## 7th ANNUAL

## ENERGY AND CONSTRUCTION BEST PRACTICES SUMMIT:

<section-header>



## United States Senate

WASHINGTON, DC 20510-4705

June 21, 2012

Barbara Hins-Turner, Executive Director Pacific Northwest Center of Excellence for Clean Energy 600 Centralia College Blvd. Centralia, WA 98531

Dear Friends,

I regret I am unable to join you for the 7th Annual Energy and Construction Best Practices Summit sponsored by our Washington State Centers of Excellence. This year's theme of "Energizing America's Workforce for Tomorrow" speaks to our state's many strengths in training a skilled workforce who will be prepared for the jobs of the future.

Each of you deserve applause for the great work you do to ensure the community college system in Washington serves the workforce needs of the industries vital to our state's economy. Hydropower, wind power and solar power all require a new, high-tech infrastructure in place to efficiently get energy to consumers. America needs a smart energy grid to be able to meet increasing demand and handle multiple energy sources.

In order to reap the benefits of smart-grid technology, we must have a workforce that is prepared to meet the needs of a clean-energy economy. Our electric utilities and IBEW 77 have been "keeping the lights on" for over a century and have a proven record of building a skilled workforce. This workforce, couple with the <u>Smart Grid Title Grants</u>, I authored in 2007 and became law in 2009, has laid the legislative groundwork for upgrading the nation's electricity grid, training workers in the new high-tech infrastructure, and creating jobs in a clean energy economy.

These grants already finance training programs, including the Centralia College initiative which created the Pacific Northwest Center of Excellence for Clean Energy. This vital investment allows us to take control of our energy future and the next generation of family-wage jobs across the Northwest region. Building our clean energy capacity creates jobs today, diversifies our energy sources for tomorrow, reduces our dependence on foreign oil, and helps reduce carbon pollution in the years to come.

I am constantly impressed by the great work being done here at the Pacific Northwest Center for Excellence for Clean Energy. I look forward to continuing our work together to make Washington a national and global leader in the clean energy economy.

Warmest Regards,

Maria Cantwell United States Senator

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June 21, 2012

Barbara Hins-Turner, Executive Director Pacific Northwest Center of Excellence for Clean Energy 600 Centralia College Blvd. Centralia, WA 98531

Dear Friends,

Welcome to the 7<sup>th</sup> Annual Energy and Construction Best Practices Summit sponsored by the Washington State Centers for Excellence.

As Southwest Washington's federal representative, I have made economic growth and job creation my focus. One of the most critical components of a thriving economy is ensuring that we have access to affordable, reliable energy. This requires a workforce that is trained and ready to manage our current energy sources, and help us pursue emerging sources of energy that will power our businesses and homes in the years ahead.

I applaud the Center for the important role it plays in understanding the realities of the energy industry. This year's summit is a shining example of their commitment.

In Washington state, we are fortunate to receive a majority of our energy from the cleanest, most affordable source: hydropower electricity. Countless job-creating businesses have located manufacturing facilities and operation centers in this region thanks to our abundance of renewable hydropower and the low energy costs it provides. I have worked hard in Congress to make hydropower a centerpiece of an "all-of-the-above" energy policy for our nation.

By protecting hydro and pursuing other forms of energy – whether that's wind, biomass, or others—we can ensure a reliable and affordable energy supply in the years ahead. We must position Washington state to keep the businesses we have, while also attracting new businesses and new jobs.

I regret that I cannot be with you in person, but I am certain this will be an informative and beneficial event. I remain committed to economic growth and job creation in this wonderful region.

Best regards,

Jaime derrera Beutler

Jaime Herrera Beutler Member of Congress



# Introduction/Welcome

It is hard to believe this year marks the 7th Annual Energy and Construction Best Practices Summit. Through the years, we have heard from amazing subject matter experts representing industry, organized labor, workforce, economic development and education. The common message throughout has brought us to this year's theme "Energizing America's Workforce for Tomorrow." Our collective purpose and goal continues to be to develop a high-skills high-wage workforce that will create a new robust economy throughout the next generations.

While we have experienced challenging economic times and ever changing innovations in technology, within an aging infrastructure and legacy systems, we continue to train and educate students to meet demands.

These students, however, need our help to succeed.

Throughout these years, you have made generous contributions to financially support students in need through scholarship donations. Thank you.

Others who have made a difference and need a moment of thanks include Judy Guenther, for her tireless efforts in organizing every summit scholarship auction; the Centralia College Board of Trustees, for their continued donations and support; Bob Clarke, President and COO of PanGlobal Training Systems Ltd., for sponsoring a secondyear energy student each year; and companies like TransAlta for their ongoing scholarship contributions.

Since our last summit, we've enjoyed awarding energy and construction students in need with tuition, books, child care and most recently, student membership in IEEE Power Engineering Society. Students who have received scholarship funds are attending programs at partnering colleges across the state at Wenatchee Valley, Peninsula, Grays Harbor, Renton Technical and Centralia colleges.

The signature crab feed has become a tradition and central to the scholarship auction. A special thank you to Bob Guenther, for transporting, cooking and serving the crab each year; and to PanGlobal, for covering the cost of the crab - that delights our attendees each year.

Your contributions are ultimately developing our future workforce.

THANK YOU all for your generosity! We hope you enjoy the summit!

Barbara Hins-Turner, Executive Director Pacific Northwest Center of Excellence for Clean Energy Center of Excellence A Centralia College Partnership

Ishana Pescher

Shana Peschek, Director Washington State Construction Renton Technical College





## JUNE 21 MAIN DAY

We're excited to present nationally renowned experts and industry leaders. Join us for informative workshops, panels and an exciting trade show that will provide information on educating America's workforce for tomorrow's economy. Be sure to visit vendors (booths are upstairs) for a chance to win an iPad. Stay for the signature crab feed and scholarship auction; and return Friday to hear the gubernatorial candidate's views on energy in Washington state.

8:30 – 9 am	Check-in – vendor booths open. Coffee & breakfast - upstairs
9 – 9:15 am	Opening Ceremony: Veteran color guard & military trumpeter accompaniment
9:15 – 9:45 am	Welcome Remarks: Centralia College Trustee Joe Dolezal; Barbara Hins-Turner, Executive Director, Pacific Northwest Center of Excellence for Clean Energy/A Centralia College Partnership; and Shana Pescheck, Director, Construction Center of Excellence at Renton Technical College
9:45 – 10:30 am	<b>Keynote</b> : "Lighting the way to a smarter grid" Wanda Reder, VP of Power Systems Services, S&C Electric Company, Chicago, IL; and Global Architect for S&C's global service operations; Immediate Past President of IEEE Power & Energy Society (PES); Chair of IEEE Smart Grid. (See related article on page 10)
10:30 – 11 am	Networking/coffee break
11 am – 12:15 pm	First Panel: The Challenges of Educating America's Workforce
Moderator:	Grid modernization, green construction and energy efficiency measures are rapidly being developed and deployed within the energy and construction industries. In turn, these innovations are changing the skill sets and expertise required to construct, operate and maintain these technologies - often within aging infrastruc- tures and legacy systems. The competition for recruiting and retaining the best of the skilled workforce is becoming increasingly challenging! These panel experts will offer insight to filling the education and training needs of these high-skill, high-wage careers. Arlene Abbott, M.Ed., Principal, Polar Star Consulting Kelly Kirkland, Education Services Manager, O'Brien & Company Jeff Johnson, President, Washington State Labor Council, AFL-CIO David Myers, Executive Secretary, Building and Construction Trades Dr. Robin Podmore, President, Incremental Systems; Vice President, New Initiatives/Outreach PES/IEEE Rep. Larry Seaquist, 26th Legislative District/chair, House Higher Education Committee; member, House Education Appropriations & Oversight and Ways & Means Committees
12:15 – 1:30 pm	Lunch (buffet style): Sponsor/Vendor spotlightt
1:30 – 2:45 pm	Second Panel: How Consumers will Drive the Workforce
	Consumer engagement and acceptance are key influencing factors in the widespread deployment of new technologies, energy conservation and "going green." How will consumers find answers and information and who will assist them? How will the new smart grid technologies, green building and energy efficiency affect consumer demands? Will workforce skills meet increasing consumer demands?
Moderator:	<b>Tony Usibelli</b> , Director, State Energy Office, Washington Department of Commerce
	Jonn Allen, President, Grid Protection Alliance
	Martna Rose, Owner, Martna Rose Construction
	National Laboratory
	Chris Stockner, Energy Efficiency Coordinator, Oregon Museum of Science & Industry/OMSI

