

**ELECTRIC POWER WORKFORCE TRAINING  
PARTNERSHIP OF PENNSYLVANIA**



**IN RESPONSE TO:  
FUNDING ASSISTANCE  
FUNDING OPPORTUNITY ANNOUNCEMENT**

**RECOVERY ACT – WORKFORCE TRAINING FOR THE  
ELECTRIC POWER SECTOR  
TOPIC B: SMART GRID WORKFORCE TRAINING**

**FUNDING OPPORTUNITY NUMBER: DE-FOA-0000152  
CFDA NUMBER: 81.122**

**ELECTRIC POWER WORKFORCE TRAINING PARTNERSHIP OF PENNSYLVANIA**

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# ELECTRIC POWER WORKFORCE TRAINING PARTNERSHIP OF PENNSYLVANIA

**TOPIC AREA:** (B) Smart Grid Workforce Training

## SUMMARY INFORMATION

1. PROJECT NAME: **ELECTRIC POWER WORKFORCE TRAINING PARTNERSHIP OF PENNSYLVANIA**
2. LEAD ORGANIZATION: Pennsylvania Workforce Investment Board
3. LEAD ORGANIZATION CATEGORY: State Government
4. COLLABORATING ORGANIZATIONS AND ASSOCIATED CONTACTS
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5. LEAD PROJECT MANAGER: Steven Wolf, Pennsylvania Workforce Investment Board, Director of Research and Planning, 717-705-8820 or [stewolf@state.pa.us](mailto:stewolf@state.pa.us)
6. AUTHORIZED REPRESENTATIVE: Robert Garraty, Ph.D., Pennsylvania Workforce Investment Board, Executive Director, 717-705-8822 or [rgarraty@state.pa.us](mailto:rgarraty@state.pa.us)
7. PROJECT DURATION: 36 Months
8. PROJECT FUNDING

FEDERAL	APPLICANT
\$5,000,000	\$4,448,250

## PROJECT OBJECTIVES

To facilitate the development of a well-trained highly skilled electric power sector workforce which is vital to implementing a national clean-energy smart grid, the project will:

1. Identify and prioritize common workforce training needs within the electric power generation, transmission, and distribution sector;
2. Increase and deepen connections with the electric distribution companies to deliver, and enhance, aggregate training programs for unemployed, underemployed (current), , and dislocated workers that meet employer needs and provide increased opportunities for workers in the electric power sector;
3. Identify skill gaps of current and future workers in the electric power sector and provide training to support the implementation of the smart grid; and
4. Utilize multiple training options to rapidly deploy a workforce for immediate job openings and advancement opportunities within the electric power sector.

## MERIT REVIEW CRITERION DISCUSSION

According to the U.S. Bureau of Labor Statistics, the demand for entry-level line workers, power plant operators, pipefitters, and other positions that require technical knowledge is expected to grow by 9 percent annually. By 2010, the electric industry will need to add 10,000 new, skilled workers each year as baby-boomers begin retiring in record numbers<sup>i</sup>. Coupled with the replacement of an aging workforce, the electric power sector is also being challenged to train its existing workforce on new technologies associated with the deployment of the smart grid.

With advanced energy management and workforce development policies and infrastructures, Pennsylvania is poised to work with the electric power generation, transmission, and distribution sector to address its needs and become a national leader in the implementation of the clean-energy smart grid.

Accordingly, Pennsylvania proposes to deploy training across the commonwealth that enables 1,215 of Pennsylvania's unemployed, underemployed (current), and dislocated workers to retain, or gain, employment. Utilizing an expansive workforce development system, Pennsylvania will ensure that the electric power sector is fully prepared for implementation of the national clean-energy smart grid.

### ***CRITERION 1: ASSESSMENT OF NEED***

Like much of the nation, Pennsylvania has been severely impacted by the current recession. With an unemployment rate that has nearly doubled since January 2008<sup>ii</sup>, from 4.6 percent to 8.8 percent in September 2009<sup>iii</sup>, Pennsylvania must employ new strategies to get unemployed, underemployed (current), and dislocated residents, from all socio-economic backgrounds back in to the workforce. As of July 2009<sup>iv</sup>, Pennsylvania's total population was 12,246,000<sup>v</sup>. Of the 9,848,000 residents of working age, 5,848,000 were employed, 543,000 were unemployed, and 187,000<sup>vi</sup> were dislocated. Based on current unemployment compensation data, over 435,932 Pennsylvanians were paid or had exhausted unemployment insurance benefits for the report week ending November 7, 2009. Moreover, individuals with sporadic or no previous attachment to the workforce are finding it more difficult than ever to enter into the workforce.

*Poverty Level* – With a combination of urban, suburban, and rural regions, the characteristics of the workforce are as diverse as the commonwealth. Overall, more than 30.8 percent<sup>vii</sup> of Pennsylvanians in poverty have no high school diploma. The emerging and evolving green economy, particularly energy efficiency in the electric power sector, presents an opportunity for Pennsylvanians with a variety of skill levels. This proposal seeks to help those in poverty, as well as individuals affected by the current recession who may have some existing skills.

*Educational Attainment* – In addition to poverty barriers, the workforce of Pennsylvania faces numerous educational credential attainment challenges. According to the U.S. Census Bureau, Current Population Survey, 378,546 Pennsylvanians had attained less than a high school diploma. Many of the state's electric power generation, transmission, and distribution occupations are mid-range technical jobs requiring some education beyond high school and/or a technical credential. Therefore, individuals are provided the opportunity to enter and advance

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through the workforce into a sector with an average weekly wage that is 276 percent<sup>viii</sup> greater than other industries in Pennsylvania.

*Age Level* – A significant challenge to the implementation of a comprehensive energy efficiency strategy in the electric power generation, transmission, and distribution sector is the aging, current, workforce. As demonstrated in Figure 1, more than 64 percent of those employed in this sector were within fifteen years of retirement as of the third quarter of 2008.

<b>FIGURE 1: WORKFORCE AGE DISTRIBUTION<sup>x</sup></b>									
<b>QUARTERLY WORKFORCE INDICATORS, QUICKFACTS</b>	TOTAL	14-18	19-21	22-24	25-34	35-44	<b>45-54</b>	<b>55-64</b>	65-99
<b>NAICS 221100: ELECTRIC POWER GENERATION, TRANSMISSION, AND DISTRIBUTION</b>									
<b>TOTAL EMPLOYMENT BY AGES</b>	16,589	16	237	410	1,990	3,218	<b>6,776</b>	<b>3,824</b>	118
<b>PERCENTAGE OF TOTAL EMPLOYMENT</b>	100%	0.1%	1.4%	2.5%	12.0%	19.4%	<b>40.8%</b>	<b>23.1%</b>	0.7%

Pennsylvania's aggressive energy conservation and efficiency policies serve a dual economic development and job creation goal. Prior to the American Reinvestment and Recovery Act (*Recovery Act*), Pennsylvania had begun to adopt policies and legislation that targeting curbing energy consumption, utilizing alternative and renewable energy sources, and investing state funds in these strategies. The passage of the Recovery Act, and the subsequent infusion of funds into Pennsylvania, has increased the impact of these strategies.

The Pennsylvania Center for Workforce Information and Analysis<sup>1</sup> conservatively estimates that more than \$10 billion will be invested in Pennsylvania's economy through a combination of state, federal, and private sector sources (Figure 2). As detailed, the policy anticipated to most greatly impact the electric power sector, and the implementation of the smart grid, is Act 129 which requires the electric distribution companies to reduce energy consumption. As electric distribution companies invest in repairing the underperforming grid, they will also need to ensure that their current and future workforces are prepared to deploy, maintain, and repair the smarter grid.

<b>FIGURE 2: KEY POLICIES DRIVING NEAR-TERM GREEN JOB CREATION IN PENNSYLVANIA<sup>x</sup></b>	
<b>POLICY</b>	<b>TOTAL FEDERAL AND STATE INVESTMENT (IN MILLIONS)</b>
<b>AMERICAN RECOVERY AND REINVESTMENT ACT (ARRA) WEATHERIZATION DOLLARS:</b> Pennsylvania will receive \$252.8 million for the Weatherization Assistance Program which will pay for the weatherization of about 30,000 low-income housing units over 2-3 years and create about 1,000 jobs for certified installers, crew chiefs, auditors, and outreach and energy conservation educators. Additionally, \$10 million has been set aside for training and certifying existing and new weatherization workers.	\$253
<b>ACT 129</b> legislation requires electric utilities with at least 100,000	\$2,147

<sup>1</sup> The Center for Workforce Information and Analysis is Pennsylvania's Labor Market Information Bureau.

