

Northwest Public Power Association

# BULLETIN



December 2014

Volume 68, Number 12

## Sitka celebrates completion of the Blue Lake Expansion Project

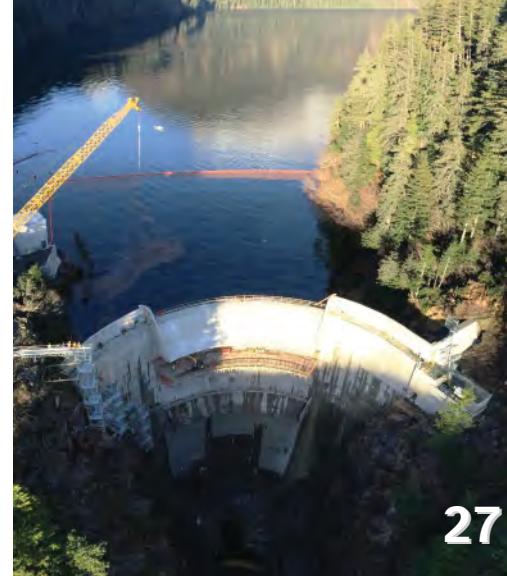




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**On the cover:** The new hydroelectric power being generated by the Blue Lake Expansion Project in Sitka, Alaska, will directly and significantly decrease the community's increasing dependence on diesel fuel for power generation. The project team faced many challenges, including the fact that Sitka is accessible only by air or water, and that the 145-foot dam needed to be raised by 83 feet. However, on November 14, 2014, the City fired up three new 5.3-megawatt turbine/generators and wet-tested another 1.7-megawatt smaller unit that will come on line in early 2015 — and the project was completed on time and within budget.

## CONTENTS

DECEMBER 2014 • VOLUME 68 • NUMBER 12

**3 NWPPA NEWS**

**8 TRAINING OPPORTUNITIES**

**12 ENGINEERING & OPERATIONS**

**14 EXECUTIVE DIRECTOR**

**15 FISH**

**17 INFORMATION TECHNOLOGY**

**18 MEMBER NEWS**

**23 ASSOCIATE MEMBER NEWS**

**25 WASHINGTON, D.C., REPORT**

**27 COVER STORY**

**31 JOB OPPORTUNITIES**

The *Bulletin* is a publication of Northwest Public Power Association, a regional organization of diverse utilities. The membership is made up of utility districts, electric cooperatives, municipalities, and crown corporations in Alaska, British Columbia, California, Idaho, Montana, Nevada, Oregon, and Washington. We are also a trade association for nearly 300 companies, individuals, and organizations affiliated with the electric power industry.

Opinions expressed in single articles are not necessarily policies of the Association. For permission to reprint articles, write or call the associate editor.

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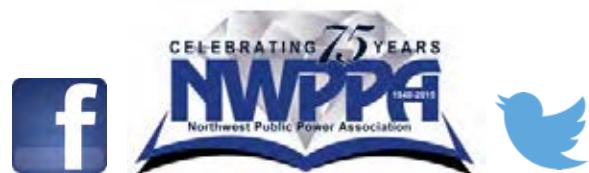
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# The 3 Cs Workshop welcomed a banner turnout in Downtown Portland

Over 70 managers and staff from the customer service and credit/collections departments of public power utilities were on hand October 21-23 at this year's 3 Cs Workshop, *Building Bridges across the Region*. They came to Downtown Portland from all over Oregon, Washington, Montana, and Idaho; one attendee came all the way from Hawaii!

Attention was rapt and energy was high as attendees heard presentations and exchanged best practices during roundtable discussions. Debra Smith, general manager of Central Lincoln PUD, spoke about how her utility builds bridges across the utility, shifting from working in silos to developing working relationships with other departments to be more effective in their work. Matt Michel, general manager of Lane Electric, was on hand to explain how his employees stay in alignment with Red Flag Rules. Justin Holzgrove of Mason County PUD No. 3 talked about ways attendees could help their customers conserve energy to reduce their power bills.

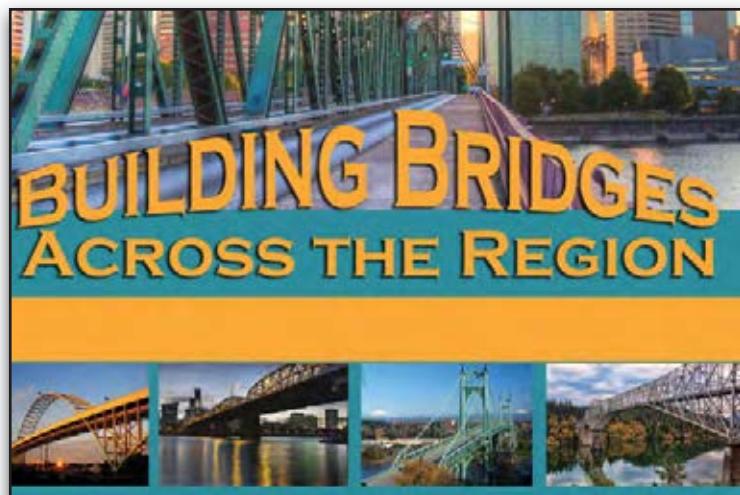
Consultant Bob Lewis facilitated a lively training on how to maximize individual contributions to build great teams; as part of the training, attendees worked in small teams to produce devices that would support an egg using only materials supplied by Lewis. Participants then discussed how they had worked together as a team to produce their devices.

A highlight of the workshop was *Savvy Survival Skills*, where Carol Fredrickson of Violence Free showed attendees how to defuse volatile situations with customers and how to escape from an attacker. Fredrickson was so well received that NWPPA plans to bring her back to teach several two-day classes in 2015.

On Friday, the workshop closed with a presentation about professionalism in today's workplace. Jennifer Bouman Steagall, a highly entertaining HR attorney and trainer from Red Kite, talked about how through our various behaviors we unconsciously create negative images with our colleagues that then impact our working relationships. She had the audience laughing and engaged as she regaled them with examples of real-case examples of bizarre employee behaviors that epitomized unprofessional behavior in the workplace.

On the workshop evaluations, two separate managers summed up the success of this year's workshop by stating that this was the best 3 Cs Workshop they had attended over the past eight years. Kudos to all involved! **NWPPA**

*Attention was rapt and energy was high as attendees heard presentations and exchanged best practices during roundtable discussions.*



## Linecrew survey report now available

The results of NWPPA's 2014 Linecrew Wage and Benefits Survey are now available online at [www.nwppa.org](http://www.nwppa.org) in the Members Only Access section under View Compensation Surveys on the left-hand menu.

The results are in!  
**Online!**

Over half of our member utilities participated in this year's linecrew survey — if you were one of them, thank you very much!

All survey information is kept confidential and may only be accessed by NWPPA utility member general managers and HR senior management. If you are having trouble accessing the results, please contact Brenda Dunn at [brenda@nwppa.org](mailto:brenda@nwppa.org). **NWPPA**

# Time to submit nominations for 2015 board seats, awards, and resolutions

Though it may be hard to believe, the end of the year is upon us and it's already time for NWPPA to issue a call for nominations for the board of trustees and NWPPA awards, as well as a call for new resolutions. The following information summarizes the materials that were mailed at the beginning of December:

## Call for 2015 NWPPA Board nominations

NWPPA is currently seeking nominations for four vacant utility member seats and three associate member seats on its board of trustees in the following positions:

- **Alaska** — One policy maker from a municipal or cooperative utility.
- **Montana** — One general manager from a municipal or cooperative utility.
- **Oregon** — One policy maker from a PUD.
- **Washington** — One policy maker from a PUD.
- **Associate Member** — One owner/CEO/manager of a distributorship, one owner/CEO/manager of a power supply provider, and one construction contractor.

For those utility members interested in serving on the NWPPA Board of Trustees, please submit a letter identifying the nominee's desire to serve as well as some background information (bio with other community/industry service) to Michelle Bertolino, NWPPA Nominating Committee Chair, 9817 NE 54<sup>th</sup> Street, Suite 200, Vancouver, WA 98662. Board nominations may also be emailed to Anita Decker at [anita@nwppa.org](mailto:anita@nwppa.org). Nominations for board seats must be received by February 1, 2015.

## Call for 2015 award nominations

Please consider nominating individuals and/or organizations for the *Life Award*, *Paul J. Raver Community Service Award*, *John M. George Public Service Award*, and *William "Bill" McCrorie Distinguished Service Award*.

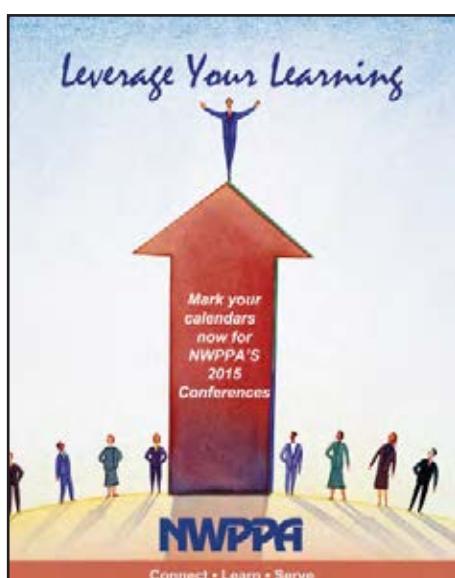
All nominations received by January 30, 2015, will be reviewed and acted upon during the Awards Committee meeting in March.

## Call for 2015 resolutions

Please review NWPPA's current 2014 resolutions by viewing them on NWPPA's website under the *Government Relations* link. If you would like to submit any new draft resolutions or provide updates to the existing resolutions, please email your input to Nicole Case at [nicole@nwppa.org](mailto:nicole@nwppa.org) by January 29, 2015. The Government Relations Committee (GRC) will meet on March 5, 2015, in Sacramento, Calif., to discuss comments and submissions to the proposed slate of 2015 resolutions.

A final list of GRC-approved, proposed 2015 resolutions will be made available to the full membership following GRC consideration in March. The membership will vote on the proposed 2015 resolutions in May at NWPPA's Annual Membership Meeting in Anchorage, Alaska.

If you have questions about any of the above categories or requirements, please contact NWPPA at (360) 254-0109 or [nwppa@nwppa.org](mailto:nwppa@nwppa.org). **NWPPA**



## NWPPA Conferences in 2015

**NWPPA Engineering & Operations Conference and Trade Show**  
April 6-9, 2015  
Tacoma, Wash.

**NWPPA Annual Conference and Membership Meeting**  
May 17-20, 2015  
Anchorage, Alaska

**Northwest Communications & Energy Innovations Conference (NIC)**  
September 13-16, 2015  
Lake Tahoe, Nev.

**APA Alaska Electric Utility Conference (AEUC) and Trade Show**  
October 26-29, 2015  
Anchorage, Alaska

For more information on these and other events, go to [www.nwppa.org](http://www.nwppa.org).

