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Workforce Training and
Education Coordinating Board

Evergreen Jobs Initiative: Recovery Act Funds in Washington

.....
Second Annual Report on Performance and Outcomes (RCW 43.330.375)

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The Evergreen Jobs Initiative

Washington has a successful track record of securing and deploying American Recovery and Reinvestment Act (Recovery Act) funds for job creation and training in renewable energy and energy efficiency sectors, yet our state will need to pursue additional strategies before it experiences the type of job growth hoped for from the green economy.

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 Recovery Act funds, and has drawn lessons from these investments that can enhance the state's green strategy going forward.

The Evergreen 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.

While these investments have resulted in nearly 2,000 jobs retained or created through Recovery Act competitive grants and formula funds, the 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, we must continue to take steps to supply the skilled workforce needed to fill those jobs. We must continue to build the K-12 and beyond pipeline by developing and implementing programs of study in STEM (science, technology, engineering and math) with curricula that prepare students for the green economy. This includes Career and Technical Education (CTE) programs and pre-apprenticeships that apply STEM knowledge.

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 second annual report prepared by the Leadership Team provides performance results and recommendations to the Governor and Legislature as directed by statute (RCW 43.330.375). 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 at the forefront nationally in defining green jobs to calculate and analyze the green economy. In 2008, the state 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 in the reports by the state's Employment Security Department on Green Economy Jobs, which presented the state's 2009 Green Jobs Survey. The survey included public and private-sector green employers, and confirmed that our economy is greening rather than developing separately as specific green industries. For example, there are far more green jobs emerging in construction and in traditional manufacturing industries than there are in the fields of wind or solar power production. The survey revealed 99,319 green jobs throughout the state in 2009 -- 76,137 private sector jobs and 23,182 public-sector jobs. The next green jobs survey is scheduled for publication in March of 2012.

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](#), which will establish a national definition for green jobs. The BLS green jobs initiative will:

- (1) Establish a national number of green jobs and trends for those jobs.
- (2) Outline the industrial, occupational, and geographic distribution of the jobs.
- (3) Determine the wages of the workers in these jobs.

BLS data collection for two national green jobs surveys is currently in progress. One will detail jobs associated with green products and services, and the other will gather information on jobs connected to green technologies and processes. BLS is planning to publish state-level green jobs estimates. Once BLS has established a standard national green jobs definition, survey methodology, and definition, the Washington Employment Security Department and the Evergreen Jobs Leadership Team will adopt that definition and utilize the BLS data to the extent possible. This approach has the advantage of providing

a common measure for green jobs across the nation and for all the states which will allow specific state-to-state comparisons for the first time. Additionally, this approach is expected to reduce the data collection burden of state green jobs efforts as states build on the BLS data collection approaches.

The Brookings Institution released a [Green Jobs Assessment](#) in July of this year, 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 level to be at 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 are concentrated in 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.

- Over \$27 million in Recovery Act U.S. Department of Labor (DOL) and Department of Energy (DOE) green job training competitive grants – 54 percent of the total requested and more than Washington's "per capita" share of federal stimulus funds focused on green jobs creation.
 - Between December 2009 and July 2013, Recovery Act green jobs training and placement will serve 8,935 Washingtonians.
 - 5,052 Washingtonians are currently in training or have been trained through Recovery Act green jobs competitive grants.
 - 953 Washingtonians have retained employment or found new employment due to green jobs training funded by competitive grants.
- Nearly \$67 million in DOE-administered Recovery Act formula funds for Low-Income Weatherization projects. Of those funds, \$10.4 million will go towards weatherization-related training and technical assistance activities.
 - Over 11,500 low-income households weatherized – more than 4,000 over original target.
 - Created or retained an average of 150 Full-Time Equivalent positions per quarter.
- Another \$60 million of federal formula funds plus additional leveraged funds to accelerate job creation and retention in green sectors.
 - Created more than 700 jobs. Indirect jobs are not tracked.

Competitive Federal Recovery Act Funds in Washington

Washington received approximately \$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 U.S. DOL and DOE are the federal administrative agencies for the state's competitive grant Recovery Act funds.