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customers achieve a 1% reduction in electricity consumption by May 31, 2011, a 3% reduction in consumption by May 31, 2013, and a 4.5% reduction in peak demand also by May 31, 2013. The energy industry is expecting a sharp rise in demand for industrial and residential energy auditors, as well as those trained in general construction to complete energy-reducing retrofits.	
<p><b>PENNSYLVANIA’S ADVANCED ENERGY PORTFOLIO STANDARD</b> provides that all electricity suppliers in Pennsylvania must provide 18% of their energy from advanced energy sources within 15 years (2019-2020)—8% from Tier I and 10% Tier II.</p> <ul style="list-style-type: none"> <li>• Tier I includes: solar (which has a guaranteed portion set at 0.5% by 2019-2010), wind, low-impact hydro, geothermal, fuel cells, biomass and coal mine methane.</li> <li>• Tier II includes: demand-side management (energy conservation), distributed generation (personal power), large scale hydropower, waste coal, municipal solid waste (MSW) and wood/pulp.</li> </ul>	\$4,710
<b>ALTERNATIVE ENERGY INVESTMENT FUND</b> creates a \$650 million energy fund, front-loading most of that investment (\$500 million) into the first few years. The AEIF includes investments to stimulate the growth of solar energy, subsidize energy efficient green buildings, investment for early stage activities in green business development, help low-income customers manage high energy prices, pollution control technology projects and nearly \$100 million for subsidizing energy conservation for homeowners, small businesses, and low-income families.	\$390
<b>ARRA DOLLARS FOR RENEWABLE ENERGY AND ENERGY EFFICIENCY</b> include: \$99.6 million for the Pennsylvania State Energy Program that primarily promotes renewable energy; \$102.5 million for the Energy Efficiency and Conservation Block Grant (EECBG); and \$9 million for the Energy Efficiency appliance rebate program.	\$1,012
<b>FEDERAL ENERGY TAX CREDITS:</b> The ARRA extended many consumer tax incentives; these credits include a 30% tax credit for solar energy and fuel cells, as well as credits for wind, biomass, energy efficiency, and refined coal.	
<p><b>WATER AND SEWER INFRASTRUCTURE INVESTMENT:</b></p> <ul style="list-style-type: none"> <li>• H2O PA: \$800 million water and sewer fund for municipalities.</li> <li>• ARRA dollars for Water and Sewer Infrastructure: \$220 million total</li> <li>• PennVest dollars for Water and Sewer Infrastructure—separate from the two previous sources: \$300 million annually.</li> </ul>	\$1,520
The <b>PENNSYLVANIA COMMUNITY TRANSPORTATION INITIATIVE (PCTI)</b> : \$76 million for 80 transportation projects that will create green jobs, relieve traffic congestion, and make it easier for students to walk and bike to school. ( <a href="http://www.smarttransportation.com/pcti.html">http://www.smarttransportation.com/pcti.html</a> ).	\$76
<b>TOTAL INVESTMENTS:</b>	<b>\$10,141</b>

Further, using the Impact Analysis for Planning (IMPLAN), the Center forecasts that these investments will generate more than 115,000 new jobs within five (5) critical green sectors that have been built upon a review of six-digit North American Industry Classification Standard (NAICS) industry codes. As detailed in Figure 3, the Center has identified the projected job creation anticipated for each sector. Of the direct, and indirect, jobs to be generated by these

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policies, 34,200 are expected to be directly impacted by the electric power generation, transmission, and distribution sector.

<b>FIGURE 3: POLICY-DRIVEN JOB CREATION RESULTING FROM INVESTMENT IN GREEN SECTORS (2010-2012)</b>				
<b>GREEN SECTOR</b>	<b>JOBS BY YEAR</b>			
	<b>2009-10</b>	<b>2010-11</b>	<b>2011-12</b>	<b>TOTAL (2009-12)</b>
<b>AGRICULTURE &amp; RESOURCE CONSERVATION</b>	247	209	152	<b>608</b>
<b>CLEAN TRANSPORTATION</b>	418	418	-	<b>836</b>
<b>ENERGY EFFICIENCY</b>	14,082	16,746	17,763	<b>48,591</b>
<b>POLLUTION PREVENTION &amp; ENVIRONMENTAL CLEAN-UP</b>	9,210	9,210	9,210	<b>27,630</b>
<b>RENEWABLE ENERGY</b>	11,290	12,869	14,065	<b>38,224</b>
<b>TOTAL</b>	<b>35,247</b>	<b>39,452</b>	<b>41,190</b>	<b>115,889</b>
Sources: Industry sources and input from the Pennsylvania Department of Environmental Protection generates estimates of investment each year in each green sector. The IMPLAN model translates investment into employment impacts.				

Utilizing the Standard Occupational Classification (SOC) and O\*NET the Center for Workforce Information and Analysis identified twenty-four (24) occupations that are closely linked to the electric power generation, transmission, and distribution sector. These occupations are the focus of this projects workforce training efforts. While many of these occupations are traditional jobs, they are facing significant changes in the skill sets required by the electric distribution companies as they focus on the core elements of implementing the smart grid, including: advanced metering; network sensing; grid security; grid energy economics; energy informatics; demand response controls; and on-site power production and storage.

As detailed in Figure 4, the educational requirements for Pennsylvania’s electric power generation, transmission, and distribution jobs vary significantly. To that point, two (2) occupations require an associate’s degree, three (3) require a bachelor’s degree, seven (7) require long-term on-the-job training, two (2) require moderate-term on-the-job training, four (4) require a postsecondary vocational award, three (3) require related work experience, and one (1) requires short-term on-the-job training, and two (2) require work experience plus a degree. The diverse paths for entry and advancement in this workforce in this sector will allow for unemployed, underemployed (current), and dislocated Pennsylvanians from diverse backgrounds to find success in the workforce.

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**FIGURE 4: KEY OCCUPATIONS IN NAICS 221100 (ELECTRIC POWER GENERATION, TRANSMISSION, AND DISTRIBUTION)<sup>xi</sup>**

			Employment in NAICS 221100		Overall Employment		2008 Wages			
SOC Code	SOC Title	Targeted Occupation Group	Estimated 2006	Projected 2016	Estimated 2006	Projected 2016	Entry Level	Annual Average	Expr Level	Educational Attainment
17-3023	Electrical & Electronic Engineering Technicians	Transmission Planner Utility Energy Efficiency Staff	504	415	7,000	6,910	\$31,040	\$49,750	\$59,110	Associate Degree
17-3026	Industrial Engineering Technicians	Transmission Planner	343	310	4,150	4,550	\$34,940	\$51,570	\$59,880	
11-3051	Industrial Production Managers	N/A	31	26	6,310	6,230	\$50,460	\$83,230	\$99,610	Bachelor's Degree
17-2071	Electrical Engineers	Transmission Planner Utility Energy Efficiency Staff	507	463	6,510	6,470	\$54,430	\$81,400	\$94,880	
17-2112	Industrial Engineers	Transmission Planner	102	104	9,070	11,400	\$49,800	\$73,180	\$84,870	
47-2111	Electricians	Electricians	89	76	25,370	25,630	\$32,690	\$54,490	\$65,390	Long-term OJT
49-9041	Industrial Machinery Mechanics	Technicians	330	311	16,680	19,110	\$32,080	\$43,150	\$48,690	
49-9042	Maintenance & Repair Workers, General	Technicians	250	206	66,390	68,940	\$23,540	\$35,320	\$41,210	
49-9051	Electrical Power-Line Installers & Repairers	Lineworker	2,241	2,067	4,150	4,230	\$47,080	\$59,050	\$65,030	
51-8012	Power Distributors & Dispatchers	System Operator	391	317	470	390	\$53,040	\$69,500	\$77,730	
51-8013	Power Plant Operators	System Operator	1,510	1,341	2,070	1,900	\$42,380	\$55,540	\$62,110	