# Register now for February's IT Workshop

**B**ecause cyber attacks are eclipsing terrorism as the primary threat facing the United States, and utilities are one of the primary targets of these attacks, cyber security has been a primary focus of NWPPA's IT Workshops over the past several years; this year's workshop will continue this focus.

With a theme of *Honk If You've Been Hacked!*, the workshop will include cyber-related presentations and roundtable discussions where attendees can compare experiences and concerns. To date, topics and speakers confirmed include:

- A debriefing on the December 10, 2014, Cyber Security Workshop (*Hack Attack!*) which was held for general managers and policy makers
- *Phishing in Your Own Pond*, which will include a presentation by Sean Wiese of NISC, a phishing simulation by Jerry Day of Okanogan PUD, and a case study by Rhonda Thomas of Pend Oreille PUD

- BYOD (bring your own devices) policies: best practices discussions
- *Management of Fiber Optics for Broadband Internet*, a presentation by Dean Perry of SSP Innovations
- *IT/OT Convergence; Coming to a Utility Near You!*, a panel discussion including Tim Conway of SANS and utility employees from IT, operations, and engineering
- *Social Media: a Blessing or a Curse?*
- *So You've Been Compromised — What's Next?*, case studies on utility cyber security breaches

Register now to join over 50 IT professionals on February 18-20, 2015, at the Embassy Suites in Downtown Portland for the annual IT Workshop. To save money, act soon — the cut-off date to receive the discounted hotel rate is January 17, and the early-bird cut-off date for registration is January 19. **NWPPA**

# It's not too soon to plan for the 2015 Alaska Electric Utility Conference & Trade Show

**P**lanning for next year's Alaska Electric Utility Conference & Trade Show, led by Conference Chairman Andy Gentry, manager of Engineering & Operations at Cordova Electric Cooperative, is underway! At the 2015 event, just as in 2013, attendees can expect conference topics and speakers of importance to electric utilities in Alaska; attendees from electric utilities from across the state; and a trade show that will burst at the seams with the latest products and services from over 100 vendors. For next year, we will again be in the Dena'ina Civic and Convention Center in Anchorage, arguably the best venue in the state. This event is only held every other year so mark your calendars now for the week of October 26, 2015.



## Call for presentations

Share your knowledge and expertise at the Alaska Electric Utility Conference & Trade Show on issues important to Alaska electric utilities by sending your proposal for presentations to NWPPA. The areas of focus for the conference are generation engineering and operations; distribution; transmission and substation engineering and operations; information technology; safety and environment; and materials and fleet management.

To submit your presentation for consideration by the Conference Planning Committee, please follow these instructions:

1. The presentations are to be 50 minutes in length (including time for Q&A) and must be non-commercial. Presentations with sales or promotions will not be considered.
2. Only a 100-to-200-word summary is required at this time.
3. Include the presentation title and the related area of focus that is mentioned above.
4. Include the speaker's name, title, organization, address, email, and phone number.
5. Email the above information to [nwppa@nwppa.org](mailto:nwppa@nwppa.org) by Wednesday, January 21, 2015, at 5 p.m. Pacific Time. Enter "Alaska Conference" in the subject line to be considered quickly. You will be notified by April 3, 2015, as to the status of your proposal.

## Trade show booths

Don't miss the opportunity to get before your current and future utility customers that attend the 2015 Alaska Electric Utility Conference & Trade Show. During the conference, the trade show will be open on October 28 and 29, 2015, with almost 300 utility employees from across the state passing through the show. Booths will be sold on a first-come, first-served basis beginning Thursday, January 15, 2015. Information and booth purchase forms will be available at [www.nwppa.org](http://www.nwppa.org) later this month.

If you have questions about any of the above, please contact NWPPA Training Manager Scott Lowry at (360) 816-1448. **NWPPA**

# NWPPA gearing up for diamond anniversary

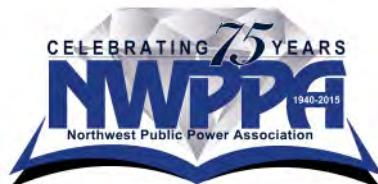
Next year will be a monumental year for NWPPA; in 2015, the association will celebrate its 75th anniversary of continuing to serve the public power community.

Since 2010, NWPPA has been using this page to highlight our dedicated trustees on our board; however, we are giving them a break next year and will instead be using this space to highlight NWPPA's achievements throughout the past 75 years.

Along with the monthly historical updates here in the *Bulletin*, NWPPA has a lot of fun and educational activities planned for our members. Follow us on Facebook and Twitter to see what old photos we dig up for Throwback Thursdays (#tbt on social media channels) throughout the year.

If you already follow us on social media, you probably have noticed our new logo that highlights our diamond anniversary. In each 2015 issue of the *Bulletin*, we will be hiding one diamond graphic somewhere in the magazine; for each issue, we will select a random person who has emailed the associate editor at [brenda@nwppa.org](mailto:brenda@nwppa.org) with the page and location of the diamond to win a gift card from NWPPA.

Throughout the year, look for other celebration activities and fun things such as a summer barbecue, a printable timeline of our milestones (as well as those for the Northwest public power industry) over the past 75 years, and a special May issue of the *Bulletin* dedicated to our association. If you have stories or photos from your time as an NWPPA member, please share them with us — we would love to hear them and possibly incorporate them into our publications and events! Stories and photos can be emailed to [brenda@nwppa.org](mailto:brenda@nwppa.org). **NWPPA**



NWPPA officers and trustees from 1948. Back row: Max Schmuck, Gus Peters, R.H. Gatiss, G. Claude Mott, Owen Hurd, and Howard Babcock. Seated: Ford Northrop, Eric Johnson, John R. King, Carl C. Moor, Gus Norwood, and John M. George.



## A look back at public power

### 50 years ago — 1964

Clatskanie PUD announced that they would supply power to the Crown Zellerbach Corporation's new pulp and paper plant in Wauna, Ore. ... The Washington State Power Users Association was incorporated in Olympia; its purpose was to coordinate groups interested in electric power matters from the viewpoints of consumers ... Both Fairbanks Municipal Utilities and Golden Valley Electric Association promoted electric house heating with an end rate of 1.5 cents per kilowatt-hour (Alaska) ... Lewis County PUD cut rates for mercury vapor lights by 50 cents per month per fixture in all cities and towns in Lewis County converting to all-mercury-vapor street lights (Wash.).

### 25 years ago — 1989

Columbia River PUD moved into its new headquarters building, which tripled the utility's previous space (Ore.) ... The Federal Energy Regulatory Commission awarded a 50-year license to Eugene Water & Electric Board for new hydroelectric facilities below the U.S. Army Corps of Engineers' Blue River Dam (Ore.) ... The Wells Rural Electric Company Board of Directors elected D. Vernon Dalton as president, Daryl Eriksen as vice president, and Mary Wright as secretary/treasurer (Nev.) ... A proposal by the Northwest Power Planning Council initiated the largest wildlife restoration ever in the Columbia River Basin.

### 5 years ago — 2009

Charlotte Bauta, the member services coordinator for Columbia REA, was named Ruralite Services' 2009 Communicator of the Year (Wash.) ... The Sacramento Municipal Utility District announced that the Nuclear Regulatory Commission released the majority of the Rancho Seco nuclear power plant for unrestricted public use (Calif.) ... Dick Wanderscheid left the City of Ashland to accept a position with the Bonneville Environmental Foundation (Ore.) ... OPALCO's new website won the 2009 Silver Davey Award in the Energy category (Wash.). **NWPPA**

# Thank You

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# TRAINING OPPORTUNITIES

## January and February 2015

**Please register 30 days in advance to receive the Early Bird discount. See [www.nwppa.org](http://www.nwppa.org) for more information.**

### ENVIRONMENTAL TASK FORCE MEETING

**Who Should Attend:** Utility environmental professionals (new and experienced), government agency staff, vendors, and anyone who is tasked with or interested in environmental issues, regulatory compliance, or mitigation in the environmental arena of electric utilities.  
**Overview:** This is a regular meeting of the long-standing Environmental Task Force (ETF) that examines environmental issues and the impact of current and proposed environmental regulations on electric utilities. The ETF meets three times per year to review and discuss new and proposed regulations and issues facing each utility; and to hear from subject matter experts on key issues of the day, as well as from vendors with new technology or services. This is a solution-focused, learning, and networking venue that brings utility, industry, and government environmental professionals together on a regular basis.

**JANUARY 12, 2015 — SEATTLE, WASH.**

### INTRODUCTION TO ROBERT'S RULES OF ORDER

**Who Should Attend:** Policymakers, general managers, clerks to the board, executive secretaries, administrative assistants, and any utility employee participating in board or commission meetings.

**Overview:** Robert's Rules of Order can be baffling and intimidating. People who know how to use it sometimes seem to employ the system as a weapon, not a tool to make meetings better; but it doesn't have to be that way. In this highly interactive and entertaining half-day class, attendees will learn essential principles and practice the tools and techniques to use Robert's Rules well in order to run smooth, efficient, and fair meetings.

**JANUARY 12, 2015 — BOISE, IDAHO**

### DEPARTMENT OF TRANSPORTATION HAZARDOUS MATERIALS TRAINING FOR UTILITY PERSONNEL

**Who Should Attend:** Anyone with a job that puts him or her in contact with hazardous materials (hazmat) that are transported in any way.

**Overview:** This one-day course will serve as training to certify employees as "hazmat employees," as well as provide knowledge to guide hazardous materials transportation programs. Please note that if you are required to have the in-depth security training, it is very company and materials specific. Participants will need to submit that security plan for review prior to class, or the employer must train and certify compliance with that requirement.

**JANUARY 13, 2015 — SEATTLE, WASH.**

### FOREMAN LEADERSHIP SKILLS #1: PREPARING FOREMEN FOR LEADERSHIP AND LEARNING TO LEAD OTHERS

**Who Should Attend:** Foremen and crew leaders. (Please note that classes in this series may be taken in any order.)

**Overview:** The electric utility industry of the 22<sup>nd</sup> century will look much different than it does today. With the changes in workforce and new technology comes the need for new technical job skills as well as the skills needed to coach, motivate, and inspire crew members. This two-day course is designed to prepare new and future foremen, crew leaders, and others in supervisory capacities for the challenges of effective leadership in an environment that includes a new generation of workers with different frames of reference toward employers and the workplace.

**JANUARY 13-14, 2015 — ROSEVILLE, CALIF.**

### OPERATIONS MANAGER AND LINE SUPERINTENDENT BOOT CAMP — SESSION 2

**Who Should Attend:** Newly appointed operations managers, line superintendents, or those who have potential or are being considered for these or other management positions.