For 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 DOL funding through seven competitive grants and DOE funding through three competitive grants. In the 2010 Leadership Team legislative report, most grant recipients had just begun their programs and services with recruitment and implementation strategies. At this point, most recipients continue to implement their programs, and are seeing sizeable completion rates among trainees and some placements. 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 2011.

Washington's Competitive Green Job Grants: Funds Requested, Awarded, and Preliminary Results, Summer 2011

Federal Agency	Total State Recovery Act Applications	Total State Recovery Act Awards	Total Expected Participants Served by 7/13	Participants Served to Date	Proposed Participants Employed by 7/13	Participants Employed to Date
DOL	\$36,172,494	\$15,989,440	7,145	2,850	6,121	908
DOE	\$14,348,859	\$11,098,859	1,785	2,202	704	45
TOTAL	\$50,521,353	\$27,088,299	8,930	5,052	6,825	953

U.S. Department of Labor Recovery Act Competitive Grants

Applicant	Grant Award	Grant Start/End Date	Project Description	Proposed Served By 7/13	Served to date (9/11)*	Proposed Employed by 7/13**	Employed to Date**
Apprenticeship and Nontraditional Employment for Women	\$60,000	12/09 – 5/11	Train women who are low-income, unemployed, veterans, at-risk youth, or have a criminal record	100	150	n/a; capacity building grant	n/a; capacity building grant
Healthcare Career Advancement Program	\$500,000	1/10 – 1/12	Train emerging green occupations in health care	410	314	410	283
Northwest Energy Efficiency Council	\$3.8 million	2/10 – 1/12	Train and place targeted groups in energy efficiency occupations	750	764	473	117
Oregon Manufacturing Extension Partnership	\$959,000	1/10 – 9/12	Support renewable energy companies and manufacturers by retooling local workforces	261	385	102	22 ¹
Workforce Development Council of Seattle-King County	\$3.6 million	2/10 – 1/12	Train low-income and unemployed in deconstruction and materials use, green construction, and sustainable manufacturing	450	361	365	101
Workforce Training and Education Coordinating Board	\$5.9 million	1/10 – 1/13	Train targeted populations in professional-technical occupations in commercial and public building energy efficiency	5,174	876	4,771	385
Employment Security Department	\$1 million	n/a	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

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

**Participants employed includes both 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.

- **Apprenticeship and Non-Traditional Employment for Women (ANEW)** received \$60,000 (Washington's portion of the \$100,000 total awarded to Oregon and Washington) for [Washington Green Capacity Building](#) to train 100 Washington women who are low-income, unemployed,

¹ These are newly employed workers. The number of incumbent workers who have retained employment is to be determined.

veterans, at-risk youth, or have a criminal record. Green Capacity Building Grants, totaling \$5.8 million nationally, increase the training capacity of 62 current DOL grant recipients through a variety of strategies, and offer training opportunities to help individuals acquire jobs in expanding green industries. These grants help serve underserved communities. ANEW, with registered apprenticeship and veteran organization partners, is expanding pre-apprenticeship training and supportive services. In early 2011, ANEW worked with veteran organizations like the state's Department of Veterans Affairs and Helmets to Hardhats to host a Pathways to Apprenticeship meeting and roll out the Military Operation Crosswalk to help veterans transition to civilian careers. ANEW also developed its own trades rotation program with apprenticeships and certificates upon completion. More information on ANEW's recent activities is on its [webpage](#).

Grant start/end date: 12/09 – 5/11

Proposed/expected participants served: 100

Participants served to date: 150

Proposed/expected participants employed: Not applicable. This is a capacity-building grant.

Participants employed to date: Not applicable. This is a capacity-building grant.

Training credentials: Industrial Safety; OSHA training and safety courses; First-Aid/CPR; and Introduction to Green Jobs.