CONTINUED ON PAGE 4

## JUNE 21 MAIN DAY

3:15 – 4:30 pm	Breakout Sessions
	<b>1. Build it Smart!</b> Designing and building a home or building should involve smart decisions to create an energy efficient and ecologically responsible project. Decisions should include ways for inhabitants to save money, save energy, stay healthy and live more comfortably while protecting resources for future generations.
Moderator:	Erich Smith, Executive Director, Build It Smart; President, Seattle Vicinity Construction Safety Council
	Randy Ambuehl, Training Director, NW Washington Electrical Industry Joint Apprenticeship & Training Committee
	Herb Heinold, Construction Safety Consultant, Washington State Department of Labor & Industries
	Mark Maher, Training Director Emeritus, Cement Masons & Plasters - Washington Apprenticeship Program
	2. Defining the Customer Service Representative in the Utility Industry Utility customer service representa- tives (CSRs) represent the front line workforce, the key entry point for many utility careers, and the primary interface with utility customers. This session will preview DOE-funded research, launched to develop industry- driven CSR skill standards and understand the implications of Smart Grid implementation for CSR roles and future skill requirements. CSR managers, organization development and Smart Grid specialists will discuss the changing face of the CSR function within regional utilities.
Moderator:	Alan Hardcastle, PhD, Sr. Research Associate, WSU Extension Energy Program
	Delphene Armstrong, Utility Service Rep (USR II), Tacoma Public Utilities
	Aundrea Jackson, CIS Project Manager, Puget Sound Energy
	Rachel Proctor geBauer, Business Representative, IBEW Local //
	Diane Quincy, Director of Organizational Development & Training, Avista
4:30 – 5 pm	Conference Adjourned
5 – 5:30 pm	Networking
5:30 – 5:45 pm	Student Success Stories
5:45 – 6 pm	Industry Scholarship Support

6 – 8 pm Signature Crab Feed & Scholarship Auction, Emcees Dennis Skarr and Larry Kite



Bob Clarke, President, PanGlobal Training Systems Ltd.

## **CAREERS IN ENERGY WEEK** OCTOBER 15 - 21, 2012







http:cleanenergyexcellence.org

More than 100 Girl Scouts participated *in STEM and energy* activities at Gonzaga University's School of Engineering and Applied Science, and nearly 90 high school students from Lewis and Thurston counties participated in energy programs at RETC during last year's Careers in Energy Week.



Last year, PNCECE coordinated one of the country's largest week-long events to bring attention to careers in energy. More than 350 students, grades 6 – 12, nearly 70 school counselors and teachers, and 15 volunteers participated in events which occurred throughout the state. Participants toured power plants, participated in hands-on energy activities and learned more about pre-apprenticeship and apprenticeship programs related to energy.

Washington joined 11 other states in hosting career-related events in October. Within our state, Governor Gregoire proclaimed the third week in October as Careers in Energy Week. Spokane Mayor Mary Verner publically supported the cause as she read her proclamation during a council meeting. PNCECE partnered with Avista Utilities, Gonzaga University's School of Engineering and Applied Science, Grays Harbor and Centralia colleges, Incremental Systems, RETC, Satsop Business Park, Seattle City Light, Spokane Area Workforce Development Council, Spokane Community College, Spokane Community College Institute of Extended Learning, Tacoma Power and Washington State Labor Council.

This year, we're inviting our industry, labor and education partners to join us to increase awareness of careers in energy. Centralia College's TRiO club, Washington State Labor Council and RETC have confirmed involvement. Will you?

PNCECE is proud to take the lead on coordinating the events for this year's Careers in Energy event (Oct. 15 - 21). For more information, please contact Kairie Pierce, K-12 Apprenticeship Coordinator, Washington State Labor Council, <u>kpierce@wslc.org</u>

## **EDUCATORS INSTITUTE**

## "Pathways" and "Lattices"... Where is all this taking us?



Reprinted with permission from Energy Smarts/Newsletter of the Energy Educators Association A joint project of Edmonds and Cascadia Community Colleges

Tom Barr **Energy Management** Instructor **Edmonds Community College** 

**Energy Management Director** Edmonds Community College

In 2011, Edmonds Community College, Cascadia Community College, the Pacific Northwest Center of Excellence for Clean Energy (PNCECE), and WSU's Extension Energy Program were recipients of a National Science Foundation grant called "Meeting the Challenge of Energy Management in a Carbon-Constrained World". One of the major objectives of the grant is to develop and/or enhance curricula for degrees and certificates in energy management.

Cascadia and Edmonds colleges have programs focusing on energy management, renewable energy and sustainability. These programs are the primary subjects for investigation within the grant's research activities.

The first step of this investigation is to identify the existing "Educational Pathways" in each of the two respective programs. Next, these pathways can be compared between institutions to discover opportunities for course alignments and program integration. The result of this activity is an "Educational Lattice." The goal of this construct is to support faculty, advisors and students, who can access both institutions, to identify and pursue unique combinations of certificates, or a 2-year degree with unique emphasis.

### A few definitions:

An Educational "Pathway" is an arrangement of courses within a single institution that, together with prerequisites and general education requirements, leads to a certificate or a degree. Both Cascadia and Edmonds have well-defined educational pathways in energy management. Their pathways have each been developed in general consultation with a department-selected Technical Advisory Committee which is drawn from industry, government and labor.

An Educational "Lattice" is an arrangement of courses and/or pathways from two or more institutions that, together, depict a route to a student-chosen educational goal. While an Educational Lattice is developed by non-analytical means (by simple inspection) it is nonetheless an excellent and practical tool for advisors, students, faculty and pro-gram planners to under-stand how energy related pathways might be combined or supplemented with curriculum development efforts.

By contrast, the development of a "Career Lattice" involves more steps. These attempt to make the comparison of courses between institutions more objective and relevant by grounding them in specific industry-derived skills. Through research, the following methodology for building a career lattice was developed:

- First, an "industry focus" is identified. This can be in the form of a specific occupation or it can be an occupational function. To were selected: "Energy Program/Project Management" and "Commercial Building Analyst."
- Second, a focus group, comprised of experts from industry in the career area, is convened. It developed a list of Critical Work Functions with Key Activities that are essential to that career area, and a detailed list of specific skills that are required to perform the Critical Work Functions. Also, these skills are given an importance value. Together, they constitute a skill profile.
- Third, each course within an existing certificate or degree program is assessed for conformity to the specific skills that were identified by the focus group. For each skill, the courses are scored with two values: The maturity level to which the skill is taught, and the extent of exposure of the skill in the course. The result is that each course can be rated on the extent to which it teaches a particular skill, weighted by the importance of that skill. Summing the ratings for each of the skills embodied across a group of courses in a program (certificate or degree), yields the extent to which the program fulfills the aggregate skill requirements for that industry focus. This provides valuable information to guide program direction.
- Finally, these aggregated skill scores can be juxtaposed to the scores of another energy program to determine if gaps in one institution's program are complemented by strengths in the other program.

By building career lattices in this manner, it may be determined if multiple sets of courses from different institutions can, together, more fully satisfy industry's needs than either can separately. Building career lattices between institutions acknowledges that, in many cases, the energy field and its subject matter is so broad that no one single institution can "teach it all." Hence the need to work together to develop complementary pathways that truly teach industry-derived requisite skill-sets.