**Overview:** This series is designed to provide tools and knowledge that will help prospective, new, and existing line superintendents or operations managers succeed. Topics in the series focus on the day-to-day work of a person in management regarding legal; regulatory; project management; work with contracts and contractors; finance and accounting; human resources; field customer service; and more. It is highly recommended that you have first completed either the Foreman Leadership series or Front Line Leadership series.

**JANUARY 14-15, 2015 — SEATTLE, WASH.**

### PCB MANAGEMENT — FOUNDATIONAL AND ADVANCED TRAINING

**Who Should Attend:** All utility operations and technical personnel, as well as employees who are involved in managing, handling, and maintaining records and EPA reports for PCB items and PCB waste.

**Overview:** Is your utility in compliance with U.S. EPA regulations regarding PCB use and management? As part of NWPPA's Environmental Series, this important two-day course has been designed to meet the needs of both PCB rookies who are new to the PCB regulations, as well as those pros who are well versed in the rules. This two-day course provides practical help for electric utilities and is filled with utility best practices on how to gain and maintain compliance with U.S. EPA rules regarding PCB use and management.

**JANUARY 14-15, 2015 — SEATTLE, WASH.**

### EXCEL WITH EXCEL

**Who Should Attend:** Excel users who already know the basics but want to take their Excel skills to a new level.

**Overview:** Increase your effectiveness and take back your time by learning short cuts, new techniques, and streamlined ways to maximize the capabilities of this software. You will learn how to incorporate features such as sorting, filtering, pivot tables, conditional formatting, and spark lines as well as how to integrate Excel with Word and PowerPoint. The course combines instructor demonstration and hands-on practice with Excel 2010 and 2013. Laptops pre-loaded with exercises will be provided by the instructor.

**JANUARY 21, 2015 — PORTLAND, ORE.**

### APPLYING THE NESCA TO DAY-TO-DAY UTILITY WORK

**Who Should Attend:** Engineers, staking engineers, operations supervisors, line superintendents, foremen, technicians, linemen, safety personnel, and inspectors. Prior knowledge of the *National Electrical Safety Code* (NESCA) is not required.

**Overview:** Understanding the *National Electrical Safety Code* (NESCA) rules is a must for personnel responsible for operating a safe utility system. This two-day class focuses on the rules in the NESCA. On day one, the class will provide a general overview of each part of the NESCA; on day two, applying the code to day-to-day work will be stressed by focusing on practical NESCA examples and applications.

**JANUARY 28-29, 2015 — VANCOUVER, WASH.**

## **FOREMAN LEADERSHIP SKILLS #1 — PREPARING FOREMEN FOR LEADERSHIP AND LEARNING TO LEAD OTHERS**

**Who Should Attend:** Foremen and crew leaders.

**Overview:** The electric utility industry of the 22<sup>nd</sup> century will look much different than it does today. With the changes in workforce and new technology comes the need for new technical job skills as well as the skills needed to coach, motivate, and inspire crew members. This two-day course is designed to prepare new and future foremen, crew leaders, and others in supervisory capacities for the challenges of effective leadership in an environment that includes a new generation of workers with different frames of reference toward employers and the workplace.

**JANUARY 28-29, 2015 — SPOKANE, WASH.**

## **FRONT LINE LEADERSHIP #2: LEADERSHIP CHALLENGES**

**Who Should Attend:** Front line supervisors and managers, and those front line employees who will be transitioning to a supervisory or managerial role in the future.

**Overview:** This is the second in a series of four sessions leading to a Certificate in Front Line Leadership from NWPPA. The front line leader's role in facilitating performance will be described, along with ways of dealing with challenges such as denial and reluctance to accept accountability.

**JANUARY 28-29, 2015 — VANCOUVER, WASH.**

## **STAKING TECHNICIAN CERTIFICATION PROGRAM — NESC & UTILITY SPECIFICATIONS**

**Who Should Attend:** Staking technicians.

**Overview:** This three-day course is part of the Staking Technician Program. The NESC establishes the rules used in the design and maintenance of power systems. This course provides staking technicians with a working knowledge of the NESC and its application. The course will focus on those rules that specifically apply to distribution line design, such as grounding, overhead line clearances, overload factors, strength reduction factors, ice loading, and underground line construction.

**FEBRUARY 2-4, 2015 — SEATTLE, WASH.**

## **THE CUSTOMER FOCUS**

**Who Should Attend:** All employees who want to improve their internal and external customer relationships.

**Overview:** This two-day course focuses on building the knowledge, attitudes, and skills necessary to deliver outstanding customer service. Topics covered include public relations, effective listening, rapport-building strategies, conflict resolution, effective communication tools, and stress management. Participants will learn how to handle potentially unproductive interactions and how to create positive experiences for both internal and external customers.

**FEBRUARY 4-5, 2015 — PORTLAND, ORE.**

## **STAKING TECHNICIAN CERTIFICATION PROGRAM — OBTAINING PERMITS**

**Who Should Attend:** Staking technicians.

**Overview:** This one-and-a-half-day course is part of the Staking Technician Program. Today, property owners are more reluctant to give right-of-way easements for overhead or underground power lines. Consequently, more use is being made of existing public rights-of-way. To do this, permits must be obtained from the governing agency. This module of the staking program covers the information required on a permit; methods to set up an efficient permitting process; how good personal contacts can ease the process; and preparation of permit documents and drawings.

**FEBRUARY 5-6, 2015 — SEATTLE, WASH.**

## **LINEMAN SKILLS SERIES: DAY 1 — AC TRANSFORMERS, ADVANCED THEORY, AND PRACTICAL APPLICATION**

**Who Should Attend:** Journeyman linemen, foremen/supervisors, engineers, and those involved in planning, scheduling, and engineering operations for a utility.

**Overview:** This advanced class provides attendees with a journeyman lineman's view of AC transformers. The curriculum includes a combination of electrical theory and hands-on practice. The overall program is to teach students how transformers are used to manage and control the flow of alternating current in electrical distribution systems.

**FEBRUARY 10, 2015 — IDAHO FALLS, IDAHO**

## **LINEMAN SKILLS SERIES — ALL 3 DAYS**

**Who Should Attend:** Linemen, linecrew foremen, substation personnel, electrical engineers, safety managers, and all personnel that would benefit from a theoretical and practical knowledge of AC transformers, regulators, capacitors, and grounding.

**Overview:** Day 1 — *AC Transformers, Advanced Theory, and Practical Application*. This advanced class provides attendees with a journeyman lineman's view of AC transformers. The curriculum includes a combination of electrical theory and hands-on practice. Day 2 — *AC System Troubleshooting*. The course will cover troubleshooting problems and what to look for in single-phase problems; how to fix three-phase problems from wrong voltages and how they occur; and equipment used to solve problems and how it works electrically. Day 3 — *Personal Protective Grounding*. This course discusses protective grounding theory, emphasizing safety and the range of acceptable currents. It also covers visual inspection of grounding systems (mats, connectors, risers, and straps); special considerations and hazards (IEEE Standard 80); and personal protective grounds.

**FEBRUARY 10-12, 2015 — IDAHO FALLS, IDAHO**

## **LINEMAN SKILLS SERIES: DAY 2 — AC SYSTEM TROUBLESHOOTING**

**Who Should Attend:** Line and other operations personnel, such as metering, service, engineering, and other individuals who require understanding of AC theory and how it relates to equipment used to troubleshoot problems.

**Overview:** The course will cover troubleshooting problems and what to look for in single-phase problems; how to fix three-phase problems from wrong voltages and how they occur; and equipment used to solve problems and how it works electrically.

Participants will gain an understanding of single-phase and three-phase problems of all kinds; what causes ferro-resonance; emergency alternatives to field situations; the equipment and troubleshooting; and safety hazards that are of concern in shooting three-phase transformer banks and three-phase capacitor banks.

**FEBRUARY 11, 2015 — IDAHO FALLS, IDAHO**

## **LINEMAN SKILLS SERIES: DAY 3 — PERSONAL PROTECTIVE GROUNDING**

**Who Should Attend:** All electrical workers involved in personal protective grounding.

**Overview:** This course discusses protective grounding theory, emphasizing safety and the range of acceptable currents. It also covers visual inspection of grounding systems (mats, connectors, risers, and straps); special considerations and hazards (IEEE Standard 80); and personal protective grounds, including sizing, testing, inspection, maintenance, and use.

**FEBRUARY 12, 2015 — IDAHO FALLS, IDAHO**

# TRAINING OPPORTUNITIES

## NEW! PREPARING FOR DISTRIBUTED GENERATION IN THE NORTHWEST

**Who Should Attend:** Commissioners, general managers, and senior staff.

**Overview:** In recent years, electric utility customers have begun showing greater interest in distributed generation. Declining costs and expanding availability of on-site electric generating systems, such as roof-mounted solar photovoltaic equipment marketed and installed by third-party service providers, are causing residential and business customers to consider self-supply as an attractive alternative to relying exclusively on centrally generated power delivered via the utility grid. By preparing for distributed generation now, Northwest public power utilities can be responsive should significant numbers of their customers become interested in adopting it in the future.

**FEBRUARY 17-18, 2015 — PORTLAND, ORE.**

## PATHWAYS TO LEADERSHIP 1: ALL FIVE SESSIONS

**Who Should Attend:** Directors, managers, graduates of the Frontline Leadership Series, and newly appointed leadership and individual contributors.

**Overview:** Pathways to Leadership is a powerful learning experience that blends classroom training, coaching, and everyday work into one integral leadership development process. It focuses not just on what leaders learn but also how they learn it. This series of classes, online tools, templates, and application assignments enable the leader to practice and apply essential skills within the context of an actual job.

**FEBRUARY 18, 2015-MAY 4, 2016 — VARIOUS LOCATIONS**

## BILLS, BUCKS, AND BUSINESS

**Who Should Attend:** Accounting staff and any employee who wants to understand his or her personal impact on a utility's financial success.

**Overview:** This one-and-a-half-day course is based on the premise that "every employee and every task performed at the utility has an impact on the ultimate bill sent to a consumer/member." The impact of your job will be measured and evaluated; practical examples will be provided for improving favorable outcomes and minimizing those that are not as favorable. Employees will learn skills that help their system achieve financial security and long-term benefits for consumers/members.