- **Healthcare Career Advancement Program (H-CAP)** [was awarded \\$500,000](#) to provide training for workers in King County, Washington in emerging green occupations in health care. Nationwide, approximately 3,000 job seekers will receive training through this program. In Washington, the Service Employees International Union Health Care 1199NW division developed a curriculum focused on hospital green practices like waste management, recycling, and worker safety. H-CAP evaluates environmental impact reductions related to energy efficiency and new cleaning methods that will reduce pollution, waste, and water usage.

Grant start/end date: 1/10 – 1/12

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

Participants served to date: 314

Proposed/expected participants employed: 410 (includes 100 newly employed workers and 310 incumbent workers retained)

Participants employed to date: 283 (all are incumbent workers retained)

Training credentials: "Sustainability in Healthcare" is the five-credit Environmental Service certificate program developed for the grant 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 energy auditing, building operator, and OSHA safety. In late 2010, SEED expanded its recruitment efforts to ensure training was available to participants in all five counties served by the grant – King, Snohomish, Pierce, Kitsap, and Clallam. The program also added five training programs for a total of eleven programs, all of which can be viewed on the SEED informational [website](#). A SEED success story is in the Appendix.

Grant start/end date: 2/10 – 1/12

Proposed/expected participants served: 750

Participants served to date: 764

Proposed/expected participants employed: 473

Participants employed to date: 117

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

- **The Oregon Manufacturing Extension Partnership** [was awarded \\$959,000 from the Department of Labor](#) to help build a skilled workforce in southwest Washington and northwest Oregon (\$5 million total awarded to Oregon and Washington). The project, locally named Renew Northwest, supports renewable energy companies and local manufacturers by retooling the local workforce with new skills. A 2010 employer assessment determined additional training and credential needs.

Grant start/end date: 1/10 – 9/12

Proposed/expected participants served: 261

Participants served to date: 385

Proposed/expected participants employed: 102

Participants employed to date: 22 newly employed workers. Incumbent workers who have retained employment are to be determined. (Training evaluation and job retention status is tracked six months after training is completed.)

Training credentials: Lean Ecology and Sustainable Manufacturing; Enhanced Lean Enterprise Certificate; Process Manufacturing and Sustainability Certificate.

- **The Workforce Development Council of Seattle-King County** received a \$3.6 million 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 trains low-income and unemployed individuals for jobs in deconstruction and materials use, green construction, and sustainable manufacturing. It brings together the City of Seattle and the King County Housing Authorities, labor organizations, grassroots and community development partners, education and training institutions, the Workforce Development Council of Seattle-King County, and local lawmakers. The first 14 pre-apprenticeship construction training program students graduated in September 2010, and most are now employed. The project's Introduction to Green Manufacturing program is underway and has a 100 percent retention rate. The Industry Connection staff work with training and case management

agencies to better understand where green construction and manufacturing jobs are and will be in the future – a task that is pivotal to all Recovery Act grant recipients. A Green Light Project highlight brief is in the Appendix.

Grant start/end date: 2/10 – 1/12

Proposed/expected participants served: 450

Participants served to date: 361

Proposed/expected participants employed: 365

Participants employed to date: 101

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, those 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: 1/10 – 1/13

Proposed/expected participants served: 5,174

Participants served to date: 876

Proposed/expected participants employed: 4,771

Participants employed to date: 385 (includes 255 newly employed workers and 130 incumbent workers retained)

Training credentials: Green Skills; Energy Management; Commercial and Residential Energy Auditing; Photovoltaic Installation and Design, and others.

- **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.

Department of Energy Competitive Smart Grid Grants

Applicant	Grant Award	Grant Start/End Date	Project Description	Proposed Participants Served by 7/13	Participants Served to Date*	Proposed Participants Employed by 7/13	Participants Employed to Date
Washington State University	\$2.5 million	8/10 – 7/13	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	206	450	n/a; program is in its first semester
Incremental Systems Corporation	\$3.6 million	7/10 – 6/13	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	20	4
Centralia College Center of Excellence for Energy Technology	\$4.9 million	8/10 – 7/13	Deliver flexible, customized, and accessible training to potential and current employees, including underserved populations	1,215	1,861	234	41