## JUNE 20 PRE-SUMMIT EDUCATORS INSTITUTE

A full day of workshops and activities provides resources to educators, trainers and industry partners. Curriculum experts will be onhand to develop/enhance profile curriculum. Participants will learn:

- Industry derived skill profiles for energy management professions
- How to shape programs to support multiple entry level energy career paths
- Participate in the Energy Educators Association

8:30 – 9 am	Check-In & Breakfast
9 – 9:15 am	Conference Welcome, Shana Pescheck, Director, Construction Center of Excellence,
	Renton Technical College
9:15 – 9:50 am	National Science Foundation Grant Background/Energy Management Skills Profiles Presentation
	by Alison Pugh, Edmonds Community College & Mel Oyler, NSF Education Subcommittee Chair
9:50 – 10 am	Break
10 – 11:30 am	Workshop: Developing Educational Pathways and Educational Lattices
	Workshop: Facilitated by NSF Grant Education Subcommittee
11:30 am – 12 pm	Career Lattice Development/Afternoon Overview
	Presentation by Mel Oyler, NSF Education Subcommittee Chair
12 – 12:30 pm	Lunch
12:30 – 1 pm	Vendor Presentations
1 – 3 pm	Workshop: Building Career Lattices
	Workshop: Facilitated by NSF Grant Education Subcommittee
3 – 3:15 pm	Break
3·15 – 4·30 pm	Incorporating Hybrid and Online Learning into Energy Education
ono noopm	Presentation by Alison Pugh, Edmonds Community College, & Collaborators
4:30 – 5 pm	Closing & Next Steps
	Funded by Edmonds Community College's National Science



Foundation Energy Management Grant, Meeting the Challenge of Energy Management in a Carbon-constrained World, in partnership with Cascadia Community College, WSU Extension Energy Program, and the Pacific Northwest Center of Excellence for Clean Energy. This material is based upon work supported by the National Science Foundation under Grant No. 1002931

## SMART GRID MANUFACTURING TASKFORCE

The Smart Grid Manufacturing Taskforce exists to promote job creation in the manufacturing sector which supports the implementation of smart grid technologies in the Pacific Northwest. Its mission is to drive economic growth and job creation by accelerating the commercialization of smart grid technologies in a region encompassing Idaho, Oregon, Montana, Utah and Washington. Small businesses create 80 percent of the new jobs in the economy. The Smart Grid Manufacturing Taskforce will focus on means to assist small qualified manufacturers - defined as a



David Sorensen, Executive Director WestCAMP, Inc Smart Grid Manufacturing Taskforce Chair

fabricator, assembler, or aggregator - with less than \$30 million in annual revenues, which have shown a profit in at least two of the previous five years.

#### Why Manufacturing?

A major focus of the Pacific Northwest Center of Excellence for Clean Energy aims to improve the ability of regional power generating utilities and their employees to successfully implement smart grid technologies and processes. Effective grid modernization also relies on a network of manufacturers who create and produce the technologies used in modern grid systems, and many of these manufacturers have roots in the Pacific Northwest. Extending the U.S. Department of Energy Smart Grid Workforce grant project to include key regional manufacturers will amplify the overall success of the project in several ways:

Workforce Pool: A strong local manufacturing workforce serves as a secondary talent pool for utilities which require highly skilled workers, especially in the technical trades and operations. The availability of workers with existing core competencies in advanced manufacturing tied directly to the electrical grid will help expedite new hiring and support the replacement of potentially large numbers of skilled utility workers who are eligible to retire.

New Job Creation: Grid modernization increases the knowledge, skills and abilities required of the utility workforce, but it is not likely to create many new utility jobs. New smart grid technology development and manufacturing has the potential to generate new company start-ups and expansions of existing manufacturers to support component and system production and integration. Substantial investments in modernization will boost demand for grid technologies, and manufacturers will in turn increase hiring to meet this new demand, creating new highwage jobs in the region. **Core Economic Growth:** Manufacturing growth is critical to sustainable economic growth. Without the capacity to transform materials and intellectual innovation into finished products, other sectors of the economy cannot flourish. Manufacturing growth spurs growth in other sectors including local demand for regional utilities. Living-wage manufacturing jobs also generate an economic ripple-effect that can stimulate new business growth, increase tax revenues and boost demand for services within local communities, boosting regional economic prosperity.

#### SGMTF Required Grant Outcomes

The Smart Grid Workforce Grant has three required deliverables surrounding manufacturing:

- 1 The creation of a taskforce to provide recommendations for curriculum and program updates.
- 2. Create a centralized manufacturing interface where Smart Grid Technology Manufacturers and vendors can demonstrate the performance of their goods and provide training on their use and implementation
- 3. Create an online forum where Smart Grid Technology Manufacturers and vendors can demonstrate the performance of their products.

#### SGMTF Valued Added Outcomes

- 1. Building on the grant requirements and the insights learned during the first year of the grant. The taskforce will accomplish these deliverables by:
- 2. Creating a regional model for identifying small qualified manufacturers with high probability of success to deploy smart grid technologies leading to long term sustainable job creation
- 3. Identifying and mapping common workforce core competencies in the utility sector, manufacturing, and military veterans to identify opportunities and execute skill up training with rapid return on investment for both utilities and small manufacturers.
- 4. Create a portal of data resources for small manufacturers, workers seeking careers in manufacturing, aggregators, and utilities to facilitate opportunities for future growth

#### SGMTF Year Two Process and Outcomes

CONTINUED

Year Two will focus on the creation of an economic and workforce model by identifying, surveying, and benchmarking existing Small Qualified Manufacturers (SQM). SQM is an existing manufacturer with \$10-\$30 million in gross revenues. The model will have a threefold impact by 1) helping SQMs identify new product line opportunities in the smart grid marketplace 2) creating evidence based metrics to predict SQM future success in order to leverage capital investment for expansion and job creation 3) identifying workforce synergies between the expanding SQMs and military veterans to provide a skilled pool of workers to meet the needs of the manufacturing and utility sectors.

## JUNE 22 POST-SUMMIT SMART GRID MANUFACTURING ROUNDTABLE AND GUBERNATORIAL ENERGY & CONSTRUCTION FORUM

A short day with a regional effort to increase and implement smart grid manufacturing

- Meet the Smart Grid Manufacturing Regional Interface Taskforce
- Learn best practices of accelerating commercialization of new technologies
- Share input on how the region can leverage and assist smart grid manufacturing development projects

9 – 9:45 am	Welcome & summit debrief, Steve Hanson, President of Renton Technical College and
	Barbara Hins-Turner, Executive Director, Pacific Northwest Center of Excellence for
	Clean Energy/A Centralia College Partnership and Shana Pescheck, Director, Construction Center of Excellence at Renton Technical College
9:45 – 10:15 am	Keynote "Smart Grid Technology: Issues small manufacturers will face" Dave Sorensen, Executive Director,
	WestCAMP, Inc.
10:15 – 10:30 am	Break
10:30 – 11:00 am	Smart Grid Manufacturing Taskforce panel discussions
	Topics for discussion: What challenges do small manufactures face regarding unique technical skills? What is critical to the success of start-up small manufactures? What specific technical acceleration and innovation programs have proved effective for the Department of Commerce Manufacturing Extension Program (DOC-MEP)? How can we best train and certify veterans? What was presented at the DOC- MEP National Conference concerning workforce?
Moderator:	Dr. Robert "Bob" Topping, Director of Industry Partnerships, Chemeketa Community College
	Bradley B. Bertoch, CEO SME Diagnostics; President, Wayne Brown Institute
	Ryan Davis, Executive Director, Regional Education and Training Center
	Roger Parish, President, Spectrum Consulting Group, LLC
	Collin Sorensen, Senior Consultant, MEP
	Dave Sorensen, PE, Executive Director, WestCAMP, Inc
11 -11:45 am	Gubernatorial Energy & Construction Forum
Moderator:	Commissioner Philip B. Jones, Washington Utilities & Transportation Commission
	Former Representative Jay Inslee and a representative for Attorney General Rob McKenna will discuss their views regarding energy and construction issues in Washington state.