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51-8021	Stationary Engineers & Boiler Operators	System Operator	106	87	1,590	1,620	\$34,420	\$46,010	\$51,810	Long-term OJT
49-9012	Control & Valve Installers & Repairers	Technicians	152	137	1,030	960	\$30,330	\$44,950	\$52,260	Moderate-term OJT
51-9061	Inspectors, Testers, Sorters, Samplers & Weighers	Other Skilled Trades	65	50	23,970	22,750	\$23,170	\$35,050	\$40,990	
17-3012	Electrical & Electronics Drafters	Technicians	27	23	1,350	1,300	\$35,320	\$51,020	\$58,880	Postsecondary Vocational Award
49-2094	Elec. Repairers - Commercial & Industrial Equipment	Electricians	69	61	4,490	4,660	\$37,590	\$46,460	\$50,890	
49-2095	Elec. Repairers - Powerhouse, Substation & Relay	Electricians	688	559	900	760	\$45,930	\$58,450	\$64,720	
51-4121	Welders, Cutters, Solderers & Brazers	Other Skilled Trades	15	13	18,400	19,540	\$25,820	\$34,840	\$39,340	
47-1011	Supervisors - Construction & Extraction Workers	Other Skilled Trades	31	25	19,520	20,090	\$40,470	\$62,650	\$73,750	Related Work Experience
49-1011	Supervisors - Mechanics, Installers & Repairers	Technicians	340	280	15,440	15,760	\$41,480	\$61,140	\$70,970	
51-1011	Supervisors - Production & Operating Workers	System Operator	157	129	30,450	29,830	\$35,320	\$54,460	\$64,040	
43-5041	Meter Readers, Utilities	N/A	432	317	1,440	1,210	\$29,290	\$40,950	\$46,780	Short-term OJT
11-9041	Engineering Managers	N/A	100	81	5,560	5,690	\$71,420	\$112,050	\$132,370	Work experience plus degree
13-1111	Management Analysts	Transmission Planner Utility Energy Efficiency Staff	40	33	24,930	29,960	\$48,670	\$85,550	\$103,990	

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To support the growth of Pennsylvania's electric power generation, transmission, and distribution sector and implement the national clean-energy smart grid, skilled workers are needed in these occupations.

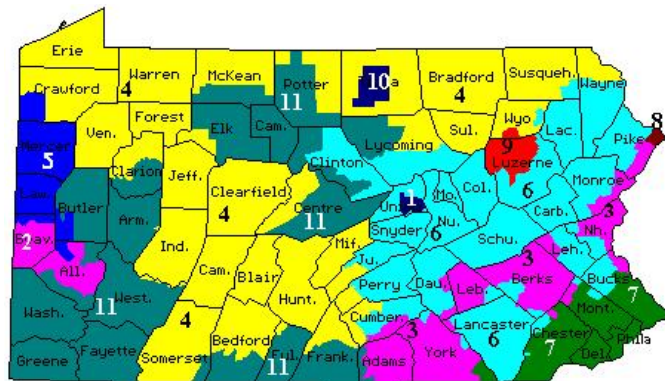
### ***CRITERION 2: TECHNICAL APPROACH***

In a November 2009 survey sponsored by the Pennsylvania Center for Green Careers, Duquesne Light, one of Pennsylvania's eleven (11) electric distribution companies (Figure 5), indicated that they were currently hiring lineworkers, design technicians, and engineers. However, they are facing challenges in finding a pool of qualified applicants to fill these positions. Among the most significant challenges identified through this survey were deficiencies in technical knowledge, mathematical ability, and communication skills.

Duquesne Light's concerns are not unique across Pennsylvania. As the smart grid implementation progresses, electric distribution companies will need to expand the knowledge base of their current and future workforce on new devices and their associated installation, monitoring, diagnostic, and repair practices.

**FIGURE 5: MAP OF ELECTRIC DISTRIBUTION COMPANY SERVICE TERRITORIES<sup>xii</sup>**

1. Citizens' Electric Company
2. Duquesne Light Company
3. Metropolitan Edison Company (First Energy)
4. Pennsylvania Power Company (First Energy)
5. Pennsylvania Power Company (First Energy)
6. PPL Electric Utilities Corporation
7. PECO Energy Company (Exelon)
8. Pike County Light & Power Company (Orange & Rockland Utilities, Inc.)
9. UGI Utilities Inc.
10. Wellsboro Electric Company
11. West Penn Power Company (Allegheny Energy, Inc.)



Coupled with the May 2011 deadline of Act 129 (detailed in Figure 2), requiring electric distribution companies to reduce energy and consumption demand, and an aging workforce, Pennsylvania's electric power sector workforce must begin to strategically address its workforce challenges today.

To facilitate the development of a well-trained, highly-skilled electric power sector workforce, Pennsylvania proposes a coalition of private and public stakeholders that will support, inform, and advocate for a workforce development system that creates a diverse and skilled workforce for the electric power industry. Through the newly-created Pennsylvania Center for Green Careers and a forty (40) member advisory committee this project will:

- Enable workers to fill available, well-paying jobs;
- Enable workers to acquire skill certifications which deliver a triple benefit of quality assurance for employers, skill portability for workers, and a maximum environmental benefit for the commonwealth;
- Help low-income workers obtain entry-level jobs and get the necessary support to advance along a career pathway; and

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- Build the capacity of Pennsylvania’s employers to participate in the implementation of a national clean-energy smart grid.

Since 2001, Pennsylvania has invested in a workforce development system that is focused on increasing communication between employers, labor organizations, education and training providers, and government. Anchored by sector based workforce intermediaries, known as industry partnerships, Pennsylvania has brought together stakeholders (e.g. employers, labor organizations, and education and training providers) to create a dual worker-employer driven system. *(An article detailing Pennsylvania’s workforce system can be found in Appendix 1.)*

Since 2007, seven (7) energy and one (1) utilities industry partnerships (Appendix 2) have brought together more than 680 stakeholders and trained more than 3,390 participants through the provision of aggregated training based on employer demand and:

- Made current and future occupational demand more transparent;
- Assisted education and training providers with the development of industry specific curricula and training programs; and
- Identified career pathways (lattices and ladders) within industry clusters.

Building upon the existing industry partnership infrastructure, and through the Pennsylvania Center for Green Careers this project will:

- Expand job creation and career advancement opportunities through targeted training delivery in the electric power generation, transmission, and distribution sector;
- Positively impact displaced workers and enhance sustainable economic growth in currently economically depressed communities;
- Increase per capita income; and
- Build career ladders and training opportunities.

*EXPAND JOB CREATION AND CAREER ADVANCEMENT OPPORTUNITIES*

In advance of preparing this proposal, a forty (40) member advisory committee of electric power generation, transmission, and distribution stakeholders (Figure 6) was convened. This advisory committee, a working group of the Pennsylvania Center for Green Careers, was recruited primarily by Pennsylvania’s seven (7) energy and one (1) utilities industry partnerships and selected based on their experience in the sector, organizational representation, and geographic service area.

<b>FIGURE 6: ADVISORY COMMITTEE PARTICIPANTS</b>	
<b>SECTOR</b>	<b>COMPANY</b>
<b>BUSINESS &amp; INDUSTRY</b>	Allegheny Energy
	Duquesne Light
	Exelon (PECO)
	First Energy (Met Ed, Penelec, and Penn Power)
	PPL
<b>EDUCATION &amp; TRAINING</b>	Clarion University, Department of Applied Technology
	Pennsylvania Commission for Community Colleges
<b>LABOR</b>	International Brotherhood of Electrical Workers
	International Brotherhood of Electrical Workers Local 1600
	International Brotherhood of Electrical Workers Local 29

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	Northeastern Joint Apprenticeship and Training
	Pennsylvania AFL-CIO
	Utility Workers Union of America (UWUA) Local 102
<b>NONPROFIT</b>	Collegiate Consortium for Workforce and Economic Development
	PennFuture
	PJM
<b>STATE CABINET</b>	Pennsylvania Department of Education
	Pennsylvania Department of Environmental Protection
	Pennsylvania Department of Labor & Industry
	Pennsylvania Public Utility Commission
	Pennsylvania Workforce Investment Board
<b>WORKFORCE DEVELOPMENT</b>	Berks County Workforce Investment Board
	Keystone Development Partnership ( <i>Industry Partnership</i> )
	Lehigh Valley Workforce Investment Board
	Northwest Workforce Investment Board
	Philadelphia Workforce Investment Board
	Smart Energy Initiative of Southeastern Pennsylvania ( <i>Industry Partnership</i> )
	South Central Workforce Investment Board
	Three Rivers Clean Energy Partnership ( <i>Industry Partnership</i> )

Through the provision of real-time labor market information on the electric power sector across Pennsylvania and supplementing the knowledge already collected through the industry partnerships, the advisory committee will assist in the identification of job openings and career advancement opportunities across the sector. In addition, the advisory committee, in cooperation with the Pennsylvania Center for Green Careers, has agreed to identify training in existing and evolving occupations, develop an electric power education and training inventory, oversee a gap analysis of the current workforce, and recommend revisions to existing curricula.

*POSITIVELY IMPACT DISLOCATED WORKERS AND ENHANCE SUSTAINABLE ECONOMIC GROWTH IN CURRENTLY ECONOMICALLY DEPRESSED COMMUNITIES*

Given the fact that most electric power occupations require a variety of skill levels, some of which can be achieved through short-term training, this project will place an emphasis on providing opportunities to Pennsylvanians with barriers to work as well as those currently employed in the sector. Specifically, this project will target populations of unemployed, underemployed (current), , and dislocated workers, with specific attention given to: individuals on public assistance; youth and high school drop-outs; individuals with disabilities; veterans; and individuals with limited English proficiency.