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

- **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 one-page grant summary is in the Appendix.
- **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. 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: 7/10 – 6/13

Proposed/expected participants served: 120

Participants served to date: 135

Proposed/expected participants employed: 20

Participants employed to date: 4

Training credentials: North American Electric Reliability Corporation System Operator Certification

- **The Centralia College Center of Excellence for Energy Technology Program** received \$4.9 million in Recovery Act funding and has become the Pacific Northwest Regional Center of Excellence for Clean Energy (PNCECE). A comprehensive online training center implements and delivers flexible, customized, and accessible training to potential and current employees, including underserved populations. Partners include consumer and investor-owned utilities; Bonneville Power Administration; organized labor; Pacific Northwest National Laboratory; and other private sector companies and colleges and universities in Washington, Oregon, Idaho, and Montana. The program's Career Lattice is complete, with narrative descriptions of all 10 occupations associated with the Center of Excellence. The Pacific Northwest Center of Excellence for Clean Energy new [website](#) offers one-page overviews of each occupation. The 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. The Career Lattice research narrative will be used to create an interactive web tool for employers, educators, students and incumbent workers seeking to identify the relationships among and between the targeted energy industry occupations.

Grant start/end date: 8/10 – 7/13

Proposed/expected participants served: 1,215

Participants served to date: 1,861 (291 completed pre-apprenticeships and were eligible for hire)

Proposed/expected participants employed: 234

Participants employed to date: 41

Training credentials: Demand Management System training with Reliability & Fault, Detection, Isolation and Restoration at Switching and Tagging; Advanced Switching and Tagging; Introduction to Smart Grid Orientation and Remote Installation of Hot Line Hold; New Smart Grid Devices & Hot Line Hold Procedure; Overview/Meter Install Kick-Off: Advanced Metering Initiative overview module; Smart Grid/43H orientation: Introduction to Smart Grid Orientation and remote installation; Smart Grid Overview: Information regarding Distribution Management System; Smart Grid Installation/Overview: Install & Operation Information; Energy for a Smart Future; Advance Meter Infrastructure/Orientation course offered to incumbent workers in a professional development setting.

Green Job Grantee Forum

The Leadership Team pulled together a forum for those organizations who received Recovery Act green job funds in June 2011. The forum provided grantees with the opportunity to:

- Exchange progress, successes, and any issues they have experienced within their program implementation.
- Share best practices.
- Learn how to work with the Leadership Team to sustain federal stimulus funded projects in the long run.

Forum highlights included:

- Apprenticeship and Non-Traditional Employment for Women gained information on employer and labor needs through its partners, and adjusted its green curricula to better fit the green economy with federal approval. The program focused on sustainable green products.
- The Northwest Workforce Training Center in Electric Power Engineering connected two- and four-year college systems for green training programs to better streamline career pathways in the green economy.
- Everett Community College, a partner of the State Energy Sector Partnership Grant, shifted its training curriculum to sub-arc welding based on the demands of the local job market, which resulted in more job placements upon program completion.
- Greater awareness of how Washington consumers, compared to those in other parts of the country, want to support green products and services. There is a greater demand for green construction, green products, and green lifestyles here, which could fuel the green economy for years to come.

The forum also dealt with the challenges that the state's green economy faces. First and foremost, the recession has seen minimal job creation. Students stay in school longer and remain further disconnected from the job market, workers of retirement age delay retirement, and the long-term unemployed face significant challenges in obtaining jobs.

Formula Federal Recovery Act Funds in Washington

Our state 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 the Department of Energy. A \$10.4 million portion of that funding is supporting weatherization-related Training and Technical Assistance activities. Washington's weatherization program incorporates 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. Through

October of 2011, weatherization service providers have logged 43,965 hours of training in these job categories. As of June 30, over 11,500 low-income households have been weatherized with the use of Recovery Act funding and an average of 150 FTEs have been retained or created each quarter.

