



Pacific Northwest Center of Excellence for Clean Energy

Education Taskforce Meeting Minutes

Idaho Power
1221 W. Idaho Street
Boise, ID

September 22, 2011, 9 a.m. – 3:30 p.m.

Mission Statement:

The Pacific Northwest Center of Excellence for Clean Energy Education Taskforce will:

- Identify, revise and/or expand curriculum focused on Smart Grid Education and Training using design standards and skill standards for occupations within established deadlines.
- Evaluate and revise curriculum goals annually.
- Redesign career progression within and between target occupations and between utilities, removing and reducing barriers for job progression.

In attendance:

Lawrence Beaty, ESTEC/Idaho State University
Terrence Browne, Avista Utilities
Monica Brummer, PNCECE
Jan Bryant, Idaho Power
Jim Davidson, Idaho National Laboratory
Ryan Davis, Regional Education Training Center
Catherine Dickinson, Idaho Department of Labor
Ryan Fedie, Bonneville Power Administration, Chair
John Gardner, Boise State University/Center for Advance Energy Studies
Chris Guthrie, Partners for Prosperity
Jeff Hammarlund, Portland State University
Alan Hardcastle, Washington State University
Barbara Hins-Turner, PNCECE
Robert Kabel, Idaho State Department of Labor
Angelique Keavney, Idaho Power
Melanie Kincaid, Regional Education Training Center
Larry Kite, Incremental Systems
Jamie Krause, PNCECE
Vera McCrink, Idaho State Professional Technical Education
Jilliene McKinstry, Gonzaga University
Jay Pickett, Centralia City Light
Kairie Pierce, Washington State Labor Council
Katie Pruder-Scruggs, Bonneville Power Administration
Alison Pugh, Edmonds Community College
Diane Quincy, Avista Utilities
Scott Rasmussen, ESTEC/Idaho State University
Mark Reed, Idaho Falls Power
Mysti Reneau, Spokane Community College
Kevin Schneider, Pacific Northwest National Laboratory
Sharon Schultz, Washington State Department of Veteran Affairs
Anne Seifert, Idaho National Laboratory
Lisa Skriner, Montana State University—Billings
Bob Topping, Chemeketa Community College
Michael Wehling, Puget Sound Energy
Darla Wohlschlegel, Idaho Department of Labor

Call to Order, Ryan Fedie, Taskforce Chair, Bonneville Power Administration

Barbara Hins-Turner introduced Ryan Fedie, Bonneville Power Administration as the new Education Taskforce Chair. Ryan relayed that he had previously been part of the Northwest Energy Efficiency Taskforce (NEET). He is currently the demand side energy efficiency, engineering manager for BPA and oversees all the technical operations on the demand side. Ryan

thanked Idaho Power for hosting this meeting. All five states involved in the Smart Grid project were present at the meeting (Washington, Idaho, Oregon, Utah, and Montana).

Welcome, Idaho Power/ESTEC, Jan Bryant/Scott Rasmussen/Vera McCrink

Scott Rasmussen, Executive Director for the Energy Systems Technology Education Center (ESTEC) at Idaho State University welcomed everyone to Idaho and introduced Vera McCrink, Idaho State Professional Technical Education and Jan Bryant, Idaho Power. Both Vera and Jan welcomed the Education Taskforce to Idaho. Vera discussed Idaho State education system and how the funds are distributed to the technical programs. Scott Rasmussen discussed how ESTEC was formed and that their mission was to develop a mechanic and electric and instrumentation control curriculum to train technicians across the board to work in all facets of power generation.

Adoption of June 22, 2011 Minutes (Action Item)

Ryan Fedie requested any changes for the June 22, 2011 Education Taskforce meeting minutes. No changes were noted. Ryan called for a motion to approve the minutes. Jeff Hammarlund motioned to accept the minutes. Kairie Pierce seconded the motion. The minutes were accepted and approved as written.

PNCECE Smart Grid Project Overview

Smart Grid project sub-recipients in attendance presented a brief overview of their individual projects. Among those presenting,

- Diane Quincy, Avista Utilities presented on their project. Avista is developing smart grid training, constructing smart grid training activities, online curriculum to share with grant partners, and reporting on training numbers. In addition, she discussed the new substation being built at Jack Stewart Training Facility.
- Bob Topping, Chemeketa Community College presented on developing curriculum for rural utilities. Chemeketa has been working with high schools on Job Hazard Analysis, safety training, and conducting SixSigma training. Also, Chemeketa is working with manufacturing to align with military veteran's skills sets by employing tools to assess those skill sets while still on military duty, then training to specific gaps to bridge competencies.
- Ryan Davis, Regional Education Training Center (RETC) discussed year one logistical and web portal activities, and hosting the Energy & Construction Best Practices Summit last June 2011. RETC hosted a Try-A-Trade event with K-12 outreach last May where over 60% of participants were on free and reduced lunch and come from economically disadvantaged families. In October RETC will host a Careers In Energy day where over 100 students will come and learn about the energy related activities.
- Washington State Department of Veterans Affairs and Incremental Systems are recruiting and training veterans. They are looking into building an apprenticeship program for military Veterans.
- Alan Hardcastle, Washington State University Extension Energy Program reported on the established Career Lattice, unique jobs, connections among and between jobs, and skill sets.