11:45 am Lunch

## SMART GRID MANUFACTURING TASKFORCE

#### Smart Grid Manufacturing Taskforce members include:

David Sorensen, WestCAMP, Inc. (chair) Bradley B. Bertoch, SME Diagnostics and Wayne Brown Institute Jason Caldwell, NetEndeavor Ryan Davis, RETC Linda Fowler, Consultant Steve Holland, Montana Manufacturing Extension Partnership John Houston, Intermountain Electronics, Inc.  Roger Parish, Spectrum Consulting Group, LLC (SCG)
Collin Sorensen, Manufacturing Extension Partnership (MEP)
Gerald Sorensen, WPPSS
Robert "Bob" Topping, Chemeketa Community College
John Vicklund, Impact Washington, Washington Manufacturing Extension Partnership
Lynn Wickham, URS Corporation (Idaho National Labs)

## WANDA REDER - GRID GURU Lighting the way to a smarter grid

### **By SUSAN KARLIN**

Reprinted with permission from The Institute: the IEEE news source

When senior member Wanda Reder became the 2008–2009 president of the IEEE Power & Energy Society (PES), she set her sights on modernizing its image and creating a gateway for IEEE's work on the smart grid.

The results were the IEEE Smart Grid Portal, which launched this year, and the first IEEE PES Conference on Innovative Smart Grid Technologies, coming up in January in Gaithersburg, Md.

The Smart Grid Portal of-



Wanda Reder, summit keynote speaker

fers publications, standards, tutorials, news, and information on conferences. The site is aimed at manufacturers, policymakers, educators, government leaders, researchers, and others involved in the power and energy, IT, and communications industries.

"We needed a way to bring the 38 IEEE societies together so we could leverage our areas of expertise, communicate with each other, and then go to those affecting the smart-grid marketplace with one voice," Reder said, who since 2004 has served as vice president of power systems services at S&C Electric Co., in Chicago.

S&C is a global manufacturer of power equipment and services. In September 2010, she was appointed to the U.S. Department of Energy's Electricity Advisory Committee, which will define strategies for modernizing the power grid.

As chair of the new IEEE Smart Grid group, her job is to coordinate IEEE societies' sometimes disparate agendas and find a common goal. The IEEE Smart Grid group "is a virtual network to help people in their various organizations work together across traditional silos without creating additional overhead," she said.

The initiative aims to go beyond the portal in disseminating information and promoting cohesiveness within the industry with an e-newsletter, a LinkedIn community, more international conferences to establish a greater global presence, a cross-disciplinary smart-grid reference, and standards activities. This includes approving the IEEE P2030 Draft Guide for Smart Grid Interoperability of Energy Technology and Information Technology Operation With the Electric Power System and End-Use Applications and Loads.

IEEE is the right organization to tackle the challenges, Reder said: "There isn't a piece of smart-grid technology in which IEEE doesn't have some kind of expertise. We're working on such things as power systems, consumer electronics, communications, computers, instruments and measurement, photovoltaics, and standards. This broad base of technical expertise, coupled with our global membership, gives us a big leg up on any other technical organization dealing with smart-grid technology.

"We want to be the place for one-stop smart-grid shopping," she added.

#### MOLDING THE MATRIX

Reder, who grew up in South Dakota, majored in engineering at South Dakota State University, in Brookings. She got her first taste of power engineering during a summer job at the National Rural Electric Cooperative Association, in Arlington, Va.

In the decade following her 1986 graduation, Reder held several engineering and managerial positions for Northern States Power (NSP), in Minneapolis. Concurrently, she earned an MBA in 1990 from the University of St. Thomas, in St. Paul. At NSP, she developed and implemented a system to manage the electricity used by water heaters and air conditioners, led the automated-meterreading charge, and identified long-term grid requirements to accommodate increasing electrical needs. Usually, she was the lone female engineer on her team.

It was this work and the challenge of shaping a more efficient energy system that piqued her interest in smart-grid technology. In 1997, she was promoted to president and CEO of an NSP subsidiary, Ultra Power Technologies, in nearby Brooklyn Park, which tested underground cable. In 2000, she left to become vice president of Davies Consulting, in Chevy Chase, Md., establishing its energy-consulting branch.

The next year, Reder joined the utility conglomerate Exelon Corp., in Oakbrook Terrace, III., overseeing engineering, system planning, standards, and asset management. A year later, she was elected to the board of the IEEE Power Engineering Society, which was soon to be renamed. When she was elected president in 2008, she organized a rebranding effort, beginning with the name change, and focused on promoting forward-thinking and environmentally conscious aspects of power and energy to attract younger engineers and more women.

She established the Power and Energy Engineering Workforce Collaborative to find ways to develop more smart-grid engineers, anticipating an upcoming talent drain.

"In the power industry, you're looking at roughly a 50 percent attrition rate for engineers in the United States in the next five years, because many are expected to retire," Reder said. "It's critical that we attract the best and brightest into an educational system geared to prepare engineers to design, operate, and maintain today's electrical infrastructure well into the future. The demand for this talent is increasing while power engineering professors are retiring at a rapid rate. We have work to do!"

## **KEYNOTE**

## Wanda Reder

*Chair, Institute of Electrical and Electronics Engineers* (*IEEE*) Smart Grid Taskforce

### Vice President, Power Systems Services at S&C Electric Company; Global Architect for S&C's Global Service Operations, Chicago, IL

Wanda Reder has more than 27 years of expertise in the electric utility industry and is the 2008-2009 President of the IEEE Power & Energy Society (PES). Ms. Reder has served on the IEEE PES Governing Board since 2002 and is also the chairperson of IEEE Smart Grid. She is a member of Energy Secretary Steven Chu's DOE Electricity Advisory Committee, recently appointed as Chairperson of the Smart Grid Sub-Committee. Ms. Reder also provides leadership for the IEEE PES Scholarship Plus Initiative which provides scholarships and internships to undergraduate power engineers. She regularly participates in events in order to share her vision and experiences.

## **GUESTS AND PANELISTS**

## Arlene Abbott, M.Ed Principal, Polar Star Consulting

Arlene Abbott has been the principal of Polar Star Consulting since 1998. She was hired to strategically start the Northwest Utility Training & Education Center (NUTEC) - a 70-acre site located in Richland, Wash., and owned as a non-profit by IBEW Local 77. NUTEC's vision is to provide needed training for the incumbent and future utility industry workforce (military veterans) to perform work in a safe manner, and to remain competitive at present and into the future with high-skill, high-wage energy jobs. NUTEC's particular focus is on providing skills upgrade training for journeymen to transition into the emerging energy technology jobs of 2020.

Ms. Abbott has 25 years of organizational development (OD) and workforce training experience, including OD Manager at Chelan County PUD where she developed and managed "Leadership from Within," a competency-based leadership development program for senior management, directors, and professionals. Ms. Abbott also served Alaska's 15,000 employees as Alaska Professional Development Institute OD Manager, the self-supporting training arm for the state. She was an invited instructor who twice trained cabinet and senior-level officials for the Government of Sakhalin, Yuzhno-Sakhalinsk, Russian Far East, and again provided community development assistance to indigenous Siberian tribes in Chara, Siberia, Russia. Abbott earned a bachelor's degree in Industrial Psychology and a Master of Adult Education from Western Washington University.

## John E. Allen, P.E. President, Grid Protection Alliance

John Allen has more than 40 years of experience in the electric utility and energy industries. He has extensive experience in all aspects of electric utility business and regulatory functions, plant operations, transmission and distribution systems, and the design and construction of major facilities. Mr. Allen is responsible for the development and direction of an electric utility smart grid cyber testing and analytic capable organization. His role includes close collaboration with U.S. Department of Energy, a variety of North American utilities and international electric energy entities, and governmental agencies.