**FEBRUARY 18-19, 2015 — VANCOUVER, WASH.**

## FOREMAN LEADERSHIP SKILLS #2: EFFECTIVE PROBLEM SOLVING & TRANSITIONING FROM EMPLOYEE TO FOREMAN

**Who Should Attend:** Foremen and crew leaders.

**Overview:** Day 1 — *Effective Problem Solving and Decision Making*. How do you know if your crew is performing at its best? Do you see potential for improvement but you do not know where to start? This course will provide you with tools for diagnosing your own team and matching your diagnosis to an intervention technique. Day 2 — *Transitioning from Employee to Foreman: Keys to Discipline and Delegation*. The second day is designed to provide participants with an understanding of the dynamics of workplace relationships and strategies for how to better manage those and improve relationships through an effective delegation of duties, tasks, and responsibilities.

**FEBRUARY 18-19, 2015 — ROSEVILLE, CALIF.**

## IT WORKSHOP

**Who Should Attend:** IT professionals and others who are responsible for information technology programs.

**Overview:** Cyber security continues to be a key focus of the annual IT workshops. During this workshop, attendees will hear presentations on the general manager's role in cyber security programs,

how to conduct internal phishing, the issues created when employees bring their own devices (BYOD), the management of fiber optics for broadband Internet, the upcoming trend in IT/OT convergence, the complexities of managing social media, and case studies on utility cyber security breaches. For more information, see page 5.

**FEBRUARY 18-20, 2015 — PORTLAND, ORE.**

## PATHWAYS TO LEADERSHIP 1 — LEAD YOURSELF

**Who Should Attend:** Directors, managers, graduates of Frontline Leadership, and newly appointed senior leaders.

**Overview:** Session 1 will provide a clear roadmap of the entire Pathways to Leadership learning experience. You will see how this program is specifically designed for the workplace leader within the public power electric utility industry. This three-day session will focus on the foundation of leadership by helping you to first lead yourself. Specifically, you will participate in activities, engage in discussion, and apply tools that will enable you to know your role, know yourself, align yourself, and account for your own success.

**FEBRUARY 18-20, 2015 — VANCOUVER, WASH.**

## LINEMAN SKILLS SERIES: DAYS 1 & 2 — AC TRANSFORMERS, ADVANCED THEORY, AND PRACTICAL APPLICATION

**Who Should Attend:** Journeyman linemen, foremen/supervisors, engineers, and those involved in planning, scheduling, and engineering operations for a utility.

**Overview:** This advanced two-day class provides attendees with a journeyman lineman's view of AC transformers. The curriculum includes a combination of electrical theory and hands-on practice. The overall program is to teach students how transformers are used to manage and control the flow of alternating current in electrical distribution systems. Attendees will be provided with an opportunity to work with and arrange transformers in a variety of configurations to achieve specific voltage outputs using hands-on equipment and computer simulation.

**FEBRUARY 24-25, 2015 — SEATTLE, WASH.**

## LINEMAN SKILLS SERIES: ALL 3 DAYS

**Who Should Attend:** Linemen, linecrew foremen, substation personnel, electrical engineers, safety managers, and all personnel that would benefit from a theoretical and practical knowledge of AC transformers, regulators, capacitors, and grounding.

**Overview:** Days 1 and 2 — *AC Transformers, Advanced Theory, and Practical Application*. This advanced two-day class provides attendees with a journeyman lineman's view of AC transformers. The curriculum includes a combination of electrical theory and hands-on practice. The overall program is to teach students how transformers are used to manage and control the flow of alternating current in electrical distribution systems. Day 3 — *Personal Protective Grounding*. This course discusses protective grounding theory, emphasizing safety and the range of acceptable currents. It also covers visual inspection of grounding systems (mats, connectors, risers, and straps); special considerations and hazards (IEEE Standard 80); and personal protective grounds, including sizing, testing, inspection, maintenance, and use.

**FEBRUARY 24-26, 2015 — SEATTLE, WASH.**

## NEW! ENTERPRISE RISK MANAGEMENT FOR UTILITIES — PART 2

**Who Should Attend:** Chief financial officers, senior-level accounting staff, auditors, general managers/CEOs, policymakers, and legal counsel. (Please note that attendees are not required to take Part 1 before taking this class.)

**Overview:** Enterprise risk management (ERM) is the discipline of examining the impact of potential financial, operational, regula-

tory, environmental, legal, safety, and reputation risks on an organization. Implementing ERM helps utilities achieve their objectives by improving their operation and organizational effectiveness. A strong ERM program will integrate risk management with strategy, tactics, and operational processes. The instructor will help participants identify specific organizational needs and develop implementation plans that can be effectively executed within their utilities.

**FEBRUARY 25-26, 2015 — SEATTLE, WASH.**

#### **FOREMAN LEADERSHIP SKILLS #2: EFFECTIVE PROBLEM SOLVING & TRANSITIONING FROM EMPLOYEE TO FOREMAN**

**Who Should Attend:** Foremen and crew leaders.

**Overview:** Day 1 — *Effective Problem Solving and Decision Making*. How do you know if your crew is performing at its best? Do you see potential for improvement but you do not know where to start? This course will provide you with tools for diagnosing your own team and matching your diagnosis to an intervention technique. Through the use of case studies, class discussion, and interactive sessions, participants will address typical concerns. Day 2 — *Transitioning from Employee to Foreman: Keys to Discipline and Delegation*. The second day is designed to provide participants with an understanding of the dynamics of workplace relationships and strategies for how to better manage those and improve relationships through an effective delegation of duties, tasks, and responsibilities. Participants will gain insight into the connection between relationships and how motivation through delegation will assist you in reconciling both.

**FEBRUARY 25-26, 2015 — SPOKANE, WASH.**

#### **PATHWAYS TO LEADERSHIP SESSION 4 — LEAD YOUR ORGANIZATION — MAXIMIZE PERFORMANCE WITH ORGANIZATIONAL TOOLS**

**Who Should Attend:** Directors, managers, graduates of the Frontline Leadership series, and newly appointed senior leaders.

**Overview:** Pathways to Leadership Session 4 will focus on leading within your organization by maximizing the performance of your team. There is a big difference between knowing how to survive in the organization and knowing how to help your organization succeed. This session will help you do both. You will learn and apply key tools for maximizing and sustaining high performance within your team; in doing so, you will make clear ties to the success of your organization.

**FEBRUARY 25-26, 2015 — VANCOUVER, WASH.**

#### **LINEMAN SKILLS SERIES: DAY 3 — PERSONAL PROTECTIVE GROUNDING**

**Who Should Attend:** All electrical workers involved in personal protective grounding.

**Overview:** This course discusses protective grounding theory, emphasizing safety and the range of acceptable currents. It also covers visual inspection of grounding systems (mats, connectors, risers, and straps); special considerations and hazards (IEEE Standard 80); and personal protective grounds, including sizing, testing, inspection, maintenance, and use.

**FEBRUARY 26, 2015 — SEATTLE, WASH. NWPPA**

**NWPPA's 2015 IT Workshop**

**HONK IF YOU'VE BEEN HACKED!**

**February 18-20, 2015**

**Embassy Suites Hotel Downtown**

**Portland, Ore.**

by Joel Scruggs

# Synchrophasor breakthroughs mark quantum leap in grid reliability

**O**n September 8, 2011, grid operators didn't realize what was happening until it was too late. In just 11 minutes, an outage in Arizona triggered a series of events on five separate power systems that left nearly 7 million people across much of Southern California and western Arizona in the dark. A lack of information sharing among transmission operators was one of the causes cited for the blackout.

A few years after the largest blackout in California history, smart-grid devices known as phasor measurement units, or synchrophasors, are opening the eyes of grid operators across the West. And engineers at the Bonneville Power Administration (BPA) are taking the technology to new levels.

PMUs are shoebox-sized devices that take precise current, frequency, and voltage readings that are time-stamped using GPS. They crank out power system parameters 100 times faster than the industry standard supervisory control and data acquisition (SCADA) systems, which produce readings every two to four seconds. This massive boost in resolution is akin to making the technology leap from black-and-white to ultra-high-definition television.

In 2013, BPA completed the build out of the largest, most sophisticated synchrophasor network in North America as part of a three-year, \$32 million investment to enhance the Northwest's generation and transmission systems. The network includes 126 PMUs at 50 substations and wind generation sites that transmit 60 times a second over a high-speed broadband network to BPA's control centers. The result is a hyper-feed of power system data that provides BPA operators real-

time intelligence so they can react more quickly to system disturbances and take actions to avoid a blackout or prevent a disturbance from cascading.

"It gives us an unprecedented view of the dynamic state of the Northwest power system and significantly improves our wide-area situational awareness," said Richard Shaheen, senior vice president of Transmission Services.

BPA was the largest contributor to the Western Interconnection Synchrophasor Program (WISP), in which 19 utilities partnered with the Department of Energy to build a network of more than 600 PMUs across the western grid. Today, through a dedicated, secure network, BPA shares synchrophasor data with 11 utilities, furthering the understanding of the status and condition of the interconnection well beyond BPA's borders.

"It was a true industry game-changer," said Vickie VanZandt, WISP synchrophasor program manager and former senior vice president of Transmission Services at BPA. "Not only did BPA and its WISP partners make the Western Interconnection more reliable and secure, they facilitated a whole new level of cooperation."

The outcome is a clearer view of all the transmission systems from Canada to Mexico.

"Now our operators can see more precisely how all the interconnected power systems in the West are responding to changes and disturbances in the grid," said engineer Nick Leitschuh, project manager for synchrophasor applications in BPA's control centers.



*In 2013, BPA completed the build out of the largest, most sophisticated synchrophasor network in North America. It now receives readings from 126 phasor measurement units at 50 key substations and large wind generation sites, giving operators a more dynamic view of the Northwest power system.*  
Photos provided by BPA.

BPA operates the only fully redundant synchrophasor network in the West. With at least two PMUs at each site and an encrypted data link between its control centers, two streams of data are always available. So if one stream is interrupted or erroneous, the system automatically uses the other feed.

At 200,000 measurements per second, BPA accumulates terabytes of power system data every month. Because there weren't any suitable off-the-shelf products, BPA engineers developed tools and techniques to manage and analyze the avalanche of real-time data. In-house applications, operating on a subset of the data, run a suite of customizable, real-time analytics and visualization displays.