*INDIVIDUALS ON PUBLIC ASSISTANCE:* Perhaps one of the most daunting barriers faced by this population is that 30.8%<sup>xiii</sup> of Pennsylvanians in poverty have less than a high school diploma. In addition, many Pennsylvanians in poverty are faced with a disability (12.5%) and/or an employment disability (30.6%)<sup>xiv</sup>. Working with Pennsylvania’s one-stop system of sixty-seven (67) local Pennsylvania CareerLink® offices and county assistance offices, training participants will be recruited from the available list of current food stamp recipients.

*YOUTH AND HIGH SCHOOL DROP-OUTS:* According to the 2007 U.S. Census Bureau, Current Population Survey, Pennsylvania’s workforce is comprised of 2,685,434 individuals whose highest educational attainment was a high school diploma. Of those individuals, 378,546

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individuals discontinued their education prior to attaining a high school diploma. As the attainment of a degree has been shown to be an indicator of future earnings, completion of at least a high school diploma or certificate is crucial.

In addition to educational attainment barriers, the youth of Pennsylvania are also encountering significant unemployment. Of the total youth labor force between September 2008 and August 2009, 14.8%<sup>xv</sup> of youth were unemployed.

Building upon the success of the Summer 2009 ARRA funded youth work experiences in which 9,340 youth participated and the nationally recognized Pennsylvania Regional Career Education Partnerships, youth and high school drop outs that express an interest in an electric power sector career and receive a recommendation from their case worker will be referred to the Pennsylvania CareerLink® for assessment.

*INDIVIDUALS WITH DISABILITIES:* In 2007, according to the American Community Survey, 1,845,000 residents of Pennsylvania were classified as disabled with 639,000 identifying an employment disability. According to the Disability and Business Technical Assistance Center, only 35% of people with disabilities are employed full-time compared with 78% of those who do not have disabilities.

The Pennsylvania Office of Vocational Rehabilitation and the state-sponsored Hiram G. Andrews Center, a post-secondary education center that provides career opportunities and independent life skills for person with disabilities, will provide referrals of individuals who are likely to succeed in an electric power sector occupation to the Pennsylvania CareerLink®.

*VETERANS:* Pennsylvania is the proud home to a significant veteran population that comprises 10.8% of the total population of the state. In September 2009, approximately 4,000 of the Pennsylvania National Guard's Stryker Brigade began returning home after a yearlong deployment. 5.1%<sup>xvi</sup> of Pennsylvania's veteran population is below the poverty level and many returning service men and women may not be able to return to the jobs they held prior to deployment due to the recession.

The Pennsylvania workforce system currently works with the Pennsylvania Department of Military Affairs in assisting in the employment and training needs of veterans. Electric power sector jobs and career opportunities will be included in job fairs for returning military and National Guard members. Local veterans' employment representatives and disabled veterans' outreach program specialists will work with veterans provided by military affairs to recruit locally and refer for electric power sector careers – both for those with existing skills and those in need of training.

*INDIVIDUALS WITH LIMITED ENGLISH PROFICIENCY:* According to the American Community Survey, 9.3% of Pennsylvania residents over the age of five identified that a language other than English was spoken at home.

Pennsylvania CareerLink® will partner with community based organizations whose missions are to engage populations for whom English is a second language and provide assistance in the development of materials that promote career opportunities and pathways in electric power sector careers.

All individuals recruited and referred to participate in training through this project will be required to utilize the Pennsylvania CareerLink® system. As a first step, all potential trainees

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will be required to register on the state's electronic job bank ([www.cwds.state.pa.us](http://www.cwds.state.pa.us)) and participate in training and skill needs assessment, such as WorkKeys®, which Pennsylvania is currently supporting the implementation of across the state through the local workforce investment boards. In addition to utilizing the outcomes of these assessments to place individuals in training, training participants will also be encouraged to earn a transferable WorkKeys Career Readiness Certificate that showcases skills in Applied Mathematics, location information, and reading for information.

Recognizing that within each population unique barriers must be addressed for success, a seamless, integrated component of the registration and testing process will be an evaluation by Pennsylvania CareerLink® specialists to identify remedial skill training and supportive services (e.g. transportation and child care) needs. For those individuals for whom either remediation or supportive services are identified as necessary, referrals to community colleges, community and faith based organizations, and other appropriate training and service providers will be made.

### *INCREASE PER CAPITA INCOME*

According to StateMaster.com, Pennsylvania was 19<sup>th</sup> in per capita income in 2005 (\$35,029). With an average weekly wage is 276 percent<sup>xvii</sup> greater than other industries in Pennsylvania, the electric power generation, transmission, and distribution sector offers Pennsylvanian's an opportunity to begin and advance their careers in jobs with well-paying career ladders.

### *BUILD CAREER LADDERS AND TRAINING OPPORTUNITIES*

Building upon Pennsylvania's current ARRA strategies and utilizing Pennsylvania's comprehensive workforce development system, including industry partnerships and the Pennsylvania CareerLink®, this project will increase the pipeline of skilled workers, necessary for the successful deployment of the smart grid, in the electric power sector. Similar to the process utilized for Career Opportunity Grants that were funded utilizing 2008 Workforce Investment Act Funds, training and education providers, including local workforce investment boards, community colleges, and other training providers, from across the commonwealth will be required to respond to an announcement of grant availability in which they will detail the specific strategies they will employ to implement:

- Robust recruitment and retention strategies;
- Seamlessly integrate supportive service strategies where necessary to help the targeted populations succeed;
- Use of the Pennsylvania CareerLink® system to provide case management;
- High-quality training that leads to a degree or certificate; and
- Follow-up and retention services, providing individuals the resources necessary to attain economic self-sufficiency.

The training and education providers will be responsible for ensuring that all activities proposed align with the strategies of the Pennsylvania Center for Green Careers and: lead to placement in employment; teach skills and competencies demanded by the sector; and support participants' long-term career growth along defined career pathways. In an effort to ensure collaboration amongst partners and stakeholders, the training and education providers will be required to provide a 2:1 match (cash, in-kind) for all funds requested.

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Through the provision of training and education, 1,215 of Pennsylvania's unemployed, underemployed (current), and dislocated workers will gain entry and/or advance in opportunities of the electric power sector. By further expanding and institutionalizing the electric power workforce training infrastructure, this project will address critical skills needed to maximize job retention and creation, foster a more dynamic electric power sector for the futures, and build a statewide community of practice that can help industry partnerships in the identification and expansion of electric power generation, transmission, and distribution workforce opportunities.

Respondents to the announcement of grant availability, including community colleges, career and technical schools, and other education and training providers, will work to provide training opportunities utilizing existing and new curriculum. (*A sample of an initial curriculum inventory can be found in Appendix 3.*) In an effort to maximize opportunities for trainees who are either currently in the electric power workforce or who are new to it, multiple methods of training delivery will be deployed through this project that specifically targets the type of worker, including:

### CURRENT WORKER TRAINING OPTIONS

*ON-THE-JOB TRAINING* – Funds will be available, to employers, for reimbursement of up to 50 percent of the wage rate of the participant, to employers for on-site training that enhances the skills and advancement opportunities of current workers. This on-the-job training provides a direct, immediate connection to employers in need of upskilling current employees, such as electrical power-line installers and repairers, who are critical to the implementation of the smart grid.

*APPRENTICESHIP PROGRAMS* – Workforce entities (e.g. industry partnerships) will work with labor organizations, such as the International Brotherhood of Electrical Workers, the Utility Workers Union of America, and the Northeastern Joint Apprenticeship and Training Council, to develop and deliver structured, on-the-job learning in the union setting. These programs will connect workers with organizations that are looking for qualified workers, resulting in a workforce with industry-driven training that provides employers with a competitive edge.

*EDUCATION PROVIDERS* – When and where possible, accelerated training programs will be made available. The accelerated training will be provided through Pennsylvania's network of career and technical education schools, community colleges, and other public and private training providers. This type of training will be used to upskill the existing workforce that has more than a basic understanding of the electric power sector.

*CAREER PATHWAY DEVELOPMENT* – For those in need, basic skills and pre-apprenticeship training will be provided by the existing network of providers, including community colleges, adult basic education providers, and community based organizations.