In August of 2010, Commerce awarded \$7 million additional Department of Energy 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 administers the SERC awards through 11 local weatherization contractors. The contractors install 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 qualify 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. Local Weatherization Assistance Program contractors completed 219 units through October of 2011 and will complete an estimated 915 units with SERC funds.

Washington has consistently been in 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 will spend out 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) 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.

The Energy Office reported that through October of 2011 nearly 700 Recovery Act funded jobs have been created or retained. Indirect jobs are not being tracked. Most Recovery Act grant and loan projects are required by Commerce to leverage at least a one-to-one match in funding. All contracts were in place by the end of September 2010, and all of the funds will be spent by April 2012.

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:

- **SGL Group** received funding for a joint project between SGL and German automaker BMW on a carbon fiber manufacturing facility in Moses Lake. The facility produces carbon fiber for the automotive industry. It is a \$100 million partnership of BMW and SGL Group, one of the world’s leading manufacturers of carbon-based products. The plant employs 80 people and has plans for expansion. The grand opening was held on September 1.
- **Demand Energy Networks** is using SEP funding to speed up commercialization of its distributed energy storage technology. It allows the capture and storage of intermittent renewable (solar, wind) energy for use during high-demand times. Wind and solar generate the

largest amount of energy during non-peak hours. The device stores the power making it available during the late afternoons when demand is highest. The project resulted in the hiring of three additional engineers, leveraged \$5 million in match and resulted in a faster time to market for this technology.

- **Farm Power Lynden** is setting up manure digesters to produce electricity and excess hot water for use in on-site greenhouses. The company estimates that it will create 24 permanent and 44 temporary jobs, and leverage \$3.5 million in additional funding. Farm Power's Mount Vernon and Lynden generators produce enough electricity for about 1,000 homes. The methane used equals the annual greenhouse-gas emissions of 3,000 cars and supports Washington's obligation to reduce greenhouse gas emissions.
- The **Community Energy Efficiency Pilot Program** provides a neighborhood-by-neighborhood approach to residential and small commercial energy efficiency retrofits and upgrades. The \$14.5 million funded eight private and public projects statewide. These projects have:
 - Retrofitted 170 commercial buildings representing nearly 1.5 million square feet through October of 2011.
 - Retrofitted 10,595 residential structures throughout the state through October of 2011 representing nearly 13 million square feet.
 - Created or retained 69.84 jobs in July-September, 2011

State-Funded Project

- **Washington Public School Energy Efficiency** - Washington's 2010 Supplemental Capital Budget included an appropriation of \$100 million for energy cost savings grants for public schools and higher education facilities. Commerce coordinated \$48 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 is to create family-wage jobs; the long-term goal is 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 1,100 family-wage jobs.

To date, Commerce's initial \$48 million has leveraged nearly \$80 million in non-state funds and resulted in construction projects totaling \$132 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. More than 50 energy cost savings projects were completed at 40 K-12 schools, universities, community colleges, and technical colleges through September 2011. As an added value, these projects generated over \$8 million in sales tax revenues. The Jobs Act for Public K-12 and Higher Education is successfully mobilizing and enhancing local assets that strengthen community ability to meet the economic and social needs of families, workers, and employers.

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 that is not commonly thought of as a green industry, but that 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 state government has been a leader nationally in recognizing and fostering its green economy. However, Referendum 52 in 2010, which would have increased state investment in building energy efficiency, failed in a statewide public vote. 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 efforts on these three goals with the award in the summer of 2011 of 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:

- 1. Transportation** - Not only is transportation the state's largest energy use sector, it is also 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.
- 2. 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.
- 3. Distributed energy** - The third component of the 2012 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.
- 4. 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 skill 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 certifications that demonstrate graduates have mastered industry-defined skill standards, including green skills 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 trained with green skills.

- Identify the postsecondary offerings that are part of Programs of Study to prepare Washingtonians for careers using green skills.
- Support skills certification laddering for green trades employees and expand the number and use of portable skills certifications linked to industry skill standards.
- At a minimum, maintain 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 needs for green skills and to develop and implement plans to meet the needs.