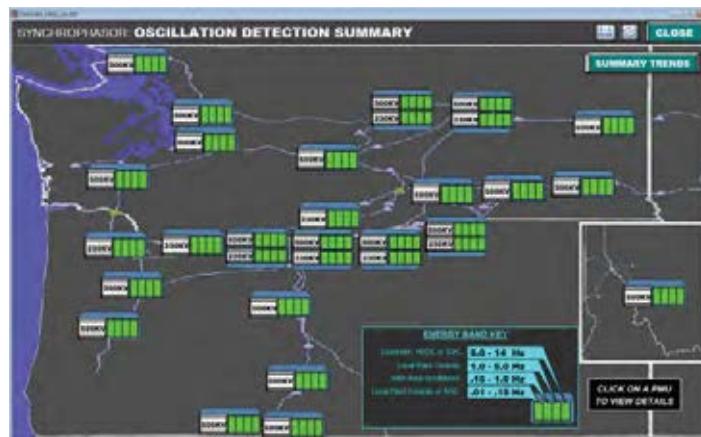
BPA has also been an industry leader in using disturbance recordings for power plant model validation and performance monitoring. With a quick glance at a display, BPA staff monitors the dynamic performance of 115 power generators connected to its system. This visibility allows BPA to detect a failure before it escalates into a system-wide disturbance. Furthermore, BPA discovered that synchrophasors can be used to validate the actual performance of a generator unit against its modeled performance. That can avoid the need to take generating units offline to run costly baseline tests.

"We can use synchrophasor data to validate and calibrate dynamic models," said Dmitry Kosterev, a BPA electrical engineer. "That means we can avoid staged tests and reduce the costs of compliance with NERC [North American Electric Reliability Corporation] reliability standards."

Scaled up, the synchrophasor method of testing without taking the units offline could unlock hundreds of millions of dollars in revenue lost during such testing. BPA is also leading industry outreach with its model validation application by sharing the application and knowledge with other utilities in the Western Interconnection.

With more than 4,500 megawatts of wind-generating capacity connected to its grid, another focus for BPA is improving dynamic monitoring of wind generation facilities. To date, BPA has installed PMUs at nine wind plants and is partnering with DOE and the Utility Wind Integration Group in data analysis. In one case, the monitoring uncovered a performance issue that could have damaged a wind turbine if left unaddressed. The turbine blades had been continually tilting back and forth for six hours, causing unnecessary wear and tear on the equipment and diminishing its efficiency.

Another benefit of synchrophasor technology is the detection of power oscillations. Low-frequency power variations among parts of the interconnection can make the grid unsta-



*Low-frequency power variations can make the grid unstable, limit the transfer of power, and even cause system separation if they go unchecked. BPA's oscillation detection application monitors 136 synchrophasor measurements for excessive oscillations on the system.*

ble, limit the transfer of power, and even cause system separation if they go unchecked.

BPA's oscillation detection application monitors 136 synchrophasor measurements for excessive oscillations on the system. While BPA expects the detection capability will help operators avoid at least one large-scale outage in the next 40 years, it has already detected a handful of significant oscillations. In October, PMU data pointed BPA engineers to a local oscillation at a hydropower plant. At partial loads, hydro generators go through a "rough zone" that lasts 15 to 30 seconds during

loading and unloading. BPA noticed a generator was continuously operating in the "rough zone," which can cause earthquake-like shaking around the unit and lead to additional wear and tear or even catastrophic failure.

"Our dispatcher contacted the plant owner, who was unaware of the controller error problem," Leitschuh explained.

BPA continues to expand the use of synchrophasors. Recently, engineers introduced a new application that identifies the sources of frequency disturbances (abrupt drops or increases from 60 hertz) in the Western Electricity Coordinating Council (WECC) service territory. This lets dispatchers know if a disturbance, such as a generator or line loss, originated inside or outside of BPA's balancing area. By the end of next September, BPA expects to launch new remedial action schemes (RAS) using synchrophasor measurements to trigger uncommanded operation of equipment on the system. This advance could result in an additional 100 megawatts of voltage stability margin on the interties, reduce the required amount of load shedding, and minimize the outage area in the event of a fault. Another goal is to set up a formal notification process for alerting generator owners to oscillation issues.

"We have the only synchrophasor network in the country designed to take split-second actions when a problem is detected," said Lawrence Carter, electrical engineer and senior project manager of BPA's synchrophasor program.

"Eventually, we will use PMU measurements to initiate automatic protective measures that would prevent or limit outages."

With its PMU coverage, BPA's better equipped to respond to disturbances and equipment failures than ever before, ultimately improving grid reliability, utilization of transmission assets, and enabling better integration of renewable generation.

NWPPA

*Joel Scruggs is a public affairs specialist in the Media Relations Department at Bonneville Power Administration. He can be reached at (503) 230-5511 or jscruggs@bpa.gov.*

## EXECUTIVE DIRECTOR

by Anita J. Decker

# Reflecting on people, voice, and information



*At our core,  
NWPPA  
supports people,  
gives a voice to  
its members,  
and provides  
information  
to keep our  
membership  
current on  
important  
public power  
issues of  
the day.*



**N**ext month, NWPPA will enter its 75<sup>th</sup> year of providing world-class service to our members. As I think about how NWPPA has sustained its high level of service through the years — through changing legislation, administrations, members, and staff — three simple messages resonate across the decades: people, voice, and information. At our core, NWPPA supports people, gives a voice to its members, and provides information to keep our membership current on important public power issues of the day. Let me elaborate:

- **People:** NWPPA helps you develop everyone in your organization — board directors, linemen, engineers, customer service representatives, accountants, general managers, and other staff members. We are recognized as a premier developer of people for public power not only in the greater Northwest, but in the West. Our people development training and conference offerings have increased 25 percent in just three years and that demand is being generated by you — our members who recognize 1) the value of your people and 2) that helping them be the best they can be means your members will see the best you can be.
- **Voice:** There are a lot of voices out there speaking on behalf of the electric utility industry and public power. But NWPPA is your voice. We are your voice on important federal issues that impact your utility operations and your members. We work across our membership throughout the greater Northwest and British Columbia to collectively give voice to your Western perspective for needs, concerns, and issues such as legislation in support of sharing cyber security information; weighing in on regulation such as the recent EPA greenhouse gas or Waters of the U.S. proposals; or regulations and reliability standards related to FERC, NERC, WECC, or Peak. It is the strength of your well-articulated collective voice that makes the voice of NWPPA an important aspect of our value proposition.
- **Information:** Weekly, monthly, and sometimes even daily, NWPPA is communicating with our members to ensure they have timely and accurate information important to public power. We keep you informed about legislative activity and the best practices of your peers; share your success and lessons learned; and publish your RFPs and job postings. We annually publish the *Northwest Electric Utility Directory*; a useful tool only available to members, it lists over 300 associate members who provide service to the public power community. No other entity provides similar comprehensive news about the greater Northwest!

These are interesting and challenging times. However, I'm excited about NWPPA's future opportunities to embrace the guidance of the board by continuing the Association's long-standing service to people, voice, and information. I am also thankful to work with a board that has vision for the future and a staff that has the vision to deliver real value back to you, our members.

One last note: as the year comes to a close, many of you are planning your travel for 2015. If you haven't done so yet, please save the dates for NWPPA's 75<sup>th</sup> Anniversary Annual Conference and Membership Meeting in Anchorage, Alaska, May 17-20, 2015. It will be a meeting not to be missed!

From myself and the NWPPA staff, happy holidays to you and yours!

Anita J. Decker  
NWPPA Executive Director

P.S. I would be remiss not to mention that in July, the NWPPA Board of Trustees met to develop the Association's strategy for 2015-2018. Of note is the direction to provide more education for general managers and board members; identify tools that help our members continue to communicate the importance and value of public power; and to continue to articulate how NWPPA can be a part of solutions to meet the challenges our members face. We have already started responding to this — note the *Hack Attack!* workshop for general managers and board members earlier this month, and watch for the upcoming distributed generation workshop in February — and will continue to do so throughout the new year. **NWPPA**

by Keith Underwood

## Tacoma Power builds two new hatcheries, will use new way to raise fish

**T**acoma Power is building two new fish hatcheries to raise four salmon species at its Cushman Hydroelectric Project.

Sockeye salmon, prone to a particularly dangerous infectious disease, will be the sole inhabitants of one hatchery, while the second hatchery will be shared by spring Chinook, coho, and steelhead.

As part of our responsibility under federal licenses for operating hydroelectric dams, we protect fish habitat and help fish move around the dams. Right now, that work includes building a floating fish collector, several fish pas-

sages, and two hatcheries at the Cushman Hydroelectric Project in Mason County, Wash.

When we started the hatchery design process, we knew it was important to work with local representatives of the groups who have an interest in fish, so we involved the Northwest Indian Fisheries Commission, the Skokomish Indian Tribe, Washington Department of Fish and Wildlife, and the Bureau of Indian Affairs. Involving all of the parties in a collaborative process at the start of the conversation paid off in the way of addressing and solving issues early on. That's no trade secret, but in our case, it made all the difference. Why? There are a lot of perspectives on fish rearing and how to get the best result.

A relatively new method of raising fish is to use hatcheries with circular tanks, where fish swim around and around. Due to the exercise the fish receive, they're healthier and more robust. That's in place of the more common raceway design, in which fish may hang out in areas where water is not flowing enough to cause the fish to really have to swim. While the raceway design is the traditional route

*As part of our responsibility under federal licenses for operating hydroelectric dams, we protect fish habitat and help fish move around the dams. Right now, that work includes building a floating fish collector, several fish passages, and two hatcheries at the Cushman Hydroelectric Project in Mason County, Wash.*



In 2011, a Tacoma Power craftsman fabricated two salmon sculptures, one for the Skokomish Tribe and one for the utility. The sculptures symbolize the work between the two organizations and the importance of salmon to both.

to take in hatchery design, circular tanks are picking up steam in terms of reducing the chance of disease, creating heartier fish, and cutting costs in the long run. These circular tanks also use a type of dual drain known as the Cornell style. That type of tank design allows fish waste to be collected efficiently while maintaining a clean rearing environment that's virtually self-cleaning.

### Quality over quantity

Like our Cowlitz Salmon Hatchery, Cushman will focus on quality rather than quantity of fish, the goal being to create hatchery fish that are healthier and more likely to return to the hatchery at the end of their life. Typically, natural-origin fish survive at a higher rate than hatchery fish, so we designed the hatchery to more closely mimic nature during the early life stages of the hatchery fish and hopefully boost the number of adults that return.

While designing and building hatcheries is nothing new for Tacoma Power, actually running one is not yet on our resumé. We've contracted with the Washington Department

*Continued on page 16*

of Fish and Wildlife to operate our two Cowlitz hatcheries; however, we will run both Cushman hatcheries. The reasons behind the decision are tied to finances and efficiency. First, we think we can save money by running them. Second, the hatchery operations will be so integrally tied to other dam operations, like our new floating surface collector, that taking it on ourselves just makes sense. The new hatchery programs and staff will work closely with other Tacoma Power biologists. By having everyone on the same team, we will have greater flexibility on a day-to-day basis and achieve greater efficiency overall.