Mr. Allen's work experience includes the design, construction, and start up of power plants (fossil fuel and nuclear), transmission assets and substations. He has worked for Bechtel, Sargent & Lundy and Burns & Roe engineering and construction firms. His background includes senior management and executive positions at Arizona Public Service Company (Palo Verde Nuclear Generating Station) and Tennessee Valley Authority. His assignments included operations, construction, engineering, technical support, licensing, and environmental and business functions - including capital, operations and maintenance costs. Mr. Allen is a member of the American Society of Mechanical Engineers, American Society of Civil Engineers, Institute of Electrical and Electronic Engineers, American Nuclear Society, National Society of Professional Engineers and the Instrumentation, Systems and Automation Society. Mr. Allen is a registered Professional Engineer in the states of Arizona, Illinois and Missouri. He has a degree in Electrical Engineering from Missouri University of Science and Technology (formerly University of Missouri-Rolla).

### Randy Ambuehl Training Director, Northwest Washington Electrical Industry Joint Apprenticeship & Training Committee

Randy Ambuehl has served as Training Director for the Northwest Washington Electrical Industry Joint Apprenticeship and Training Committee since 2003. He completed an IBEW/NECA Inside Wireman JATC apprenticeship in 1979 and is a licensed journeyman electrician. Mr. Ambuehl has worked as an apprentice, journeyman, foreman, general foreman, and project superintendent on a variety of electrical construction projects in five states, ranging from houses and apartments to microchip fabrication plants and power generation facilities. Mr. Ambuehl has also been an apprentice classroom instructor and apprenticeship committee member. He has previously served as business manager of IBEW Local Union No. 291 (Boise), as president of the Idaho State AFL-CIO, and has represented the IBEW on Code-making Panel No.1 for the National Electrical Code and the Idaho State Electrical Board.

## Delphene Armstrong Utility Service Rep (USR II), Tacoma Public Utilities

Delphene Armstrong has more than 30 years of customer services experience and has worked for Tacoma Power more than 13 years. As a customer services employee, she was elected to work with SAP - Business System Implementation Project to assist in developing and testing new procedures and implementing new technology. After the city-wide implementation of SAP – GO Live, Ms. Armstrong conducted technical master and business data training to staff and managers.

In 2004, Ms. Armstrong was part of the start-up group of Automatic Meter Reading (AMR) and Automatic Meter Infrastructure (AMI) project which is now known as Smart Grid. In this position she researched meter compatibility and customer accounts, scheduled meter installation, tested meters and program modem for in-home display, performed remote connect and disconnect functions, provided technical support to Customer Solution Division (Pay As You Go) of Customer Services Department, and she maintained oversight of 18,000 AMR customer accounts.

### **Tom Barr** Instructor, Energy Management Program, Edmonds Community College

Forty years ago, Tom Barr worked on design projects involving human-powered agricultural machines, wind energy, and solar-heated buildings at the University of New Mexico. As a Peace Corps volunteer in Ecuador, he worked on solar crop dryers, solar water heaters, biogas digesters, wind-powered water pumps and hydraulic ram pumps. During his graduate studies at the University of New Mexico, he assisted with teaching architectural design. He also worked for architectural firms specializing in health care design. He has coordinated construction drawings for most aspects of institutional buildings including building envelope, interior build-out, finishes, mechanical/electrical and construction administration. Mr. Barr collaborated in the design of Songaia Cohousing Community in Bothell, Wash., which consisted of small homes and common amenities in a village-like setting, that support a low-impact, sustainable lifestyle. In 2009, Mr. Barr taught in the Clean Energy Technology program at Shoreline Community College, and since then has taught in the Energy Management program at Edmonds Community College.

### **Bradley B. Bertoch** CEO, SME Diagnostics President, Wayne Brown Institute

SME Diagnostics is a business analytics company focusing on highly predictive software products that can help in the commercialization of a companys' products and services. Wayne Brown Institute is a nonprofit, nationally recognized, entrepreneurship/technology commercialization organization. Utah companies participating in an Institute venture program have generated over \$5.5 billion in financial transactions, and in 2008 accounted for over 15,000 jobs. In addition, using the SME Diagnostics software, 80% of WBI alumni companies are still in business after 10 years. Mr. Bertoch is a member of Salt Lake City and Park City angel groups and founder of WBI Angels, and was a venture partner with Hamilton Bio-Ventures Fund II. He is a graduate of Northwestern University's Kellogg Graduate School of Management.

## **Ryan Davis**

## Executive Director, Regional Education and Training Center

Ryan Davis is an entrepreneurial leader with more than 15 years of experience as a military officer and regional/international business consultant. RETC is a non-profit organization designed to support workforce training and development based on the evolving needs of industry. Mr. Davis's experience includes leading the Smart Grid Manufacturing Taskforce and creating a learning portal for PNCECE; promoting an advanced manufacturing workforce through Industrial Controls Laboratory and the Aerospace Transition Program; enhancing training opportunities for regional first responder units by developing training grounds and props including tunnel rescue, CBRNE, and confined space operations; assisting returning veterans with training and employment opportunities in a variety of industries leveraging Federal grants and GI Bill 2.0 job training programs; and promoting the skilled trades to high school students through the Multicraft Core Curriculum, Annual Try-a-Trade Career Day, and other outreach events. Mr. Davis serves as a board or advisory member for several for profit and community organizations including PNCECE, 21st Century Workforce Committee of the Pacific Mountain WDC, and the Washington Aerospace Curriculum Alignment Team.

### Joe Dolezal Centralia College Trustee Liaison Optometrist

Joe Dolezal has been self-employed as an optometrist since 1981 and a Centralia College board member since 1997. Past/ Current Community Affiliations: Centralia Rotary Club, Centralia Lions Club, Southwest Washington Dance Center, Centralia College Board of Trustees, Centralia High School Vocational Education Advisory Board, and Centralia Performing and Fine Arts Council.

### **Steve Hanson** *President, Renton Technical College*

Steve Hanson has more than 35 years of experience working in higher education. Formerly President at Spokane Community College and Executive Vice President at Edmonds Community College. BA & MS in Psychology, Eastern Washington University; MA in Philosophy, University of Washington. Member: Washington Association of Community and Technical Colleges (WACTC) Human Resources Advisory Committee, WACTC Education Committee, WACTC Aerospace Presidents, Member: American Association of Community Colleges (AACC) Commission on Economic and Workforce Development, Aerospace Futures Alliance, Blue Ribbon Committee of Renton, Greater Renton Chamber of Commerce, Renton Communities in Schools Advisory Committee, Renton Stakeholders, Renton Arts & Culture Master Plan Steering Committee, Renton Rotary, Master Gardeners of Snohomish County.

## Alan Hardcastle, PhD

### Senior Research Associate, Washington State University Extension Energy Program

Alan Hardcastle has more than 20 years of research, policy and consulting experience through a broad range of public and private-sector clients in industry, organized labor, education, workforce, and economic development. He serves on the governance board of the Pacific Northwest Center of Excellence for Clean Energy/A Centralia College Partnership DOE-Smart Grid project. Mr. Hardscastle is a member of the state's Evergreen Jobs Leadership Team, which is advising the Governor and Legislature on federal ARRA investments in energy efficiency and renewable energy workforce education, training and labor market research.

Recent research and projects are available on the WSU Energy Program site: <u>http://www.energy.wsu.edu/</u> <u>ResearchEvaluation/WorkforcDevelopment.aspx</u>

## Herbert Heinold

#### Construction Safety Consultant, Washington State Department of Labor and Industries Co-Chair, Built It Smart

Herb Heinold has more than 30 years of experience in the occupational safety and health field. He updates regulatory codes and assists the Department of Safety and Health (DOSH). He has developed and maintained various programs to be compliant with regulatory agencies.

Mr. Heinold acted as co-chair of the Construction Advisory Committee (1988 – 2011), was past president of the Seattle and Vicinity Construction Safety Council. He holds numerous certificates including OSHA Construction Safety Course, HAZCOM training, Crane Management and Rigging (Crane Institute), Legal Management, Associated General Contractors Supervisor Training and Safety Training for Supervisors.