Postsecondary education includes apprenticeships and training for journey-level workers that incorporate curricula that prepare workers with the latest green skills. Other incumbent and dislocated workers need access to continuing education that updates their skills, as many occupations will have more green elements as part of their work.

- Continue investments in Joint Apprenticeship Training Committees' green skill enhancement for registered apprentices and journey workers in building and construction trades.
- At least maintain funding for the Job Skills Program in order to provide customized training for employers who want to develop green skills in their workforce.

**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**
- **GreenLight Project: Workforce Development Council Seattle-King County**
- **Washington State Energy Sector Partnership Grant**
- **Workforce Training In Clean Energy Smart Grid Engineering**
- **Pacific Northwest Center Of Excellence For Clean Energy**

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. This strong partnership has already achieved 102 percent of its “beginning training” goal. The partners continue to help participants gain employment with job fairs, employer networking events, employer panels and one-on-one job search guidance.

Participant Success Story: George had been out of work for over a year after being laid off from an inside sales position, making an average \$25 hourly wage. He attended the Energy Accounting Training given in March 2011. After attending the training, George worked with staff to update his resume to use the language learned in his training and to enhance his transferrable skills into the green world. During the next four months, he participated in the job club, and used that group to discuss his interview experiences and to hone his interviewing skills. In the fourth month, he was offered a sales position with a green emphasis. He is getting the wage he was looking for at \$48,000 salary + commission. Benefits are also part of his package.

GreenLight Project: Workforce Development Council Seattle-King County

Status Update for Pathways out of Poverty Grant, Jan. 29, 2010 – Jan 28, 2012

Grantee: Workforce Development Council Seattle-King County (WDC)

Contact: Judith Morel, jmorel@seakingwdc.org, 206-448-0474 Ext 3017

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

Successes: The WDC partnership 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) has been 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 has delivered three of four two-week courses on Green Building Maintenance. The training program includes an overview of “green” cleaning, basic math and ESL for maintenance jobs, mechanical and structural repairs, and the safe use of hand tools. Participants receive certifications in OSHA 10 Safety, CPR/First Aid, Hazardous Communications and falling safely. More than 50 percent of the graduates of this course have already been placed in jobs.

Grant Metrics: As of Sept. 26, 2011 the WDC has served 78 percent of the goal for grant participants; and 80% of the goal for participants enrolled in environmental training. Job placement has been more challenging due to market saturation. It has been difficult to tap into the construction, deconstruction and weatherization employers due to local market conditions. Job placement is the primary focus for the remaining tenure of the grant.

Participant Success Story: Leonard, 61, worked for the U.S. Postal Service, but left due to a medical condition. He faced significant challenges in finding any type of job opportunities. He got a job with Altus Traffic Management while still a student in the Green Manufacturing program. With the support of Altus, Leonard was able to work and complete his training. Leonard even achieved the Studebaker award, an award that assists successful program participants with getting the tools and supplies they need for work. Leonard is currently working for a solid company, in a new field, and is now responsible for training new employees on how to do their jobs.

Energy Efficiency Training for Washington’s Green Economy

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

GRANT PERIOD: January 29, 2010 – January 28, 2013

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 & 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
124	170	176	4,295
Total of all participants served: 4,765			
Over 4,000 are projected to be placed in/retain employment after training			

SAMPLE OF TRAINING AND CREDENTIALS OFFERED:

- | | |
|---|--|
| <ul style="list-style-type: none"> ▪ 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 | <ul style="list-style-type: none"> ▪ 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 |
|---|--|

Contact: Beth Meyer, bmeyer@wtb.wa.gov

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 workforce challenge in the power sector of the United States is caused by an inadequate supply of trained and educated personnel needed to replace the aging workforce, and a rapid advance in technologies both in clean energy sources and in the smart grid. It is not sufficient to just train the engineering workforce needed to deploy new clean energy sources and operate the smart grid, but also necessary to cultivate the engineering talent that will invent and design the next generation of green technologies and information technologies for the power sector.