Jim Davidson, Idaho National Laboratory asked about the NERC certificates relating to the Power Simulator. Larry Kite, Incremental Systems reported that the certifications are coming directly from NERC.

Jay Pickett, Centralia City Light discussed the business value received from participating on the Education Taskforce. He stated that "for operational people at all levels, there is business value and we may not have mentioned that."

Barbara Hins-Turner discussed how the grant was awarded and how progress is going forward. Barbara also introduced staff and their roles. The website is one of the main areas of disseminating: <http://cleanenergyexcellence.org>. Barbara talked about the committee infrastructure for the project and highlighted the Governance board which oversees project activities, fiscal committee, education taskforce, and curriculum committee. A new taskforce for year two is the manufacturing taskforce. Portland State University, ESTEC, and Montana State University-Billings will be funded in year two.

Jeff Hammarlund discussed the executive courses Portland State University offers related to Smart Grid. Funding to expand faculty has come from Intel and Portland General Electric. Last year a course called "Designing Oregon Smart Grid Policy – You Be The Architect" was created. Smart Grid policy development was created by a "blue ribbon" committee which includes the best and brightest from across the country. This committee makes recommendations to the Governor of Oregon and the outcomes become part of the state's energy plan. Portland State University looks for opportunities for collaboration among universities to share common curriculum across the regional areas.

Diane Quincy discussed how "The Cloud" diagram helps to clarify the project as a clearinghouse of information and collaboration, sharing of best practices, leverage what's being done and building off existing activities, and a sounding board for working groups.

Larry Kite mentioned that colleges and universities across the nation are operating the Incremental Systems (IncSys) Power Simulator including five community colleges in Washington state. Incremental Systems received \$3.6 million to train operators, engineers, students, and 120 military veterans in preventing power system events.

Jim Davidson mentioned that everyone is trying to define Smart Grid, is there an official definition? Jeff Hammarlund discussed the Smart Grid definition that was approved by the Education Taskforce. Jim suggested that when moving forward, consider the technologies that have not been designed yet and consider the science fiction of tomorrow when designing curriculum.

Idaho State University/ESTEC, Anchoring the Smart Grid project in Idaho

Lawrence Beaty shared that the Energy Systems Technology and Education Center (ESTEC) is an operating partnership between Idaho State University's (ISU) College of Technology (CoT), Idaho National Laboratory, INL, and Partners for Prosperity (P4P). Formed in 2006, ESTEC began as an idea sparked by the need to address the growing shortage of work-ready technicians in the U.S. energy sector. Skill requirements have been developed in partnership with industry, energy utilities and vendors to assure that program graduates enter the workforce with the precise skills required. In each of the ESTEC programs offered, students learn through traditional classroom experience, computer based training, as well as through extensive laboratory exercises.

Update on BPA demonstration projects, Idaho Falls Power – Mark Reed

Mark Reed discussed the Northwest Smart Grid demonstration projects at Idaho Fall Power. Idaho Falls Power was awarded an ARRA grant to demonstrate how smart grid technology can enhance the safety, reliability and efficiency of energy delivery. Their goal is to validate new smart grid technologies and inform business cases; provide two-way communication between distributed generation, storage, and demand assets and the existing grid infrastructure; quantify smart grid costs and benefits, advance interoperability standards, and cyber security approaches. The objectives are to manage peak demand, facilitate integration of wind and other renewables, address constrained resources, select economical resources, improve system efficiency, and improve system reliability. Idaho Falls Power is beginning the installation of AMI/AMR infrastructure. They will test automated water heater/thermostat controls, a number of in-home displays via web-interface with customers to provide real time energy usage data for customers, testing EV battery charging using solar arrays, and testing peak shaving using large battery technology. Some of the major partners are IBM, Alstom – Areva T & D, Quality Logic, 3 Tier, Netezza. Release cycle one was just completed. One year left to complete the infrastructure.

Battelle – Idaho National Lab – James Davidson, Future Educational Needs to Support Smart Grid Cyber Security

James Davidson reported on Smart Grid cyber security. He stated that the future needs to support smart grid cyber security. One of the biggest issues with AMI is the individual worries about their information getting out. Most are worries about privacy issues rather than someone hacking into their meter. Need to start building a workforce that understands cyber security in all aspects.