## **Barbara Hins-Turner**

### Executive Director, Pacific Northwest Center of Excellence for Clean Energy (PNCECE)/ "A Centralia College Partnership"

Barbara Hins-Turner was appointed to the Washington State Community and Technical College system in 2005. Her energy workforce development committee work includes: 2010 U.S. Department of Education delegation to Germany's Global Sustainable Education Training Forum and U.S. Canada Clean Energy Forum, 2009 National Commission on Energy Policy's Task Force on America's Future Energy Jobs, and U.S. Senate Democratic Policy Commission Green Jobs Roundtable. She serves on the National Center for Energy Workforce Development Educational Council, Washington HB2227 Evergreen Jobs Team, which advises the Governor and Legislature on federal ARRA investments in energy efficiency and renewable energy workforce education, and is past Chair of the Washington State Centers of Excellence Board of Directors.

## Aundrea Jackson CIS Project Manager, Puget Sound Energy

Aundrea Jackson is the manager of Puget Sound Energy's Customer Access Center. In addition to an extensive background in customer service and operations management, Ms. Jackson has a proven track record in call center operations, training, quality assurance, employee development and enterprise level system conversions. Ms. Jackson has excelled in helping call center personnel identify barriers to their professional growth and development thru training and continuing education. She has consistently led departments to exceed customer satisfaction and revenue targets; while improving performance and increasing employee satisfaction. She is an active member of the Society of Consumer Affairs Professionals and Tabor 100.

## Jeff Johnson

## President, Washington State Labor Council, AFL-CIO

Since joining the WSLC staff in 1986, Jeff Johnson has served as special assistant to the president, lead lobbyist, research and organizing director, and as shop steward for his staff unit, which is part of Office and Professional Employees International Union Local 8. He has been WSLC president since December 2010.

Mr. Johnson's work has focused on legislation that improves the lives of working people through increasing collective bargaining and organizing rights; economic justice and anti-poverty measures; strengthening workers' compensation, unemployment insurance and employment standards; improving health care system; and protecting the rights of farm workers and immigrant workers. He has represented labor on a number of committees, both internal (WSLC Diversity Committee; Workers' Comp. Labor Caucus; UI Labor Caucus; Affordable Housing and Homeless Task Force) and external (Retro Advisory Committee; SBCTC Mission Task Force; L&I Independent Medical Exam Committee; L&I Vocational Rehabilitation Committee).

## Jay Inslee (D) Former State Representative; Washington state gubernatorial candidate

Jay Inslee representd the 14th legislative district in the state House of Representatives and in 1992 was elected to Congress from Eastern Washington. He was elected to Congress in 1998 where he served until 2012. Mr. Inslee co-wrote a book called "Apollo's Fire: Igniting America's Clean-Energy Economy" and is a recognized leader on clean energy and the job-creation potential it holds. He's fought for investments in innovative energy sources such as biofuels, solar, and wind, and has helped businesses across Washington produce and consume clean energy, creating jobs here at home. Mr. Inslee earned a Bachelor of Arts from the University of Washington, JD from Willamette University School of Law. He was a private practice lawyer, city prosecutor, member of the Washington state house of representatives; elected as a Democrat to the One Hundred Third Congress; regional director, United States Department of Health and Human Services; elected as a Democrat to the One Hundred Sixth Congress and to the six succeeding Congresses until his resignation on March 20, 2012.

## **Commissioner Philip B. Jones**

Commissioner Philip B. Jones was appointed by Governor Gregoire in March 2005. He is a member of the International Relations and Telecommunications Committee of NARUC, where he served on several policy panels and currently leads its Federal Legislation Subcommittee. Mr. Jones is Chairman of the Board of Directors of the National Regulatory Research Institute (NRRI). He is Vice Chair of the Washington Action Committee. He also serves on the Executive Committee of NARUC, which manages its daily operations for the Board of Directors. Prior to his commission appointment, he served as managing director of Cutter & Buck (Europe), BV in Amsterdam, Netherlands, for five years. From 1983 - 1988 he served as senior legislative assistant to Senator Daniel J. Evans and staffed him on energy policy issues before the Senate Energy and Natural Resources Committee, as well as international trade policy. Mr. Jones was responsible for a broad range of energy issues including hydroelectric re-licensing, nuclear waste management, energy conservation and renewables and the Bonneville Power Administration. Mr. Jones graduated from Harvard College with a degree in East Asian Studies.

## Kelly Kirkland Education Services Manager, O'Brien & Company

Kelly Kirkland has been working on sustainability issues since 1999 with a focus on education and outreach. As the Education Services Manager at O'Brien & Company, she develops curricula, teaches classes and facilitates workshops on a variety of green-building related topics. She has coordinated the development of a local course for construction trades apprentices, and assisted with a journey-level green building course customized for the state of Hawai'i. Most recently, she developed and recorded a training video on sustainability for field staff building the new 520 floating bridge. She is a Certified Sustainable Building Advisor and a LEED Accredited Professional with a specialty in Operations + Maintenance.

## Mark Maher

## Training Director Emeritus, Cement Masons and Plasterers, Washington Apprenticeship Program

Mark Maher graduated from Renton High School in 1966, became a Heavy Highway Laborer out of I ocal 440 at the age of 17, and became the guardian of his younger brother and sister. He became a Cement Mason Apprentice in 1973 and graduated from the University of Washington with a liberal arts degree in 1976. Mr. Maher has experience in the construction industry and has worked as foreman and training director. He started the first multi-local instructor training in the international and worked on the international's entire skill training curriculum, including 'green' training skills for the Plasterers and Cement Masons. He retired in 2011, and is working part time for the ANEW program which trains women for the construction trades.

## **Rob McKenna (R)** Washington State Attorney General Washington state gubernatorial candidate

Rob McKenna is serving his second term as Washington's 17th Attorney General. As the state's chief legal officer, he directs roughly 470 attorneys and 680 professional staff providing legal services to state agencies, the Governor and Legislature. He has won all three of the cases he has argued before the U.S. Supreme Court, defending voter-adopted laws on campaign finance reform, the top-two primary election system and the state public records law. Mr. McKenna is 2011-12 President of the National Association of Attorneys General (NAAG), and the recipient of the 2011 Kelley-Wyman Award for outstanding attorney general. Mr. McKenna earned JD from the University of Chicago Law School and two Bachelor of Arts (Economics and International Studies) from the University of Washington.

## **David Myers**

## Executive Secretary, Building and Construction Trades

David Myers is a third generation union crafts worker and has been a member of the International Brotherhood of Electrical Workers Local 970 for the past 16 years. After completing his apprenticeship in 1999, David spent five years in the field as a journeyman electrician before transitioning to the Department of Labor and Industries where he worked as an electrical inspector compliance officer then moved on to serve as the electrical technical specialist for four years. In 2007 David was elected business manager and financial secretary of IBEW local 970, positions that he served until his appointment as WSBCTC Executive Secretary in October of 2011.

## **Dr. Mel Oyler** NSF Education Subcommittee Chair

Dr. Mel Oyler joined Cascadia Community College in Winter 2009 to develop the Environmental Technology and Sustainable Practices program. His writing and research focus on the integration of leadership vision and strategy with program management to effectively develop programs which translate vision into results that impact workers, communities and business development efforts. His career has spanned R&D process development to high-tech product platform development to teaching information science, sustainability and systems design. Dr. Oyler came to Cascadia from a project management position with Roots Landscaping, a boutique landscaping practice that focused on native plant restoration and water conservation. His teaching focus is on energy informatics systems development, program management, informatics systems for sustainability, data analytics and scientific visualization. His passion is workforce education, and teaching systems integration to restore sustainable practices in our society. Dr. Oyler graduated from the University of California with BS and MS degrees in Chemical Engineering as well as an MS in Electrical and Computer Engineering. He also holds a PhD in Business from the University of Washington.