### NEW WORKER TRAINING OPTIONS

*INDIVIDUAL TRAINING ACCOUNTS* – In instances where individuals meet prerequisite training requirements, workforce entities will use the existing local workforce investment board individual training account framework to allocate training funds. This framework allows for customer choice in the selection of training offerings from training providers who participate in the eligible training provider process used for Pennsylvania's workforce system.

*CAREER PATHWAY DEVELOPMENT* – For those in need, basic skills and pre-apprenticeship

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training will be provided by the existing network of providers, including community colleges, adult basic education providers, and community based organizations.

### ***CRITERION 3: SIGNIFICANCE AND OUTCOME***

#### *ATTRACTION, RETENTION, AND/OR PLACEMENT OF WORKERS*

The on-the-ground implementation of recruitment and training will be conducted by the seven (7) energy and one (1) utilities industry partnerships and twenty-two (22) local workforce investment boards. Drawing upon the infrastructure of employers, labor organizations, education and training providers, and other partners, the aforementioned entities will also provide real-time feedback on the progress of trainees, from recruitment to placement, identify successful training strategies, and provide best practices to the Pennsylvania Center for Green Careers.

With 1,215 individuals projected to be served through this project, it is important that opportunities for employment exist, are identified, and are promoted to trainees. As individuals progress through, and complete, training the importance of the industry-driven partnership framework will increase. With real-time guidance from employers regarding current job opportunities and providing input into existing worker skill gaps, this project will ensure that individuals are enrolled in appropriate, relevant training opportunities.

Through coordinated efforts, industry partnerships will: recruit trainees; integrate supportive service strategies; use the Pennsylvania CareerLink® system to provide case management; identify, and place into, high-quality training that leads to a degree or certificate; and retain and place trainees in training and subsequent employment. These industry partnerships will guide curriculum (re)development and identify training and skill gaps, and also include employers with career placement opportunities that have already been identified.

#### *OUTCOMES*

Through this project, the Pennsylvania Center for Green Careers anticipates that 1,215 individuals will be served. Of the 1,215 served, 855 individuals from the current workforce will receive training and services and 360 individuals new to the workforce will receive training and services. The outcomes for this project are based upon the experience of the industry partnerships, which have trained 3,393 participants since 2007, and other identified employer-driven curricula delivery models identified by the advisory committee, including community college and apprenticeship programs.

If funded, this project will serve 1,215 participants at an average cost of \$4,115 per participant.

#### *IMPACT MEASUREMENT*

As previously noted, all individuals interested in participating in training through this project will be required to register with their local Pennsylvania CareerLink®. By completing a registration, the outcomes of trainees will be collected in Pennsylvania's data collection system, the Commonwealth Workforce Development System. This system is currently utilized to track demographics, employment status, services provided, and provide outcomes to the US Department's of Labor and Education for existing programs including Wagner-Peyser services,

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Workforce Investment Act training, and vocational rehabilitation services. Participants served through this project will be clearly identified for reporting in the commonwealth's system through the use of a unique identifier as is done with other Recovery Act and weatherization funding.

Utilizing Pennsylvania's Commonwealth Workforce Development System, participant-level information on individuals who apply, enroll, and complete training will be collected. As an existing system, the tracking of this project, including job placement and retention indicators, will be easily facilitated. Enhancements, where necessary, can be made to the Department of Labor & Industry reporting processes and systems to accommodate grant requirements.

The Pennsylvania Department of Labor & Industry uses the Financial Management System (FMS), SAP, the Commonwealth Workforce Development System (CWDS), and ad-hoc reports to comprehensively collect and report on Recovery Act funds and programs in a timely and effective manner, including Section 1512 reports. Data validation and internal control measures are in place for all of the Department's Recovery Act programs. The Department's accounting and performance systems (FMS, SAP, and CWDS) have built-in internal data validation and control measures for formula and Recovery Act funds. Department staff implements additional internal control measures to review and analyze sub-grantee programs, conduct risk assessments, perform monitoring and audit procedures and ensure compliance with program guidelines, and other measures as required.

Additionally, the Pennsylvania Department of Labor & Industry has established processes and systems to meet federal and state regulations on financial, performance, and data management affiliated with the Workforce Investment Act, Wagner-Peyser, and related workforce development initiatives.

Finally, the Department has implemented comprehensive strategies to manage and reduce risk associated with Recovery Act funds and activities. Moreover, working with the Pennsylvania Center for Green Careers, the state workforce investment board, and the industry partnerships, the Department has a strong track record of best practice dissemination and technical assistance delivery.

### ***CRITERION 4: ROLES, RESPONSIBILITIES, AND CAPABILITIES***

#### *PROJECT OVERSIGHT*

The Pennsylvania Department of Labor & Industry will serve as the fiscal agent for this project. As the current administrator of \$365,452,498 in federal funding through traditional (e.g. Wagner-Peyser) and Recovery Act sources, the Department has demonstrated a consistent and reliable record in grant management, fiscal oversight, and adherence to federal reporting requirements.

The Pennsylvania Department of Labor & Industry has established processes and systems to meet federal and state regulations on financial, performance and data management affiliated with the Workforce Investment Act, Wagner-Peyser, and related workforce development initiatives. Additionally, the Department has implemented comprehensive strategies to manage and reduce risk associated with American Recovery and Reinvestment Act funds and activities.

Much like Pennsylvania's successful state health care partnership, the Pennsylvania

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Center for Health Careers, the proposed model utilizes an iterative process between Pennsylvania Center for Green Careers and industry partnerships. The Pennsylvania Center for Green Careers and this projects advisory team (Figure 6) will identify barriers and policy needs common to all industry partnerships that can be addressed at a state level. Such state level activities include: conducting an inventory and gap analysis of available electric power workforce training; providing real-time labor market research at both a state and regional level; providing technical assistance; serving as a best practice clearinghouse; and catalyzing innovation in both human resource management and career lattice development.

### *PROJECT MANAGEMENT*

This project will be staffed by a project manager, a project coordinator, and a project assistant. Mr. Steven Wolf (Appendix 4), who will serve as project manager, has experience in the green sector as the Pennsylvania Workforce Investment Board's current Director of Research & Planning. Mr. Wolf coordinates the development of reports on demand for the green industry sector. In his capacity as the project manager, Mr. Wolf will serve as the day-to-day point of contact for the industry partnerships.

This project will be overseen by the Pennsylvania Center for Green Careers made up of green employers, unions, and education and training providers. It is important to note that the Pennsylvania Center for Green Careers will serve as a committee of the State Workforce Investment Board, have representation on the Board, and provide updates and information thereby coordinating with the overall workforce development strategy of the commonwealth. The sustainability of this project will be increased by the Center as it will focus on this project as well as oversee and implement other green related policy recommendations, career awareness activities, and provide additional training support to the increasing green industry. The Center will provide direct oversight of this project, as well as serve as the mechanism for continuous feedback on effective practices.

### **ROLES OF PARTICIPANTS**

The Pennsylvania Workforce Investment Board, the applicant for this proposal, will serve as the administrative lead for this project. The Pennsylvania Center for Green Careers, an initiative of the state workforce investment board, will provide oversight and guidance for this project. The seven (7) energy and one (1) utilities industry partnerships covering all counties in Pennsylvania will serve as the local coordinators between employers, education vendors, prospective trainees, and the project coordinators for implementation purposes. Pennsylvania CareerLinks® will serve as the intake centers for all participants.

The Pennsylvania Department of Labor & Industry will serve as the fiscal agent for this project. Within the Department, the Center for Workforce Information and Analysis, the state's labor market information shop, will be responsible for providing current labor market research and data including hiring trends, demographics, and employment statistics and tracking hiring outcomes for transparency. Also within the Department, the Bureau of Workforce Development Partnership will provide technical assistance in the monitoring and reporting process as required.

Utilizing Pennsylvania's seven (7) energy and one (1) utilities industry partnerships, more than 680 employers, labor, academic/research, and training and education providers (e.g. community colleges, four-year institutions, career and technical schools, and other public/private

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vendors) will provide training opportunities, job openings, new curricula, as well as real time feedback on progress, successful training strategies, and other best practices.

To ensure collaboration among state agencies at the highest levels (above the staff levels that participate in regular meetings of the Pennsylvania Center for Green Careers and its committees), this project will also be advised by Pennsylvania's human capital committee, a sub-committee of the Governor's Economic Development Cabinet. As well as Labor and Industry, this committee includes senior-level staff from all the other Pennsylvania Departments with responsibility for programs that touch on related green industries, including Community and Economic Development (with responsibility for weatherization programs and housing programs), Environmental Protection (which oversees energy and environmental programs), Education, Public Welfare. Through the use of this committee, assurances can be made that this project is aligned with, and not duplicative of, other commonwealth initiatives.