Ryan Davis asked if there is curriculum off the shelf that available for cyber security. Ryan Fedie said that Bonneville Power Administration has curriculum training for their employees on cyber security aspects. Jay Pickett said that Marc Baine has some cyber security curriculum at Centralia City Light.

Idaho Power – Smart Grid Program – Jan Bryant, Smart Grid Program Manager

Jan Bryant presented on Idaho State's Smart Grid grant. Idaho Power received a \$47 million federal grant with Idaho Power investing a matching \$47 million. There are 12 smart grid projects with over 100 employees working on the project. Their success is working with their customers and resolving the issues. The goals are to enhance customer service, improve power reliability, promote energy efficiency, and integrate renewable resources by advanced metering infrastructure (AMI), customer systems, and electric infrastructure improvements. AMI meter exchanges began in 2009 and will be completed in December 2011 throughout the distribution region. The company is replacing 475,000 existing traditional meters with advanced, digital wired meters. Customer service projects will provide customer access to smart meter information and programs enabled by Smart technology. The projects planned under this category include updates to the outage management system, development of renewable integration tools to improve load and wind forecasting, and implementation of a transmission situational awareness project. More information can be found on the Idaho Power website www.idahopower.com/AboutUs/CompanyInformation/SmartGrid

Center for the Advanced Energy Studies (CAES) Energy Efficiency Research Institute (CEERI) - John Gardner

John Gardner stated that CAES was established a year ago in response to an initiative to build an Energy Efficiency Research Institute (EERI) focused on conserving energy, lowering costs and creating new professional opportunities. The institute is housed at Boise State University. Responding to a proclamation established from the Governor of Idaho, CAES is a partnership between Idaho National Lab, Boise State University, Idaho State University, and the University of Idaho. CEERI's goals include developing energy efficiency concepts through research in applied technology and consumer behavior; providing specialized education for energy efficiency technicians, engineers and architects; evaluating existing

energy-saving technologies; and creating infrastructure for the accelerated transfer of ideas from the institute to the marketplace. CAES received a DOE grant to establish an industrial assessment center—touching on 7 states. ESTEC is the statewide lead for the workforce development part of the industrial assessment center project. In the four year programs, there is a partnership between Boise State University and Portland State University for internet course exchange with the Western Interstate Commission for Higher Education (WICHE).

Diane Quincy asked John for additional information on industry assessment centers. John Gardner responded that selected universities are designated as industrial assessment centers.

K-12 Activities

Idaho “I-STEM project” – Chris Guthrie and Anne Seifert, Partners for Prosperity and Idaho National Laboratory
Anne Seifert from Idaho National Laboratory presented on I-STEM, a broad and growing partnership of educators, government and businesses working to improve science, technology, engineering and math (STEM) education in Idaho’s K-12 schools. It is an effort to prepare students for a career in the energy field. They are currently setting up an I-STEM resource center at six community colleges across the state of Idaho.

Chris Guthrie from Partners for Prosperity discussed I-STEM. The function is to help reduce poverty and increase education in the 16 counties of Eastern Idaho. They are an operating partner of ESTEC to outreach to low income students. Young Einstein is a project that addresses standards from the National Energy Foundation and is a club designed for students who are interested in exploring and learning more about this world of ours. Another program is Energize Your Future which serves at-risk youth. Students from ESTEC teach and talk to the students about jobs and education opportunities.

Washington “Demystifying Apprenticeship”— Kairie Pierce, Washington State Labor Council

Kairie Pierce spoke on WSLC Demystifying Apprentice project. The project is to provide outreach to K-12 counselors to inform them about Apprenticeship opportunities. WSLC partnered with the PNCECE in supporting Careers In Energy week. Activities included events at Spokane Community College/Institute for Extended Learning at Ione and Metaline Falls, WA; and at Avista’s Jack Stewart Training Facility, Spokane, WA.

Barbara Hins-Turner discussed the proclamation that the Governor of Washington signed to support Careers In Energy week. Jilliene McKinstry discussed the events being held at Gonzaga University ZagOps program where over 100 Girl Scouts attended; Ryan Davis share information on the events to be held at the Regional Education and Training Center-Satsop Campus.

Oregon K-12 outreach projects – Bob Topping, Chemeketa Community College

Bob Topping discussed the three general age groups that make up the workforce. For the Oregon K-12 outreach projects, a cap of a 3.0 grade point average was designated. The average was 1.7. Most students come from the construction trades program at Oregon City High School. Issues to program success were commuting and safety and hazards. To help resolve the issues, students employed technology using a SixSigma process to create efficiencies that have quantifiable outcomes.

