from utilities, state government, electric customers, public interest advocates, energy efficiency companies and energy industry specialists.

Smart Grid Project Design and Objectives - Acceleration of grid modernization in the Pacific Northwest region has implications for both supply side and demand side functions of the energy industry. Three major Objectives have shaped the Pacific Northwest Smart Grid Workforce Development project:

- Objective 1: Design and deliver smart grid training
- Objective 2: Create a smart grid training web-based portal
- Objective 3: Share Best Practices on smart grid training

Training is categorized into four areas. 1) Pre-Apprenticeship, 2) Apprenticeship, 3) Train the Trainer, 4) Incumbent Worker/Professional Development. Recruitment is focused on Veterans, Dislocated Workers, Incumbent Workers and Underemployed individuals. The project also has a youth outreach component to raise awareness of “smart jobs” in the clean energy industry to ensure a pipeline of future workers.

Curriculum focuses on aligning Smart Grid technology deployment and associated safety and hazard prevention with established regional skill-standards.

Occupations targeted by the project are:

Supply Side Occupations	Demand Side Occupations
Instrument Control/Relay Specialist (Generation and Load Dispatchers)	Customer Service Reps
Operators - Sub Station; Power Plant; and System Operators	Meter Technicians
Line Worker (Apprenticeship Preparation, Apprenticeship, and Incumbent Workers)	Energy Advisors
Substation Wireman/Mechanics (Apprenticeship Preparation, Apprenticeship, and Incumbent Workers)	Energy Conservation Program Administrators
Ground Crews (utility construction worker)	Resource Conservation Managers

A prototype matrix of reusable learning modules has been developed. Avista Utilities will lead module development for the five Supply Side Occupations. Cascadia Community College will lead module development for Resource Conservation Manager; Energy Advisor/Auditor; and Energy Conservation Program Administrator. Customer Service Representative and Meter Technician learning modules are being led by Centralia City Light.

Training Credentials

This industry and educational partnership provides comprehensive degree and certificate programs through a combination of classroom, online, and interactive television (ITV) broadcast. For example, Centralia College’s Associate in Applied Science - Energy Technology Power Operations program continues to be noted as an exemplary model placing students into high-skill, high-wage power generation and transmission jobs with companies such as Bonneville Power Administration, Tacoma Power, Puget Sound Energy, Seattle City Light and others across the region.

Centralia delivers the Energy Technology AAS degree program across Washington via interactive television from Centralia College to Grays Harbor College, Wenatchee Valley College and the Community Colleges of Spokane/Institute of Extended Learning Lone, WA Campus.

PNCECE works closely with Avista Utilities and Spokane Community College to educate and place comprehensively trained students in energy distribution jobs. At its 15+ acre Jack Stewart Training Center in Spokane, WA, Avista conducts a four-month Pre-apprentice line school that includes crane operation, First Aid and CPR, CDL, forklift, flagging and OSHA 10 certification. Avista trains two cohorts of 45 students per year through a partnership with Spokane Community College (SCC). SCC awards 49 college credits for completion of the course and issues the Certificate of Completion. Avista boasts a 70 to 80 percent placement rate into utility related positions across the western United States.

Training Targets

The project has exceeded the target of **1,215** individuals slated for training under the grant. In the first year of the project, through March 31, 2012, **2,814** individuals have received Smart Grid related training. This includes pre-apprenticeship, apprenticeship and incumbent worker courses, as well as, High School students participating in hands-on learning sessions in the ZagOps power grid simulator lab at Gonzaga University in Spokane and high school STEM teachers receiving in-service training through ZagOps.

Career Lattice

Washington State University Extension Energy Program has completed the initial research to create a an [interactive Career Lattice](#) intended to provide a roadmap for colleges that are designing programs in the energy field, for employers in the energy field to create training for incumbent workers, and for individual job seekers who are making plans to enter a career in energy. The Career Lattice is:

- A framework for depicting relationships between and among jobs.
- More complex than career ladder; includes a variety of entry and exit points, and lateral moves.
- Includes information about training, certificates and job requirements.
- Educators use lattice to identify career structures, training gaps and develop or improve programs.
- Industry uses lattice to clarify career paths with new and incumbent workers, and to design internal training.
- Workers and students can use a career lattice to navigate career options, training programs, and develop new skills.

PNCECE Web Portal

The [PNCECE website](#) and training portal has been populated with research, skill standards, and career information, including the Career Lattice to attract job seekers, educators/trainer, apprentices, and pre-apprentices.