### Shana Peschek, MBA, Director, Construction Center of Excellence, Renton Technical College

Shana Peschek began her career in government, working for the Department of Social and Health Services. She started her own business painting murals, faux finishes and signs for both residential and commercial clientele. Her experience includes working as a speech therapy assistant for the Rochester School District and Administrative Assistant for the Construction Center of Excellence. She holds a bachelor's degree in English from Washington State University; and a master's degree in Business Administration from City University.

### **Dr. Robin Podmore** Vice President, New Initiatives /Outreach PES/IEEE President, Incremental Systems, Inc.

For more than 40 years, Dr. Robin Podmore has dedicated his career to the development of computer applications for power system operations and planning. He has been advocating methods, standards and programs whereby transmission and generation operators could enhance and add functions to their existing energy management systems through a series of incremental upgrades. Dr. Podmore's business travels include the International Zone in Baghdad, where he trained Iragi Grid Operators with his company's PowerSimulator product to maintain the reliability of their interconnected electric systems. Dr. Podmore develops innovative solutions for power systems with a focus on capacity development using simulators and on-line training along with cognitive methods for knowledge capture and transfer. More recently, he has been working on how these methods can be applied to developing affordable renewable energy solutions for developing countries. His work experience includes VP of ESCA, VP of Buisness Development, Alstom ESCA

## Rachel Proctor geBauer Business Representative, IBEW Local 77

Rachel Proctor geBauer has been a member of IBEW Local 77 since 2005 and a Business Representative for nearly three years. Ms. Proctor geBauer started with Puget Sound Energy as a Customer Service Representative in February of 2005. She bid to a position in the Customer Construction Department and became a Customer Construction Representative until being hired by IBEW Local 77 in September of 2009.

## **Roger Parish, PMP** Founder/President, Spectrum Consulting Group, LLC

Roger Parish, a certified Project Management Professional, is a results-oriented, hard hitting presenter whose seminars have been used by the U.S. Marines as well as major corporations to strengthen their organizations. He has been an organizational consultant for the past 30 years. His services includes strategic workforce and succession planning, strategic planning, leadership development, executive/manager development, organization development, portfolio, program and project management, business process reengineering and safety, business continuity and disaster recovery planning. Mr. Parish is the author of three books as well as numerous courses, articles and papers.

### Alison Pugh Energy Management Director, Edmonds Community College

Alison Pugh led the development of the new Energy Management program, convened the industry-led advisory committee, developed course sequencing within the degree and certificate programs to modularize "stackable" certificates leading to the degree, and developed curriculum and online content. Ms. Pugh serves as the Principal Investigator for the National Science Foundation grant, Meeting the Challenge of Energy Management in a Carbon-Constrained World, as well as directs three other energy-related federal grants at the college. Ms. Pugh serves as the college's Sustainability Researcher, develops green curriculum, provides operation support for the college to meet its greenhouse gas reduction goals and reduce the campus' overall impact on its ecosystem. She holds a Bachelor of Art History, Mount Holyoke College; and a masters in Sustainable Business, Bainbridge Graduate Institute.

## **Diane Quincy** Director of Leadership and Organization, Avista Corporation

Diane Quincy has 30 years of human resources experience. Her responsibility areas include leadership and organization development, succession planning and workforce development. Ms. Quincy has been actively involved in regional energy industry workforce development partnerships for more than a decade. Current projects include the PNCECE/ DOL Smart Grid Workforce Training grant; a "Get Into Energy Careers Pathway" pilot with the Center for Energy Workforce Development and the Spokane Area Workforce Development Council; and development of strategies to further build a diverse workforce pipeline for skilled trades and technical energy jobs. Avista Corporation is an energy company serving customers in eastern Washington, northern Idaho and parts of southern and eastern Oregon

## Martha Rose Owner, Martha Rose Construction

Martha Rose, known by many as the "Queen of Green," is a national leader in the Green Building Movement. She's been involved with energy efficiency and sustainable building practices since the 1970s. Martha Rose Construction leads the home building industry by building Green High-Performance Homes.

The energy crisis of the 1970s sparked her interest in conservation and alternative energy that became intertwined with her career in construction. The necessary learning that goes along with this topic is deep and on-going. Ms. Rose is an educator as well as a spec home builder - pushing the industry towards zero-energy-use homes.

## **Representative Larry Seaquist** Washington State Legislature House of Representatives, 26th Legislative District

First elected in 2006, Representative Larry Seaquist serves as the chair of the House Higher Education Committee. He serves on the House Education Appropriations & Oversight and Ways & Means Committees. In addition he serves on the legislative committee which oversees the Legislative Evaluation and Accountability Program (LEAP) and on the Select Committee on Pension Policy.

A former U.S. Navy warship captain and Pentagon strategist, Representative Seaquist spent 32 years in the U.S. Navy commanding four warships, including the USS IOWA in operations around the globe. Representative Seaquist served in several senior positions in the Pentagon, where he helped shape the budget and national security strategy in the offices of the Secretary of Defense, the Chief of Naval Operations and the Chairman of the Joint Chiefs of Staff.

## Kevin Schneider, PhD, PE, Senior Research Engineer Energy & Environment

#### Senior Research Engineer Energy & Environment Directorate, Pacific Northwest National Laboratory

Dr. Kevin Schneider received his bachelor's degree in Physics and his master's and Ph.D. degrees in Electrical Engineering from the University of Washington. His main areas of research are distribution system analysis and power system operations. He is currently a research engineer at the Pacific Northwest National Laboratory, working at the Battelle Seattle Research Center in Seattle, Wash. Dr. Schneider is an adjunct faculty member at Washington State University, an Affiliate Assistant Professor at University of Washington, and is a licensed Professional Engineer in Washington state. He currently serves as the Vice-Chair for the Seattle Power Engineering Society section and as Vice-Chair for the IEEE Distribution System Analysis Sub-Committee.

## **Randy Sibley**

### Construction Industry Training (CIT) Department Chair and Part-time Instructor, Edmonds Community College

Randy Sibley has taught at Edmonds Community College for 10 years in the Construction Industry Training, Energy Management and Construction Management departments. He has also provided the construction training curriculum working with community partners such as the Tulalip Tribe and Snohomish Youthbuild. Formerly, Mr. Sibley was manager and owner of CJR Associates, a company that provided commercial tenant improvement, residential remodeling, and home performance contracting. Mr. Sibley has his LEED AP certification, Level One Buildings Specific Thermal/Infrared Thermography certificate, and is also an authorized OSHA 10- and 30- hour trainer. He earned the Building Analyst Certification and Envelope Specialist Certification from the Building Performance Institute (BPI) in New York. Mr. Sibley also holds instructor certifications in scaffold training, and Duct Testing Training for the Washington State Energy Code, and has attended numerous trainings for energy auditing. He has earned a BA in Philosophy and Art, Cornell College; MA Contemporary Analytic Philosophy, University of Wyoming; and a Certificate in Career and Technical Teaching, Central Washington State University.

## **Erich Smith**

### *Executive Director, Build It Smart President, Seattle Vicinity Construction Safety Council (SVCSC)*

Erich Smith was the Apprenticeship Coordinator at Pacific NW Ironworkers Apprenticeship for more than four years. SVCSC is a group comprised of management, labor, government and resource groups that meets monthly from September through May to discuss current safety and health issues and concerns. Founded in 1948, the SVCSC is the oldest safety group in the Seattle/Puget Sound area. Build It Smart is a building trades labor-management organization of Washington. It is a non-profit organization established to lead institutional change in the construction industry, and leading to improved essential skills, including leadership, while providing a greater emphasis on the prevention of injuries and illnesses, resulting in a stronger industry.

#### **Collin Sorensen** Senior Consultant, Manufacturing Extension Partnership (MEP)

Collin Sorensen has more than 20 years of manufacturing engineering experience. Graduating with a degree in manufacturing engineering from BYU, Mr. Sorensen has continued to enhance his skill set by achieving a Six Sigma Black Belt, Six Sigma Trainer certification, Bronze Level Lean certification, NIST Lean Manufacturing Train the Trainer certification, and is trained in Innovation Engineering.