### FACILITIES AND OTHER RESOURCES

Pennsylvania's expansive workforce development system is complemented by an expansive educational and training facilities infrastructure that will support the success of this project.

The *Pennsylvania CareerLink*® system is the one-stop system used by jobseekers, employers, and training providers across the commonwealth. The online system allows jobseekers to post resumes, view job orders, and search for training courses and programs that employers and training providers have submitted to the system. The sixty-four (64) physical offices across the commonwealth allow the jobseekers, employers, and training providers to access online services and more.

Pennsylvania's twenty-two (22) Local Workforce Investment Boards, covering all sixty-seven (67) of Pennsylvania's counties, were established to set policy for the workforce development system. They are responsible for system building, strategic planning, knowledge development, and continued oversight of workforce development programs. Boards identify the appropriate issues and establish priorities for action and contract to service providers and training agencies for the provision of core, intensive, and training services.

Pennsylvania's seventy-two (72) *industry partnerships*, of which there are seven (7) energy and one (1) utilities, are multi-employer collaborative efforts that bring together management and labor around the common purpose of improving the competitiveness of a cluster of companies or organizations producing similar products or services and sharing supply chains, critical human resource needs, infrastructure requirements, business services, and/or retention/recruitment challenges. These partnerships concentrate attention and resources on particular clusters of industries that provide good wages and benefits, have the greatest potential for economic growth and/or which face serious challenges to growth or retention. By bringing together employers and their workers the public sector is able to learn significantly and qualitatively more about the opportunities and challenges facing a set of similar companies.

Pennsylvania's fourteen (14) *Community Colleges*, which serve all sixty-seven (67) counties of Pennsylvania, are rooted in their mission of educational opportunity for all Pennsylvanians in order to improve the quality of life and economic wellbeing. To achieve this mission the community colleges offer accessible, affordable, high quality, and responsive higher education, workforce development, career, and skill training opportunities.

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The eighty-six (86) *Career and Technical Education Centers* (formerly vo-techs) across Pennsylvania are public school entities that provide high school age students with technical education, aligned to academic and technical standards, that prepare students to enter the workforce and/or college. These same centers, which serve sixty-five (65) of Pennsylvania's sixty-seven (67) counties, also provide industry driven technical training to adults in an effort to reach the workforce needs of the region they serve.

## ELECTRIC POWER WORKFORCE TRAINING PARTNERSHIP OF PENNSYLVANIA

### APPENDIX 1: ARTICLE – PENNSYLVANIA JOB-TRAINING EFFORTS LEAD NATION

#### Pennsylvania job-training efforts lead nation

By John L. Kennedy

10/23/2009

The number of graduates from Pennsylvania nursing schools doubled in the last five years. The surge in graduates when Pennsylvania faced the threat of a nursing shortage was more than just a happy coincidence. A little-known group within the [Pennsylvania Department of Labor & Industry](#) (L&I), the Center for Health Careers, worked with the health care industry and the [Department of Health](#) to promote careers in nursing.

L&I now is capitalizing on the success of the [Center for Health Careers](#) by creating the Center for Advanced Manufacturing Careers and a Green Careers Center. The strategy for matching workers with jobs is the same: Estimate the number of jobs needed in certain industries and work with industry and other state agencies to set up the necessary training.

The L&I initiatives are part of a larger job training effort that took on a new name, workforce development, and a new focus under the Rendell administration. Rather than stay with the old-fashioned method of training people for jobs that might exist, estimate the number of jobs likely to exist in certain industries and train people for those jobs. In addition, expand the training beyond the jobless to workers whose jobs might become obsolete.

The training initiatives are administered through the [Pennsylvania Workforce Investment Board](#) (WIB) in Harrisburg and 22 regionally established WIBs. The WIBs are made up of business, community and academic leaders.

Robert G. Garraty, executive director of the Pennsylvania WIB, offers more detail:

"We began to see trends in certain regions and with certain industries, and formed clusters of manufacturing, health care, construction ... whatever the general industry categories are that represent that area."

Northern Pennsylvania has a strong powdered metal industry, and southcentral Pennsylvania has a strong food processing and food-packaging presence, for example.

"By clustering these industries under the local WIBs, we can see similar training and education needs for their employees. The training efforts then are spread over a larger group," Garraty said. "Bringing together the businesses in those general groupings, you find very similar training needs and business trends. It makes our training efforts much more effective."

The new direction in workforce development works so well that other states model their programs on Pennsylvania's. Recently, L&I and its secretary, Sandi Vito, won two of five national awards from the National Association of State Workforce Agencies (NASWA) for excellence in workforce development initiatives.

The folks at L&I should take a bow.

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**ELECTRIC POWER WORKFORCE TRAINING PARTNERSHIP OF PENNSYLVANIA**

<b>APPENDIX 2: INDUSTRY PARTNERSHIPS (ENERGY AND UTILITIES)</b>			
<b>Title</b>	<b>Lead LWIB</b>	<b>Project Region</b>	<b>Description</b>
<b>Energy</b>			
Central PA Alternative Energy Supply Chain Pilot	Central	North Central	The intent of the project is to leverage the economic and workforce development capabilities of the region to assist companies in identifying and development new markets and products to support the alternative energy supply chain.
Energy Industry Partnership (Gas and Oil Extraction)	North Central	North Central	This partnership, currently 13 businesses, continues to assist the Gas and Oil Extraction industry with their workforce and human capital needs. The partnership is managed by the PA Oil and Gas Association (POGAM).
Energy IP and Energy Partnership Development and Training Initiative	Luzerne - Schuylkill	North East	This partnership's strategy is to provide companies a forum where challenges, goals, and sustainability efforts can be discussed and acted upon. The Energy Industry Partnership has been aided in its recruitment efforts through cooperation with the Northeast Pennsylvania Manufacturers and Employers Association, and the members of the Energy Roundtable that convened in January 2008. The Industry Partnership's core group of energy industry leaders includes some of the largest energy companies in the region.
Developing & Enhancing a Regional Energy Industry Partnership	South Central	South Central	This partnership addresses the needs of renewable energy and the manufacturing of components for renewable energy systems and utilities throughout a ten county region. The goals of this partnership are: Identify and leverage workforce and economic development stakeholders to develop a regional strategic plan; Enable innovative advances of the energy industry, its workforce, and its supply chain; Align economic development resources and activities with the needs of partners industries; Develop a complete picture of the renewable energy market; Provide regional partners with shared technical and market research; and Integrate regional partners with workforce development resources.
Smart Energy Initiative of Southeastern Pennsylvania	Chester	South East	This regional partnership serves companies that provide energy and/or provide technology for energy in the five county areas that makes up SE PA. Funds are used specifically to: Recruit company participation; Identify workforce development and other business needs of member companies; Conduct Gap and/or SWOT analyses; Develop training plans; and Develop other business support initiatives that respond to stated business needs.
3 Rivers Clean Energy Initiative (3RCEI)	Three Rivers	South West	The 3RCEI is an economic development effort focused on expanding the clean energy industry in the ten counties of southwestern PA and making the region a leader in research, development, and application of clean energy technologies. The mission of the 3 Rivers Energy Partnership is to ensure that the workforce needs of local energy industry supply chain businesses are met, and that the skills and talents of the workforce are developed such that the workers not only benefit individuals, but that the workforce collectively serves as an economic engine to help grow and attract energy-related businesses.
Mining Industry Partnership of Pennsylvania	Southwest Corner	South West	Pennsylvania is faced with an aging coal mining workforce and growing voids in the mining industry. Goals of this partnership include: Incumbent worker training; Developing the pipeline by creating a clearinghouse for new recruits; Strengthening the partnership by solidifying its governance structure; Adopting new technologies for communication practices; and Supporting efforts which lead to sustainability

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<b>Utilities</b>			
Keystone Utilities Partnership	Three Rivers	Statewide	Through its affiliation with the Pennsylvania AFL-CIO, KDP is working with the International Brotherhood of Electrical Workers (IBEW) and Utility Workers Union of America (UWUA) and other unions to engage employers to form or enhance joint labor management training committees. Energy employers include some of the largest energy companies such as PPL, Reliant Energy, First Energy, and Duquesne Light as well as individual energy generation plants such as Corona in Sunbury.