To handle the new role, we've hired the utility's first hatchery manager, Andy Ollenburg, who comes to us with a degree in aquaculture and a lot of experience working in large hatcheries. While the fish may look similar to a salmon layman, Ollenburg knows how to accommodate the different rearing characteristics and needs of different salmon species. Specific feeding rates; handling and disinfection protocols; and rearing densities are all things that will have to be different for each species and fine-tuned to ensure success of these fish in the hatcheries.

Construction on both hatcheries has already started and is expected to be complete early in the fall of 2015. [NWPPA](#)

Keith Underwood is Tacoma Power's natural resources manager. He can be reached at either (253) 502-8196 or [kunderwood@cityoftacoma.org](mailto:kunderwood@cityoftacoma.org).

## Salmon by the numbers

The Saltwater Park Sockeye Hatchery will be adjacent to Saltwater Park on Hood Canal.

Once operational, 2 million sockeye will be raised each year. The fry will be released into Lake Cushman, and smolts will be collected and released into the lower North Fork of the Skokomish River.

The North Fork Skokomish Hatchery will be at Lake Kokanee and will raise:

- 370,000 spring Chinook fingerlings and yearlings
- Up to 35,000 coho smolts
- Up to 15,000 steelhead smolts [NWPPA](#)

Transmission. Distribution. Substations. Renewable Energy. More.

# Power To the People. (Right On)

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# Apps that meet your needs

Let's face it, smart devices from tablets to phones to even phablets (tablet/phone hybrids) are impacting not only our day-to-day lives, but also how we work. While mobility and connectivity are increasing at what seems to be a rapid rate, the number of new apps to hit the market is flurrying. With all the apps out there how do you know which one is best for your organization?

The apps available to you today touch almost every part of your organization. To name a few, there are apps for board of directors; engineering and operations; billing; and annual meetings. There are also apps that keep your customers informed and allow them to do things like report outages, make payments, and check bills; but most importantly, they can stay in close contact with you and are empowered with information to help them be smart consumers.

The board of directors apps available help reduce paper and provide a confidential way for the directors to stay connected and abreast of important information. Many of the apps for these board members allow agility and impromptu changes to documents that can be accessed or refreshed up to and during a meeting, and allow quick and easy access to your repository of policies and historical information.

Engineering and operations apps are for technicians in the field and those back at the office. Today's mobile technology is allowing many utilities to use its company data and resources without being tied to paper, the office computers, or a heavy laptop while in the field. Using these apps will cut down on the need for phone calls or even trips back to the office to get information. You can also have a real time connection to your maps, your work orders, staking sheets, or you can store your maps and data locally on the device so you don't have to worry about the poor cellular connection that comes and goes throughout the day. Whether you are in the office in a meeting, working in the field at a customer site, building new infrastructure, or supervising your crews, mobile devices can help you keep in touch, be productive, and make good use of company resources.

The billing apps are a way that you can send and track payments from your customers, view customer balances, and answer questions if you are out of the office. Even if you are in your office lobby, you can look up a service order status or look into the customer's usage details without going to your desk computer.

The annual meeting apps have become a must have for many utilities, empowering them and their staff to register



*With all the  
apps out there  
how do you  
know which one is  
best for your  
organization?*

customers and guests for their meetings; be able to scan member numbers as they walk in the door; verify how many are entering the meeting so you can know exactly how many meals to provide; track quorums; and provide a real-time dashboard of who attended.

Be sure to look at how the app is integrated. Is the app integrated into your main database or tightly connected to customer information? Does the app offer all the features in one enterprise bundle, or do you need multiple apps to meet the needs across your organization. It's important to know how the integration works; does the provider use a cloud? If so, how secure is it? Some IT providers host their own cloud, which is the most secure. Also, how much data can they maintain in their cloud? Does the cloud offer you a way to monitor and remotely wipe your company data that may be stored on the devices?

Look for apps that provide great user experiences that fit your type of work. Think about how smart your utility assets have become; as the assets become more sophisticated, the cost goes up in most cases, which pushes you to need more efficient asset management and labor use. Empowering you to have what you need at your fingertips, lowering costs, and improving the accuracy and effectiveness of the field force are main drivers to deploying mobile and wireless technologies. **NWPPA**

*Tracy Langston is the Engineering and Operations product line manager for NISC. She can be reached at tracy.langston@nisc.coop.*

### Salem Electric holds Education & Wellness Day

This fall, Salem Electric (Ore.) held its first-ever Employee Education & Wellness Day organized by the Safety & Health Committee. It began with a *Stress in the Workplace* presentation by Salem Hospital followed by crew demonstrations in the yard using a transformer trailer borrowed from Blachly-Lane Electric Co-op. Employees were encouraged to try on climbing gear, take a ride in a bucket truck, and try their hand with a hot-stick as a way to learn more about the daily tasks of the line crew.

The day also included a flu shot clinic sponsored by a local pharmacy; educational material titled *How to Build a Healthy Salad*, complete with a salad bar for lunch; and a safety in the workplace quiz where employees won fitness related prizes. **NWPPA**

### Fall River unveils new website, app

Fall River Electric (Ashton, Idaho) has unveiled a new, updated website ([www.fallriverelectric.com](http://www.fallriverelectric.com)) for its owner-members. Now owner-members will find links to pay bills electronically, chat with a Member Services representative, and check the outage map, all together in one convenient spot on the right-hand side of the homepage.

Under the SAVINGENERGY tab, owner-members can find links to all of the cooperative's energy conservation rebates, the necessary rebate forms, and instructions. Owner-members can watch video highlights of annual meetings and read about what makes Fall River Electric unique under the MYCOOPERATIVE tab.

The cooperative also unveiled a new mobile app. The Fall River app allows owner-members access to do the following: pay their electric bill, view past payments, view electric usage, and report a power outage. The mobile app is available to download for free for iPhones or Androids. Just visit the Apple App Store or Google Play and search for "My FR App" for your free app. **NWPPA**



Debbie Addison tries on climbing gear with the help of Jason Bruce and Eric Weekly. Photo courtesy of Salem Electric.

### Wanapum Reservoir to be partially refilled

After nearly 10 months of working around the clock to repair and strengthen Wanapum Dam's spillway, Grant PUD (Ephrata, Wash.) will soon be able to raise the reservoir behind the dam.

Subject to the approval of the Federal Energy Regulatory Commission (FERC), the river level will begin to gradually fill sometime between November 24 and December 11 based on river flows and structural-integrity measurements. When complete, the river will be restored approximately 17 feet above current levels. This partial refill will take between 6 and 18 days to reach the target elevation. This increased reservoir level will allow fish ladders to resume normal operations and allow the utility greater flexibility in managing hydroelectric generation over the winter months.

While the reservoir increases, shoreline enforcement patrols will remain in effect and the Wanapum shoreline will remain closed. Once engineers, law enforcement, and cultural resource workers have determined that it is safe to restore access to the shoreline, the utility will notify the public.

The repairs underway bring the spillway structure back into compression and allow the continued safe generation of renewable hydroelectricity. Repairs to the spillway will continue throughout the winter months. The utility expects to resume normal operations in time for the 2015 recreation season.

To date, 13 steel anchor tendons and four anchor bars have been installed, and 83 monitoring drains have been drilled in the spillway.

For additional information on the Wanapum Dam issue, visit [www.grantpud.org](http://www.grantpud.org). **NWPPA**

### Chelan considers rehab of Powerhouse 1

On November 17, Chelan County PUD (Wenatchee, Wash.) commissioners received a recommendation to resume rebuilding 1950s-era turbine-generators in Powerhouse 1 at Rock Island Dam.

Brett Bickford, Engineering Services manager, said extensive review led to the recommendation to restart the project that was put on hold in 2010 as District staff focused on stabilizing PUD finances.

Now that Chelan PUD has met, and in some cases exceeded, financial goals in the 2010 strategic plan, General Manager Steve Wright has said it is time to turn attention to key investments in the utility's dams, power grid, and people while continuing to pay down long-term debt.

Work on each unit would take about three years, with the project wrapping up in 2020. Bickford and John Yale,

hydro plant engineering manager, outlined the reasons for rehabilitating units B5-B8, starting in December with B6. Among the reasons: risk of unit failure is reduced, capability to produce power is maintained, expected 40 or more years of reliable operation is added, and restoring moveable turbine blade capability means protection for fish is increased.

The recent analysis shows the need for more work than was identified in the mid-2000s when the project was first proposed, Bickford said. They recommend increasing the capital budget for B6 from \$9.8 million to \$23.8 million. The total project cost for all four units is now about \$99 million. [NWPPA](#)

## PCWA, Mason 3 recognized for financial reporting

**T**he Placer County Water Agency (Auburn, Calif.) and Mason PUD No. 3 (Shelton, Wash.) have again been recognized for excellence in financial reporting by the Government Finance Officers Association of the United States and Canada (GFOA).

For the 8<sup>th</sup> consecutive year, PCWA received the GFOA's Certificate of Achievement, the highest form of recognition given by the 17,500-member association of government finance professionals. PUD 3 was awarded the Certificate of Excellence in Financial Reporting, its 10<sup>th</sup> consecutive international recognition for the quality and completeness of its financial reporting.

"This is a very prestigious award in our business and we are very pleased to accept it," said PCWA Director of Financial Services **Joseph H. Parker**. "Receiving this award for eight consecutive years reflects very well on the dedication and professionalism of everyone on the PCWA staff."

The program recognizes organizations that go beyond the minimum requirements of generally accepted accounting principles to prepare comprehensive annual financial reports. The program specifically celebrates those participants that evidence the spirit of transparency and full disclosure.

"We're proud of the sustained and excellent job of financial management at PUD 3," said **Annette Creekpaum**, PUD 3 manager. "Every employee at the PUD works hard to ensure that our services are as reliable as possible, and that the money invested by our customers to maintain system reliability is well managed." [NWPPA](#)

## Franklin PUD to begin search for new GM

**L**ast month, Ed Brost, general manager of Franklin PUD (Pasco, Wash.), notified Franklin PUD commissioners of his decision to step down from the position by May 2015. He told commissioners, "It has been a privilege to

work with you and lead a great group of employees in serving District customers."

Brost joined Franklin PUD in November 2006 and has been the general manager since May 2008. In addition to his role as general manager, he serves on the Executive Committee of the Public Power Council, the board of the Pacific Northwest Utilities Conference Committee, and the Energy Committee of the Washington PUD Association. He also serves on the Executive and Resource Development Committees of the local United Way.

Franklin PUD will begin a search for a new general manager immediately. Brost will continue to serve as general manager until the new hire is on board. Information on the job posting is available at [www.franklinpud.com](#). [NWPPA](#)

## Lane members elect directors, one by the flip of a coin

**L**ane Electric Cooperative (Eugene, Ore.) held its annual meeting on October 27, 2014, and announced that 856 votes had been cast by LEC members. Oakridge District Director **Susan Knudsen Obermeyer** retained her seat on Lane Electric's board of directors, and co-op members elected **Kathy Keable** to fill the vacant seat in the McKenzie District upon the retirement of long-time director **Patricia C. "Pat" Dymock**.