The inadequate supply of the engineering workforce in the power sector has been a result of the many power engineering programs in the country having shut down. There are only a small number of Electrical Engineering Departments that still provide the strong teaching and research needed for both the undergraduate and graduate levels, Washington State University (WSU) and University of Washington (UW) among them. This project is led by WSU to set up a joint WSU-UW Northwest Workforce Training Center in Electric Power Engineering. All of the major organizations are actively participating in developing the training program. Some of these organizations – Alstom Grid, BPA, Incremental Systems, and PNNL – have unique facilities not available elsewhere in the country and will be integrated into the training courseware.

The three-year project will develop a set of modular courses - six undergraduate courses and 12 graduate courses - in clean energy smart grid engineering. These will use the existing power engineering courses at WSU-UW as a starting point but almost all of the resulting courseware will be new in both content and delivery mechanism. 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.

One of the unique features of this effort is that the Northwest power industry is leading the technologies in many areas, and can provide excellent guidance and advice to the development of the

training program. In addition, there are some unique and specialized facilities available only in this region:

- Incremental Systems is the leading provider of power system operator training using their training product developed on the EPRI Operator Training Simulator. This will be installed at WSU and will be an integrated part of the course in Power System Operation.
- Alstom Grid is the leading provider of grid control centers in the world and is a major driver of smart grid technologies. They will install the Alstom Dispatcher Training Simulator (DTS) at UW together with other control center smart grid technologies.
- Pacific Northwest National Laboratory has the Electricity Infrastructure Operations Center (EIOC) which is a grid control center environment with grid operation and control applications that can be used for experiments in smart grid technologies. This is the only such facility in the whole world and will be utilized in the training of engineers in smart grid engineering.
- Bonneville Power Administration High Voltage Laboratories is another Northwest unique facility that can conduct experiments in high voltage grid technologies. The training courseware in the high voltage transmission grid technologies can provide hands-on training that cannot be provided without such a facility.

Pacific Northwest Center Of Excellence For Clean Energy

Background: 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.

Through a \$5 million grant, leveraged to \$12 million awarded in 2010 by the U.S. Department of Energy, Washington's 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, to improve internal job progression in utilities and to create a centralized training and recruiting portal. The grant application was endorsed by four Governors, 11 U.S. Legislators representing Washington, Oregon and Idaho, and the Northwest Energy Efficiency Taskforce (NEET) Executive Board members representing the Pacific Northwest states.

NEET 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. NEET's 2009 Energy Workforce report charged the Center of Excellence at Centralia College with leading a coordinated, strategic approach to clean energy workforce development for the region in which the Center would work with regional partners to: 1) define energy efficiency jobs, 2) establish skill standards and identify job classifications for use regionally, and 3) create a regional clearinghouse for energy efficiency job openings.

Smart Grid Project Design and Objectives

Acceleration of Smart Grid development 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. Project partners have been collecting descriptive information and conducting employer interviews for each of the 10 occupations targeted by the project to understand and integrate data directly from employers about the job requirements, career pathways and training relevant to each occupation. This information will form a foundation for establishing a career lattice model and for guiding Smart Grid-related curriculum and program development by education and training partners.

Occupations targeted by the project are:

Supply Side Occupations	Demand Side Occupations
Instrument Control/Relay Specialist (Generation and Load Dispatchers)	Customer Service Reps
Generation, Load and Substation 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

Between August 2010 and June 2011, Tier 1 foundational training and workshops were offered ranging from a high level overview of employment opportunities available in the power industry for youth to technical orientation for operating the power simulator in the ZagOps facility at Gonzaga University. Incumbent worker technical training in smart grid technologies and job hazard analysis is being offered through utility training programs.

In the first 11 months of the project through June 2011, a total of 1,861 individuals have received Smart Grid related training including: 1,424 individuals participating in pre-apprenticeship, apprenticeship and incumbent worker courses; 353 eighth grade through high school students participating in hands-on learning sessions in the ZagOps power grid simulator lab at Gonzaga University in Spokane and 84 participants in train-the-trainer activities, including STEM teachers receiving in-service training through ZagOps.