With his specialized skills he consults with manufacturing companies to structure competitive performance plans which are designed to train management in the skills needed for operational improvement; resulting in increased output, cost reduction, and significant impacts on total savings.

Mr. Sorensen has proven his ability to be innovative with problem solving and data management. He uses his sound judgment to achieve successful results, including a \$15 million savings for a multi-state, multi-facility company in 2010.

#### David Sorensen, PE Executive Director, WestCAMP, Inc.

David Sorensen has more than 35 years of experience in a wide variety of technical and managerial assignments requiring comprehensive knowledge in several disciplines relating to engineering, manufacturing, information technology and business systems. He has been directly responsible for major contracts with industry and government agencies and has a proven record of technical competence, customer relations, and business planning in rapidly expanding technical companies. Mr. Sorensen has held increasingly responsible positions in product and service organizations. He is innovative, resourceful, and aggressive in accomplishing assigned responsibilities with major strengths in strategic planning, marketing and management. He holds a Bachelor of Engineering Science and a Masters in Manufacturing Engineering Technology from Brigham Young University.

Since 1995 he's been the Director of the Utah Manufacturing Extension Partnership (MEP-Utah), serving primarily the 6,200 manufacturers in the state of Utah. MEP-Utah was selected to initiate and manage the NIST Information Technology Network for over 60 MEP Centers nationwide. Mr. Sorensen is also a BYU adjunct faculty member and the Associate Dean of Technology, Trades and Industry at Utah Valley State College. With a staff of 18, in one year MEP-Utah helped create or save 2,719 jobs in Utah, increased manufacturing sales by more than \$121 million and increased employee payroll by more than \$84 million.

He's been the Chairman & CEO for Echo Solutions, a start-up software products and services company; Executive VP of Eyring Research Institute; General Manager of EG&G Services; Director of Engineering at EG&G Idaho Inc.; Manager of Architect Engineering and Construction at Aerojet Nuclear Company and Manager of Power Generation Equipment at Bunker Ramo. He also has experience with GE's Nuclear Instrumentation as a Senior Applications Engineer, and in engineering positions at Kennecott Copper, Intermountain Industries, and F.C. Torkelson Engineers.

### **Chris Stockner** Energy & the Environment Coordinator, Oregon Museum of Science and Industry (OMSI)

Chris Stockner studied biology and English at University of Illinois/Urbana-Champaign and has applied his science background to education. He has more than 10 years of experience in informal learning, with focus on environmental sciences, outdoor education, and program development. Mr. Stockner assists with museum content development focused on renewable energy and earth sciences, and supports the integration of sustainability into OMSI's operations, programs and exhibits.

### **Dr. Robert Topping** Director of Industry Partnerships, Chemeketa Community College

Robert "Bob" Topping dedicates his practice to strategic workforce talent development, succession planning, and industry-driven training. His Doctoral dissertation addresses state-of-the-art designs for workplace learning, career education, and workforce talent development. Within his dissertation, he focused on the role of higher education in learning processes, design features, and major issues that affect talent development and succession planning. With that as a foundation, he has done major strategic workforce and succession planning for a variety of organizations in Oregon, Washington, Idaho and Utah. Most recently, he was a key in proposing 21st century workforce initiatives for regional economic development in the Oregon's Mid-Willamette Valley. Dr. Topping was instrumental in a project focusing on the redesign of the Utah education system. This work was done in collaboration with industry, state, government and education representatives. Dr. Topping has worked to develop, organize, and implement multiple broad-based workforce initiatives, two of which were awarded a "Center of Excellence" recognition.

Dr. Topping has served higher education as an Executive Director, Campus Administrator and Department Chair. Through effective collaboration and strategic partnerships, Dr. Topping has been instrumental in connecting Career and Technical Education (CTE) to industry, advancing student enrollment and developing innovative training models all of which have received national attention.

Beyond his 18 years of experience at the collegiate level, he brings 22 years of hands-on-experience in the construction industry. During this time in his career, he held a variety positions from apprentice to field superintendent culminating in a project manager role for multiple complex projects

## **Tony Usibelli** Director, State Energy Office Washington Department of Commerce

Tony Usibelli has worked for the Washington State University Energy program, managed the energy efficiency-section at the Washington State Energy Office, and was staff scientist focusing on energy efficiency and environmental issues at the Lawrence Berkeley National Laboratory in California. Mr. Usibelli was an adjunct faculty member at the Evergreen State College where he taught courses in energy, natural resources, and global climate change. He earned bachelor's degrees in geography and classical archaeology; and a Master of Science in Energy and Resources from the University of California, Berkeley.

## CONSTRUCTION COE

### **PNW Apprenticeship Education Conference**

The Construction Center of Excellence (CCE) co-hosted the 2012 Pacific Northwest Apprenticeship Education Conference with ANEW April 17 and 18 in Bellingham, Wash. The conference, themed Educate, Employ, Empower, was structured to educate a range of apprenticeship topics to varied stakeholders - 225 attended. Guests included apprenticeship program, economic development and business association decision makers; business and labor officials; and workforce education and governmental leaders. The unique venue at the Port of Bellingham allowed for specialty clinics and small group presentations by representatives from Alaska, Washington, Oregon and British Columbia. There were eight no-host networking dinners which included a variety of topics about apprenticeship. The information gained and partnerships formed were invaluable and resulted in several exciting initiatives for CCE, including a partnership with British Columbia. The Center of Excellence for Marine Manufacturing and Technology will host a tour of the British Columbia Training Institute...stay tuned for details.

#### **Construction Mentors Needed**

CCE is developing a small business incubator for Washington's construction industry. To ensure the success of this project, we are asking our partners and industry experts to provide input and information that will help foster the construction entrepreneur in our state. CCE is gathering emails of volunteer mentors for an online-only service. Contact us today to help build up this resource with useful links and information! speschek@rtc.edu.

### **STEM Pays Video**

CCE collaborated with the Manufacturing Industrial Council and Center of Excellence for Marine Manufacturing and Technology to create the STEM Pays video, showcasing trades as STEM careers. In addition to offering a vast array of educational and training opportunities, there are a multitude of resources, as well as a link to this video on our website at www.RTC.edu/CCE





## Renewable Energy generating buzz at the Oregon Museum of Science and Industry



With almost one million visitors a year, the Oregon Museum of Science and Industry (OMSI) in Portland, Ore., has long been among the Northwest's most recognized museums and a leader for hands-on science learning about everything from reptiles to the engineering design process. Now the museum is focusing its unique brand of fun interactive exhibits on a new topic: renewable energy.

In 2011 the museum set out an ambitious *Energy and the Environment* initiative with a goal to become a hub for learning about sustainable choices, environmental issues, and the clean energy technology of the future. The new exhibit focused on renewable sources of electricity is a cornerstone of these efforts.



A concept drawing for one of OMSI's new exhibits, *Turbine Controller* 

The 1,500 square foot permanent exhibit will feature the inner workings of solar photovoltaic and wind energy as fundamental energy technologies of the future. It will also have components focused on wave generators, a newer technology with potential big implications for the future in the Pacific Northwest.

Going beyond individual sources of renewable energy, the exhibit will also challenge visitors to think about tradeoffs among the various sources of any electricity by engaging in fun activities like running their own simulated electrical grid.

A number of industry partners and advisors have been helping along the way, providing everything from expert advice on the technology to photographs for use in the exhibit. Companies collaborating with the museum and helping to sponsor the project include Portland General Electric, Vestas, Iberdrola Renewables, SolarWorld, the Bonneville Power Administration, Christenson Electric, Mentor Graphics, and Union Bank.

The exhibit is currently in production and is scheduled to hit the floor in December 2012. Look for more information on the finished exhibit in the PNCECE newsletter in early 2013.

## SPONSOR RECOGNITION



## SUMMIT COMMITTEE MEMBERS

Thank you

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And

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