The race for the single vacancy in the Central District was not so simple. Never before in Lane Electric's history have there been more than four candidates vying for any one director's seat, but for this position there were six candidates. When the votes had been tallied, there were only a couple of votes separating **J. Ingrid Kessler** and **Nathan Philips**. Per Lane Electric's bylaws, when the difference in a race for a director's seat is 10 votes or less, ballots are to be recounted. The recount and final tally determined that each candidate had received 257 votes — a tie and another first for Lane Electric. The final decision, per the bylaws, would be determined by the flip of a coin. **Charles Fadeley**, the co-op's attorney, tossed the coin; Philips selected heads, leaving Kessler with tails. After a bounce and a short roll, Kessler was congratulated by Fadeley and welcomed as Lane Electric's newest Central District director. She will fill the vacancy left by **Charles J. "Chuck" Leighter** upon his retirement from the board after 38 years of service.



*Kathy Keable*



*J. Ingrid Kessler*

Keable is presently the site manager for the HJ Andrews Experimental Forest in Blue River and Kessler is co-owner of the Emergency Veterinary Hospital in Springfield, Ore. Both will begin the required coursework necessary to become certified as credentialed directors by the National Rural Electric Cooperative Association (NRECA).

In the organizational meeting that followed, the board elected Central Director **Chris Seubert** as board president, Knudsen Obermeyer as vice president, and **Ed Bangle** assumed the newly combined position of secretary/treasurer.

NWPPA

### PCWA's Breninger announces retirement

The longtime general manager of the Placer County Water Agency (Auburn, Calif.), **David A. Breninger**, announced his retirement plans to the PCWA Board of Directors on October 30.

"My service to you and with our team has been profoundly rewarding," said Breninger, who plans to retire on March 6. "I've enjoyed every moment working for the board and with each director all these years."

Breninger is closing out a 23-year career with the water agency and nearly 48 years in public administration.

As the top executive of the countywide special district, Breninger has overseen management of water resources and hydroelectric energy production, as well as water utility service to wide areas of Placer County.

He has been at the helm of the agency through droughts, floods, fires on the watershed, and the water shortage emergency that grew from the PG&E Bear River Canal break in 2011 and the drought this year. He also instituted the agency's Financial Assistance Program that has aided local water purveyors across Placer County.

"It is a well-deserved retirement but Dave will truly be missed," said PCWA Board Chairman **Joshua Alpine**. "Dave has remarkable leadership abilities. He's been able to bring people together, solve past challenges, and to see and identify future challenges. He has built a solid foundation for the water agency and is leaving us a bright future." NWPPA



### Harbor Paper clean up rolls along

The transport of thousands of tons of paper production by-product has begun at the Harbor Paper mill site; drivers have hauled more than 6,000 tons of grate ash, sand ash, and secondary sludge from the Hoquiam mill site to various disposal sites in Western Washington.

The question of how to responsibly dispose of the material while having the smallest possible impact on Grays Harbor PUD (Aberdeen, Wash.) customers has been the chief concern of PUD management and PUD Special Projects Manager **John Pellegrini**. The solution is to find disposal sites closest to Grays Harbor (thereby lowering the cost to transport the material) and find alternatives to dumping the material in landfills (thereby avoiding expensive tipping fees).

For example, sand ash is a Washington State Department of Agriculture registered fertilizer, meaning it can be used for large-scale landscaping projects. Several tons of the ash have already been shipped to sites in and around Grays Harbor, and Pellegrini is actively seeking more customers. Also, grate ash is being disposed of by PUD-hired drivers and rented trucks at the Stafford Creek Landfill south of Aberdeen. The short distance of travel between the mill site and the landfill means lower transport costs and more loads being shipped per day.

While a final cost of the Harbor Paper cleanup has yet to be determined, these cost-saving measures have cut an estimated \$6 million from the initial clean-up estimate of \$10 million. PUD activity at the mill site should be complete by the end of 2015. NWPPA

### SMUD, KEA win Clean Energy Awards

The Clean Energy States Alliance (CESA), a national, nonprofit coalition of public agencies working together to advance clean energy, announced the recipients of the 2014 State Leadership in Clean Energy Awards. The 2014 awards recognize eight outstanding state programs and projects that have accelerated the adoption of clean energy technologies and strengthened clean energy markets. Two of the award recipients were NWPPA utility members: the Sacramento Municipal Utility District for SMUD's Community Renewable Energy Deployment Program, and the Alaska Energy Authority and the Kodiak Electric Association for Kodiak, Alaska: A 99% Renewable Energy Community.

"These award winners illustrate the tremendous creativity and commitment being shown by state agencies across the country in implementing clean energy," said CESA Executive Director **Warren Leon**.

CESA member organizations from across the U.S. submitted nominations for the leadership awards. Entries were judged based on public benefits and results; cost effectiveness; leadership and innovation; and replicability. Winners were chosen by an independent panel of five distinguished judges.

A report on this year's State Leadership in Clean Energy award winners, including case studies of each program, is available on CESA's website at [www.cesa.org](http://www.cesa.org). **NWPPA**

## Harth retires from Wasco Board

**A**fter 29 years of dedicated service to the electric industry, Neal Harth retired from the Wasco Electric Cooperative (The Dalles, Ore.) Board of Directors at the co-op's 75<sup>th</sup> annual meeting on November 15.

Harth began his career of service with WEC in 1985, and has served in various capacities, including board secretary for several years and president from 1993 to 2009.

In addition to the WEC board, Harth served on the Oregon Rural Electric Cooperative Association (ORECA) Board of Directors, including as president in 2000. He also served on the NWPPA Board of Trustees from 2004 to 2012. During his service with NWPPA, Harth served as each of the officer positions, including president in 2010-2011. He was also a regular participant in the annual NWPPA Legislative Rally in Washington, D.C.

HARTH IS HIGHLY RESPECTED BOTH LOCALLY AND REGIONALLY FOR HIS EFFORTS ON BEHALF OF RURAL ELECTRIC CO-OP AND PUBLIC POWER CONSUMERS. IN 2011, HE WAS THE RECIPIENT OF BOTH THE NWPPA JOHN M. GEORGE AWARD FOR REMARKABLE SERVICE TO PUBLIC POWER AND THE ORECA DISTINGUISHED SERVICE AWARD.

At the annual meeting, the members elected **Mathew Clausen** to replace Harth in District 1; incumbent directors **Ron Holmes** and **DeOra Patton** were re-elected in Districts 2 and 3. All three were elected to serve three-year terms.

**NWPPA**



## Columbia Generating Station sets personal best

**A**s of 1:47 a.m. on November 13, Columbia Generating Station was producing clean, nuclear energy for the Northwest power grid for 506 consecutive days, beating the previous record of 505 days set in April 2011. During this time, Columbia produced more than 13.25 million megawatt-hours of electricity while achieving a 96.85-percent capability factor.

The current run began after the plant was restarted following Columbia's 2013 refueling and maintenance outage, which ended on June 25, 2013. Columbia's next refueling outage is scheduled to begin on May 9.

"This record is attributable to the organization's alignment around operational excellence," said **Brad Sawatzke**, vice president, Nuclear Generation and chief nuclear officer. "From Operations to Maintenance to Engineering and all the support teams, we've had tremendous focus on operating safely and at a high performance level."

Last month, Columbia marked five years without an unplanned shut-down. Employees and contractors also recently surpassed 13 million hours worked without a lost-time accident.

"I am very proud of the team for this achievement and continued pursuit of performance excellence," said **Mark Reddemann**, Energy Northwest CEO. "This demonstrates one of the reasons Columbia remains a vital part of the Northwest energy mix — a reliable, baseload resource."

**NWPPA**

## Coe resigns from Emerald PUD

**O**n November 6, 2014, Emerald PUD's (Eugene, Ore.) board of directors accepted the resignation of its general manager, **Scott Coe**. While the board moves to fill the position, customer-owners can rest assured their service will continue without pause.

Emerald PUD says that its employees are dedicated to providing reliable service, a longstanding commitment it takes very seriously. Together, it says it will continue to put its customer-owners first, providing the excellent service they've come to expect. **NWPPA**

## Record-setting day for coho

**M**onday, November 17, was a banner day at the Cowlitz Salmon Hatchery in Lewis County, Wash., where a record number of coho salmon have already returned for the season. From August 16 through November 17, Tacoma Power employees handled 87,054 coho adults, topping the previous record of 85,632 set in the 2002-03 season.

The coho run is still going strong. The utility anticipates the total for the 2014-2015 season, which ends in March 2015, to exceed 95,000 adults. Contributing to the record-breaking run are the strong survival of hatchery-origin coho smolts, good upper Cowlitz River basin production, and good ocean conditions. **NWPPA**

### OPALCO reaches renewable energy milestone



Above: Funhouse kids build solar ovens. Below: Installation of solar panels on the Funhouse Commons building.  
Photos provided by OPALCO.



The Funhouse Commons is in the process of becoming OPALCO's 170<sup>th</sup> local renewable energy generator, bringing its total production to one megawatt capacity of locally produced power. The Funhouse will use their solar system as a demonstration project for renewable energy education while offsetting energy costs and storing energy credits on the cooperative grid for the rainy gray days.

Funding was provided in 2013 by the Bonneville Environmental Foundation Solar 4R Schools grant of \$50,000 and an Energy Education grant of \$15,000 from OPALCO. Streamside Renewables, a local Orcas business, installed the 12-kilowatt system and Bonneville Power installed an educational kiosk at the Funhouse to display live and historical data.

"This project is a win-win for all — educational for kids, good for the environment, and helps keep our operating costs low," said Executive Director Krista Bouchey.

The Funhouse has already begun implementing a renewable energy curriculum in the after-school and sum-

mer day-camp programs. A few examples of projects kids have worked on include baking with solar ovens made out of pizza boxes, wind power dioramas, and constructing miniature solar cars. Other educational programs planned include a renewable energy teacher training program and interactive classroom materials to give Funhouse participants hands-on experience with solar and wind energy activities. **NWPPA**

### Kerth to be next SMUD president

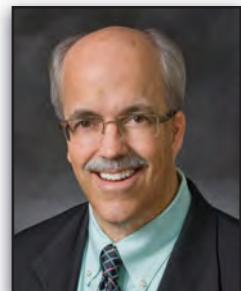
Sacramento Municipal Utility District (Calif.) Director Rob Kerth has been elected president of the SMUD Board of Directors. His term as president will run from January through December 2015.