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**APPENDIX 3: SAMPLE OF CURRENTLY AVAILABLE CURRICULUM  
PENNSYLVANIA COMMUNITY COLLEGE PROGRAMS SUPPORTING ELECTRIC POWER OCCUPATIONS**

**11-3051 HYDROELECTRIC PRODUCTION MANAGERS; 11-9041 ENGINEERING MANAGERS; 11-9199 MANAGERS, ALL OTHER**

<b>Degree / Transfer Programs</b>			
Allegheny	Business Management		Business Administration
Beaver	Business Administration	Lehigh	Business Management
	Business Management		Engineering
Bucks	Business Administration	Carbon	Industrial Management-Business
	Management/Marketing: Small Business Mgmt Emphasis		Mechanical Engineering Technology
	Occupational Studies	Luzerne	Business Administration
Butler	Office Administration And Systems Technology	Montgomery	Business Management Technology
	Business Administration		Business Administration
	Business Management		Business Administration - Accelerated Learning Program
Delaware	Engineering	Northampton	Business Administration - International Option
	General Business		Engineering Science
	Small Business Management		Management
	Business Administration	PA Highlands	Nuclear Engineering Technology
	Business Administration - Marketing Option		Business Administration
	Business Administration - Mgmt.Option		Business Management
Harrisburg	Business Management	Philadelphia	Engineering
	Engineering		Business
	Entrepreneurial Leadership	Reading	Business Economics
			Business Statistics
			Business Management, Management
	Westmoreland	Business - General Management	
		Business - Small Business Management	
		Business Management	
<b>Certificate Programs</b>			
Allegheny	Business Management	Lehigh	Business Management
Bucks	Entrepreneurship	Carbon	Human Services
Butler	Business Skills-Certificate Programs	Luzerne	Business Management
	Management of Applied Technology	Montgomery	Business Management
Delaware	Small Business Management Certificate Programs	Philadelphia	Construction II: Management Fundamentals
Harrisburg	Business, General	Reading	Business Management

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Entrepreneurship Management		Westmoreland	Business - General Management Business - Small Business Management Business Management
<b>Diploma Programs</b>			
Harrisburg	Entrepreneurial Leadership	Westmoreland	Business Management
Northampton	Small Business Management		
<b>Award Level Not Confirmed</b>			
PA Highlands	Leadership Technology		
<b>13-1111 MANAGEMENT ANALYSTS</b>			
<b>Degree / Transfer Programs</b>			
Beaver	Business Administration	Northampton	Business Administration
Bucks	Office Administration And Systems Technology		Business
Harrisburg	Business Studies	Philadelphia	Business Economics
Luzerne	Business Management Technology		Business Statistics
Montgomery	Business Administration Business Administration - Accelerated Learning Program Business Administration - International Option		
<b>Certificate Programs</b>			
Butler	Business Skills-Certificate Programs	Luzerne	Business Management
Harrisburg	Business, General	Philadelphia	Construction II: Management Fundamentals
<b>17-2071 ELECTRICAL ENGINEERS; 17-2112 INDUSTRIAL ENGINEERS; 17-2141 MECHANICAL ENGINEERS; 17-2199 ENGINEERS, ALL OTHER</b>			
<b>Degree / Transfer Programs</b>			
Butler	Engineering	Lehigh	Engineering
Delaware	Engineering	Carbon	Mechanical Engineering Technology
Harrisburg	Engineering	Montgomery	Engineering Science
		Northampton	Engineering
<b>17-3012 ELECTRICAL AND ELECTRONICS DRAFTERS</b>			
<b>Degree / Transfer Programs</b>			
Allegheny	Computer Aided Drafting & Design	Montgomery	Computer-Aided Drafting & Design Technology
Delaware	Computer-Aided Drafting/Design	Northampton	Computer Aided Design
Lehigh Carbon	Drafting and Design	Philadelphia	CAD/Engineering Doc Opt
Luzerne	Computer-Aided Drafting and Design Technology		Computer Assisted Des Tech
<b>Certificate Programs</b>			

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Allegheny	Basic Computer Aided Drafting	Luzerne	Computer Aided Drafting and Design Technology
Delaware	Computer-Aided Drafting/Design Tech. Computer-Aided Drafting/Design Tech.	Philadelphia	CAD/BIM Comp Asst Des Tech Construction I: Building and Documentation
Lehigh Carbon	Drafting		

**17-3023 ELECTRICAL AND ELECTRONIC ENGINEERING TECHNICIANS**

Degree / Transfer Programs			
Allegheny	Electronic Engineering Technology Science and Engineering Technology	Luzerne	Electronics Engineering Technology Nanofabrication Manufacturing Technology - Electronic Track
Butler	Electronics Technology Metrology Nanofabrication Technology	Montgomery	Engineering Technology - Nanofabrication Option
Delaware	Electronics Technology Nanofabrication Manufacturing Technology Telecommunications	Northampton	Nanofabrication Manufacturing Tech: Electronics Optoelectronics Technology
Harrisburg	Electronic Engineering Technology Nanofabrication Manufacturing Technology	PA Highlands	Applied Engineering Tech-Electronics Applied Engineering Tech-Nanofabrication Electronics Technology Electronics/Nanofabrication
Lehigh Carbon	Electrical Engineering Technology Electronics Technology -Telecommunication Electronics Technology-Optoelectronics Nanofabrication Technology	Westmoreland	Electronics Engineering Technology Manufacturing Nanofabrication Robotics Technology

**Certificate Programs**

Allegheny	Basic Electronics Digital Electronics	Montgomery	Electronics Nanofabrication
Harrisburg	Electronic Technology	Philadelphia	Applied Science and Engineering Tech
Luzerne	Electronics Engineering Technology		

**17-3026 INDUSTRIAL ENGINEERING TECHNICIANS**

Degree / Transfer Programs			
Allegheny	Integrated Systems Engineering Technology Manufacturing Engineering Manufacturing Technology	Northampton	Applied Quality and Standards Applied Engineering Tech-Manufacturing
Bucks	Engineering	PA Highlands	Manufacturing Technology Manufacturing Technology
Butler	Manufacturing Technology	Philadelphia	Applied Science and Engineering Technology
Lehigh Carbon	Industrial Automation Manufacturing Technology	Westmoreland	Manufacturing Process Technology

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<b>Certificate Programs</b>			
Allegheny	Integrated Systems Engineering Technology		Applied Science and Engineering Tech
Lehigh	Industrial Automation	Philadelphia	Nanofabrication Manufacturing Technology
Carbon			
Northampton	Applied Quality & Standards - Electronics Manufacturing		
<b>17-3031 SURVEYING AND MAPPING TECHNICIANS</b>			
<b>Degree / Transfer Programs</b>			
Philadelphia	Geographic Information Systems		
<b>Certificate Programs</b>			
Lehigh	Geographic Information Systems	Philadelphia	Geographic Information Systems
Carbon			
<b>19-4051 NUCLEAR EQUIPMENT OPERATION TECHNICIANS</b>			
<b>Degree / Transfer Programs</b>			
Allegheny	Lab Technology	Reading	Nanoscience Technology
Delaware	Technical Studies	Westmoreland	Nuclear Service Technology
<b>Certificate Programs</b>			
Delaware	Technical Studies Certificate Programs	Reading	Nanoscience Technology
<b>47-1011 SOLAR ENERGY INSTALLATION MANAGERS; 47-4099 SOLAR PHOTOVOLTAIC INSTALLERS</b>			
<b>Degree / Transfer Programs</b>			
Allegheny	Bldg Construction Estimating Bldg Construction Supervision Bldg Construction Technology	Philadelphia	Construction Management Facility Management-Construction Option
<b>Certificate Programs</b>			
Delaware	Construction Supervisor		
<b>Diploma Programs</b>			
Harrisburg	Construction Field Supervision		
<b>47-2111 ELECTRICIANS</b>			
<b>Degree / Transfer Programs</b>			
Allegheny	Electrical Construction Apprentice	Luzerne	Electrical Construction Technology
Beaver	Electrical Occupations	Northampton	Electrical Construction Technology
Harrisburg	Electrical Technology		Electrical Construction Technology - IBEW
<b>Certificate Programs</b>			
Delaware	Electrical Occupations	Lehigh	Electrical Technology