Bob discussed the project charter that was designed by the students. The program had a 100% success rate. The students received a certification at graduation. Currently they are working to design projects with two additional Portland High Schools. One will design solar powered battery storage flushers and are converting an existing bathroom in a local park. Bob Topping described the SixSigma process and certification levels.

Montana State University, Lisa Skriner, Director of Workforce and Resource Development

Lisa Skriner reported that Montana State University (MSU) will serve as the anchor institution for the DOE Smart Grid project activities for the state of Montana. Contact has been made at the Governor’s office and the Department of Commerce to launch the project. Montana partners will be Northwestern Energy, BPA Montana, and Montana Manufacturing Extension Center. Another partner will be Rob Larsen at the Wind Application Center as MSU develops their role and expectations in the project.

Curriculum Development Sub-Committee Update, Jay Pickett, Centralia City Light & Bob Topping, Chemeketa Community College, Oregon – Co-Chairs

Bob Topping gave an update on the Curriculum Development Sub-committee. The committee is currently seeking out training modules others have created for the demand and supply side occupations. Several different curriculum design modules have been put together so others can use them as needed. Meetings are monthly. Bob Topping thanked Jay Pickett’s involvement and leadership. The curriculum models will be open source and available to everyone in the near future.

Year 2 Research Priorities, Alan Hardcastle, Washington State University Extension Energy Program

Alan Hardcastle reported on year two priorities. Alan opened with the Career Lattice finding: 1) Jobs are distinct, 2) Jobs are changing, 3) Occupations vary among employers, and (4) Smart grid will require more information technology, data management & analysis, and communication skills.

New employees want to avoid being information rich but knowledge poor. New skills and functions connect occupations on the supply side and the demand side of the energy industry. The connection between the supply and demand side is the information data analysis component.

Reviewing the demand-side outcomes of the Career Lattice research, Alan pointed out the ‘gateway’ into the energy industry is often through the Customer Service Representative (CSR) position. What are Skill Standards? Alan defined them as industry defined Knowledge, Skills, and Abilities critical to succeed in a specific occupation and includes performance indicators. Standards are industry defined through a facilitated focus group process, by subject matter experts—front line employees. They are used by education and industry to identify program gaps and to develop/improve curriculum. The CSR Skill Standards project was approved to move forward at the September Curriculum Sub-Committee meeting.

Michael Wehling of Puget Sound Energy provided an overview of the Island Energy Dashboard project. The project focuses on a community partnership to avert building of a new substation on Bainbridge Island, WA by creating a community managed energy efficiency model for energy management. Michael shared the website for more information: RePowerBainbridge.org.

Alan reported that a group of individuals who are familiar with CSR are needed to participate on an ad hoc committee for two days to gather data to create the CSR Skill Standards. Request those knowledgeable about CSR, can advise the project, individuals able to tap employees in their organizations, considerable experience, geographical and utility diverse, regional, leading edge thinkers, and deep CSR skills.

Manufacturing Taskforce Update, Ryan Davis, RETC, Washington State

Ryan Davis discussed the second meeting of the manufacturing taskforce. Wanted to see how the manufacturing sector can work with the energy industry. There will be 3 benefits: 1) regional economic development, 2) create jobs, 3) manufacturing can help support the workforce for the utilities. Having a strong manufacturing core in the northwest will create a pool of workers accessible for the utility sector. Exploring areas of core competencies and identifying the gaps.

In the process of forming manufacturing interface taskforce which include members from universities, different state Manufacturing Extension Partnerships, aggregators selling the materials to the utilities, manufacturers, and consultants. The manufacturing interface taskforce is the advisory group for doing some of the research. Talk to Ryan for participant recommendations. Year two will be developing an economic model as a crosswalk to the workforce elements. Year three will be identifying skill gaps to develop training. The goals and benefits are strengthening the manufacturing core and unlocking industry partners to drive economic growth that has an economic development application.

Idaho Department of Labor – Catherine Dickinson, Senior Research Analyst, Robert Kabel, Research Analyst

Robert Kabel presented a summary of the energy analysis recently done on Idaho’s economy and a business scan of Idaho’s energy cluster. Summary includes a state to state comparison and an inside look at Idaho’s energy region. Identified 17 core clusters that have a competitive advantage, of which energy was one. Items discussed were employment findings, core industry clusters and sectors, and energy employment earnings.

Upcoming Meetings

The next Education Taskforce will be in December 2011. A date, time, and location will be determined at a later date.

Good of the Order

Ryan Fedie pointed out the mission statement on the agenda as a guide for the meetings and briefly discussed investments, the workforce system, and regulations. Barbara Hins-Turner thanked everyone for coming.

Adjourned at 3:10 p.m.