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Harrisburg	Electrical Technology Independent Electrical Contractor	Carbon Luzerne	Electrical Construction
<b>Diploma Programs</b>			
Harrisburg	Electrical Occupations	<b>49-2022 TELECOMMUNICATIONS EQUIPMENT INSTALLERS AND REPAIRERS, EXCEPT LINE INSTALLERS</b>	
<b>Degree / Transfer Programs</b>			
Luzerne	Integrated Entertainment Technology		
<b>Certificate Programs</b>			
Allegheny	Network Cable Technology	Luzerne	Integrated Entertainment Technology
<b>49-2094 ELECTRICAL AND ELECTRONICS REPAIRERS, COMMERCIAL AND INDUSTRIAL EQUIPMENT</b>			
<b>Degree / Transfer Programs</b>			
Lehigh Carbon	Electrical Technology	Northampton	Electronics Technology
<b>Certificate Programs</b>			
Allegheny	Mechanical Electronics Technology	Lehigh Carbon	Electronics
<b>Diploma Programs</b>			
Northampton	Electrical Technology Electronics Technology	<b>49-9041 INDUSTRIAL MACHINERY MECHANICS</b>	
<b>Degree / Transfer Programs</b>			
Delaware	Industrial Systems Tech-D	Reading	Mechatronics Engineering Technology
Harrisburg	Industrial Maintenance Technology	Westmoreland	Manufacturing Maintenance Apprenticeship
<b>Certificate Programs</b>			
Allegheny	Mechanical Maintenance Motor Winding Technology	Delaware Harrisburg	Industrial Systems Technology Industrial Maintenance Technology
<b>Diploma Programs</b>			
Harrisburg	Industrial Maintenance Technology	<b>49-9042 MAINTENANCE &amp; REPAIR WORKERS, GENERAL</b>	
<b>Degree / Transfer Programs</b>			
Allegheny	Building Maintenance Technology	Luzerne	Building Maintenance Technology
Delaware	Facilities Management		
<b>Certificate Programs</b>			
Allegheny	Building Maintenance Technology	Luzerne	Building Maintenance

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Delaware	Building Maintenance		
<b>49-9051 ELECTRICAL POWER-LINE INSTALLERS AND REPAIRERS</b>			
<b>Degree / Transfer Programs</b>			
Allegheny	Electrical Distribution Technology	PA Highlands	Electric Utility Technology
Delaware	Power Utility Technology	Reading	Electrical Utility Technology
Harrisburg	Transmission & Distribution Technology		
<b>Certificate Programs</b>			
Allegheny	Electrical Distribution Technology		
<b>51-1011 SUPERVISORS - PRODUCTION WORKERS; 51-8012 POWER DISTRIBUTORS AND DISPATCHERS; 51-8013 POWER PLANT OPERATORS; 51-8021 STATIONARY ENGINEERS &amp; BOILER OPERATORS; 51-8099 HYDROELECTRIC PLANT TECHNICIANS; 51-9061 INSPECTORS, TESTERS, SORTERS, SAMPLERS, AND WEIGHERS</b>			
<b>Degree / Transfer Programs</b>			
Bucks	Marketing/Management: General Emphasis		
<b>Certificate Programs</b>			
Bucks	Management Supervision	Philadelphia	Process Technology Competency Process Technology Proficiency
<b>51-2022 ELECTRICAL AND ELECTRONIC EQUIPMENT ASSEMBLERS</b>			
<b>Degree / Transfer Programs</b>			
Bucks	Marketing/Management: General Emphasis	Northampton	Electronics Technology
Lehigh Carbon	Electrical Technology		
<b>Certificate Programs</b>			
Allegheny	Mechanical Electronics Technology	Lehigh Carbon	Electronics
Bucks	Management Supervision	Philadelphia	Process Technology Competency Process Technology Proficiency
<b>Diploma Programs</b>			
Northampton	Electrical Technology Electronics Technology		
<b>51-4121 WELDERS, CUTTERS, SOLDERERS &amp; BRAZERS</b>			
<b>Degree / Transfer Programs</b>			
Allegheny	Welding Technology	PA Highlands	Welding Technology
Beaver	Machine Tool Technology Welding	Reading	Machine Tool Tech
Butler	Computer-Aided Machining Tech.	Westmoreland	Computer Numerical Control Machine Technology

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Delaware	Machine Tool Technology		Welding Engineering Technology
<b>Certificate Programs</b>			
Allegheny	Basic Machine Welding Technology	Harrisburg	Precision Metalworking Technology Welding Technology
Butler	CNC Technology Machine Tool Technology	Luzerne	Computerized Numerical Control Technology
Delaware	CNC Programming/Lathe and Mill	Philadelphia	Process Technology Competency Process Technology Proficiency
	Computer-Aided Machining Lathe, Mill and EDM		Computer Numerical Control
	Machining Operations Level 1	Westmoreland	Machine Technology Welding Engineering Technology
	Machining Operations Level 2		
	Manufacturing Operation Welding		
<b>Diploma Programs</b>			
Harrisburg	Welding	Northampton	Welding Technology
Luzerne	Machine Tool Technology		
<b>51-8011 NUCLEAR POWER REACTOR OPERATORS</b>			
<b>Degree / Transfer Programs</b>			
Bucks	Marketing/Management: General Emphasis	Westmoreland	Nuclear Service Technology
<b>Certificate Programs</b>			
Bucks	Management Supervision	Philadelphia	Process Technology Competency Process Technology Proficiency

## ELECTRIC POWER WORKFORCE TRAINING PARTNERSHIP OF PENNSYLVANIA

### APPENDIX 4: PROJECT MANAGER RESUME (STEVEN WOLF)

#### Professional Experience

2008 – Present

Director of Research and Planning, Pennsylvania Workforce Investment Board

- Serving as Pennsylvania Department of Labor & Industry Energy Initiative Coordinator
- Coordination of Energy programs among several commonwealth departments
- Coordinator, Pennsylvania Energy Industry Partnerships
- Project Director, Pennsylvania Weatherization Training Plan
- Chairman, Weatherization Application Review Committee
- Member, Solar Working Group
- Member, Wind Working Group
- Member, Marcellus Shale Natural Gas Committee
- Representative, Department of Community and Economic Development Large Scale Energy Projects Team
- Developed the Pennsylvania Workforce Investment Board Update

2005 - 2008

Program Analyst II, Bureau of Workforce Development Partnership, Pennsylvania Department of Labor & Industry

- Project Manager, Pennsylvania CareerLink® Quality Review
- Chairman, Business Services Training Development, Pennsylvania CareerLink® Training Program Development Team, Pennsylvania CareerLink® 101, 200, 300 series trainings

2002 - 2005

Director of Marketing and Sales, Blue Ridge Country Club, Harrisburg, Pa

- Develop Business and Market Position Analysis
- Sales of Membership, Special Event
- Special Events Manager

2000 – 2002

Director of Sales and Marketing, Bent Creek Country Club, Lititz, Pa

- Develop Business and Market Position Analysis
- Sales of Membership, Special Event
- Development of Seasonal Marketing Campaign

1997 – 2000

Business Analyst, Hirsh Valuation Group, Harrisburg, Pa

- Manager, Financial Analysis
- Highest and Best Use Analysis
- Appraisal of Various Types of Properties

#### Education

1992

Eastern Kentucky University

Bachelor of Arts in Communication, Associates Degree in Business Administration

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- <sup>iii</sup> Pennsylvania Department of Labor & Industry, Center for Workforce Information and Analysis. Internal Source: Pennsylvania Seasonally Adjusted Unemployment Rate. Accessed 2 November 2009.
- <sup>iv</sup> Pennsylvania Department of Labor & Industry, Center for Workforce Information and Analysis. Current Population Survey, July 2009. Accessed 10 September 2009.
- <sup>v</sup> Ibid.
- <sup>vi</sup> Pennsylvania Department of Labor & Industry, Center for Workforce Information and Analysis. Internal Source: Unemployment Compensation System. Accessed 14 October 2009.
- <sup>vii</sup> Pennsylvania Department of Labor & Industry, Center for Workforce Information and Analysis. Internal Source: Pennsylvania Poverty Data. Accessed 14 October 2009.
- <sup>viii</sup> Pennsylvania Department of Labor & Industry, Center for Workforce Information and Analysis. Quarterly Census of Employment and Wages for Pennsylvania, Private. Accessed 9 November 2009.
- <sup>ix</sup> Pennsylvania Department of Labor & Industry, Center for Workforce Information and Analysis. U.S. Census Bureau, Local Employment Dynamics, Quarterly Workforce Indicators. Accessed 28 October 2009.
- <sup>x</sup> Pennsylvania Department of Labor & Industry, Center for Workforce Information and Analysis. "Pennsylvania Green Jobs Report." ([www.paworkforce.state.pa.us](http://www.paworkforce.state.pa.us)) Accessed 26 October 2009.
- <sup>xi</sup> Pennsylvania Department of Labor & Industry, Center for Workforce Information and Analysis. Internal Source. Accessed 27 October 2009.
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- <sup>xiv</sup> Ibid.
- <sup>xv</sup> Ibid.
- <sup>xvi</sup> Pennsylvania Department of Labor & Industry, Center for Workforce Information and Analysis. American Community Survey. Accessed 10 September 2009.
- <sup>xvii</sup> Pennsylvania Department of Labor & Industry, Center for Workforce Information and Analysis. U.S. Census Bureau, Local Employment Dynamics, Quarterly Workforce Indicators. Accessed 28 October 2009.