Kerth first served as Ward 5 director from 2009 through 2012 before leaving the board to run for a seat on the Sacramento City Council. Last February, he was appointed to the board to fill the vacancy left when then-Ward 5 Director Michael Picker resigned. Kerth fulfilled the remainder of Picker's term, and was elected to the post earlier this month.

He is a third-generation Sacramentan and former two-term city councilman who got his start in public service as a neighborhood activist for the historic Woodlake district of North Sacramento. While on the Sacramento City Council, he was recognized as a major force for revitalization efforts not only in his district but also in other long-established neighborhoods.

A graduate of Stanford University, Kerth holds a master's degree in mechanical engineering, with an emphasis in controls and systems. He and his family still live in Woodlake, less than three blocks from his childhood home.

**NWPPA**



### Grant PUD announces hirings, transfers

Last month, Grant PUD (Ephrata, Wash.) announced the following staffing updates: Alicia Nelson has been hired as an on-call secretary for Office Services; Mike Garrett has transferred to the position of hydro mechanic at Priest Rapids Dam; Michael Hahn has transferred to the position of on-call courier; and Mason Utter has been awarded the position of T&D engineering technician/telecommunications. **NWPPA**

### BKI announces team changes

**B**rown & Kysar, Inc. have added three new employees to their firm: Jeremiah Waugh, Ralph Oñate, and Dan Tuominen.

Waugh is a recent graduate from Washington State University who was an electrician for over 10 years before becoming an electrical engineer. He is now working toward his professional engineering license providing design services to public utilities.

Oñate, the most recent new hire, comes to BKI from Arizona. He has seven years of experience with distribution and substation design, primarily with large mining companies. Oñate says that he and his family are excited to live in the beautiful Pacific Northwest and serve public power.

Tuominen has joined the team in the position of business operations lead. He has a mechanical engineering background and comes to BKI from the Bonneville Power Administration where he was in charge of managing asset data for the entire transmission group. His accountabilities at BKI are to manage all administrative functions, including contracts, risk, insurance, finance, and HR. If you have a contracts, insurance, or finance questions, please feel free to contact Tuominen or the office manager, Kim Allmaras.

BKI's goal is to be the best power engineering and consulting group in the Pacific Northwest for small to mid-sized public utilities. For more information, visit [www.bki.cc](http://www.bki.cc). **NWPPA**

### ABB recognized as a global innovator

**F**or a third year, Thomson Reuters has recognized ABB as one of the world's top 100 innovators. This award acknowledges companies around the world for their outstanding commitment to global innovation, the protection of ideas, and the commercialization of inventions.

"This recognition is a strong endorsement. Innovation



Jeremiah Waugh



Ralph Oñate



Dan Tuominen

is ingrained in the DNA of ABB and a pillar of our Next Level strategy," said ABB Chief Executive Officer Ulrich Spiesshofer. "New technologies are at the core of driving profitable growth through our strategic focus on market penetration, innovation, and expansion."

ABB innovations include a high-voltage direct current (HVDC) cable that more than doubles power capacity to about 2,600 megawatts. It can span distances of up to 1,500 kilometers in subsea and underground applications, making the cable ideal for efficient power delivery through densely populated or environmentally sensitive areas.

ABB ([www.abb.com](http://www.abb.com)) is a leader in power and automation technologies that enable utility, industry, and transport and infrastructure customers to improve their performance while lowering environmental impact. The ABB Group of companies operates in roughly 100 countries and employs about 145,000 people. **NWPPA**

### SPIDA teams up with Valmont Newmark

**S**PIDA Software continues to expand the products available to their clients by teaming up with Valmont-Newmark to develop a SPIDACalc Structure Analysis Software material library that includes Valmont steel one-section and two-section utility poles.

In recent years, Valmont steel poles have grown in popularity due to the longer life-cycle in varying climates and their consistent strength values compared to wood poles. As more SPIDACalc users begin to use these types of poles, Valmont, with aid from SPIDA, has generated a client file that includes pole length and class combinations up to 95 feet for one-section and two-section poles. Now, SPIDACalc users have easy access to the full range of pole data.

"We find that many of our SPIDACalc clients use Valmont steel poles in their overhead distribution and transmission systems and it's important for us to work directly with the manufacturer to bring the most accurate and up-to-date data to our users. Working with Valmont to create a SPIDACalc client file provides our users with greater options when designing and analyzing poles within our software," said Brett Willitt, vice president of SPIDA Software.

SPIDA Software is leading the way with practical and cutting-edge software products that help electric and telecommunication utilities better design, manage, and track their physical assets. For more information, please visit [www.spidasoftware.com](http://www.spidasoftware.com).

Valmont Newmark is the leader in producing engineered solutions for the utility industry. For more information, please visit [www.valmont-newark.com](http://www.valmont-newark.com). SPIDACalc users interested in obtaining a Valmont Steel SWR Pole Library should contact Danny Lonergan of Valmont Newark at [daniel.lonergan@valmont.com](mailto:daniel.lonergan@valmont.com). **NWPPA**

### Business journal praises T&B's Chad Smith

From out of 250 nominations, **Chad Smith**, vice president, product management and engineering, at Thomas & Betts (T&B), a member of the ABB Group, was among those selected for the *Memphis Business Journal*'s 18<sup>th</sup> annual Top 40 Under 40.

The program "recognizes the talents of the brightest Memphis-area professionals under age 40, both for career accomplishments and for giving their personal time to help local charities," according to the article that appeared in the October 9 issue of the *Memphis Business Journal*.

Smith holds a bachelor's degree in polymer chemistry from the Georgia Institute of Technology and a master's degree in business from the University of Georgia. He joined Thomas & Betts in 2011 and has held various roles in product management, marketing, and engineering.

Thomas & Betts Corporation, a member of the ABB Group, is a global leader in the design, manufacture, and marketing of essential components used to manage the connection, distribution, transmission, and reliability of electrical power in utility, industrial, commercial, and residential applications. For more information, visit [www.tnb.com](http://www.tnb.com). **NWPPA**



### OMICRON releases the DANEKO 400

**T**he new DANEKO 400 from OMICRON is a portable measurement system that measures, records, and analyzes all analog and binary substation signals and network traffic simultaneously. It provides information for assessing the coordination of signals and keeps track of what is going on in a substation. By supporting IEC 61850 GOOSE and Sampled Values, it fulfills relevant tasks in different applications, such as factory or site acceptance tests; distributed testing of inter-substation communication; troubleshooting; and commissioning.

With multiple DANEKO 400 units, a measurement system for distributed recording can be set up. All acquisition units are accurately time synchronized using the Precision Time Protocol (PTP) according to IEEE 1588-2008 standards. DANEKO 400 units are configured and controlled by the DANEKO Control PC software. For controlling a single device, a selected feature set is also available via the built-in DANEKO 400 Web interface.

The fact that the outcome of measurements can be verified and documented is particularly relevant for commissioning, factory acceptance tests, and site acceptance tests.

OMICRON is an international company serving the electrical power industry with innovative testing and diagnostic

solutions. For more information, contact Wayne Bishop at [Wayne.bishop@omicronusa.com](mailto:Wayne.bishop@omicronusa.com). **NWPPA**

### Varasset, BKI sponsor WSU capstone project

**E**lectrical engineering students from the Vancouver campus of Washington State University (WSU) will work closely with power utility engineers, software specialists from Varasset, and professional engineers from Brown & Kysar. This senior capstone project will combine preventive maintenance asset management concepts with real substation data readings. Students will collect and interpret key data with guidance from the engineers.

Power engineers are retiring faster than new engineers are graduating. This capstone project will give a group of WSU engineering students practical experience with electric utilities, both in the field and the office.

The goal of the WSU capstone is to configure a streamlined, online asset management solution for smaller utilities that will support substations and major line equipment; be very simple to use; and will require minimal technical knowledge from field personnel for proper application.

Based in Vancouver, Wash., Accent is a leading provider of information technology services for utilities and public agencies. Varasset, Accent's flagship software product, is a highly configurable database software system used by electric, cable, and telecommunication utilities across the U.S. For more information, visit [www.varasset.com](http://www.varasset.com).

Brown & Kysar provides engineering planning and consulting services for power utilities in the Pacific Northwest. For more information, visit [www.bki.cc](http://www.bki.cc). **NWPPA**

### Tantalus, Itron release ERT-reading platform

**O**n November 12, 2014, Tantalus, a leading provider of smart grid communications and applications, announced with Itron Inc., a world-leading technology and services company, the commercial availability of automated ERT (encoder receiver transmitter) reading functionality for the companies' joint solution platform for municipal and cooperative utilities.

The solution is designed for utilities to quickly and cost-effectively migrate from a one-way drive-by or walk-by system to real-time reading via TUNet® (Tantalus Utility Network) configured as a fixed network, two-way AMI solution.

Tantalus provides two-way, real-time data communications networks to monitor and control electric, gas, and water utilities. For more information, please visit [www.tantalus.com](http://www.tantalus.com).

Itron is a world-leading technology and services company dedicated to the resourceful use of energy and water. For more information, visit [itron.com](http://www.itron.com). **NWPPA**

by Deborah Sliz

# Is a Northwest imbalance market getting closer?



The November 1 startup of the CAISO-PacifiCorp Energy Imbalance Market and the October 31 Northwest Power Pool (NWPP) RFP for a market operator for a proposed regional, within-hour imbalance market is likely to increase pressure on Northwest public power and the Bonneville Power Administration (BPA) to decide the direction they wish to take to better facilitate integration of renewable resources.

For the last three years, the NWPP Market Assessment and Coordination Committee (NWPP-MC) has studied a range of tools intended to address the financial and operational challenges of managing periods of unplanned, extreme loads or generation ramps resulting from the integration of energy generated by variable energy resources (VERS), including wind and solar. Among the tools is an energy imbalance market, also called security constrained energy dispatch (EIM/SCED).

The studies have been tailored to the unique characteristics of the Northwest region and grid, with its significant hydropower resources, high degree of wind penetration relative to load, existing load sharing agreements, and numerous privately owned and publicly owned balancing authorities (BAs).

To date, NWPP-MC participants have contributed \$1 million in Phases 1 and 2; \$4.5 million in Phase 3; and countless hours on studies, meetings, and information briefings. According to the RFP, the EIM/SCED is targeted to go live in October 2017, pending participant approval by the third quarter 2015.

The NWPP-MC is co-chaired by BPA Administrator Elliott Mainzer, Tacoma Public Utilities CEO Bill Gaines, and PGE CEO Jim Piro. While some NWPP-MC members have been pro-EIM/SCED from the beginning of the effort, others remain skeptical. The fact that executives from BPA, public power, and investor-owned utilities in the region co-chair the NWPP-MC reflects the consensus among participants that the region needs to work together to find a regional solution to the VERS challenges.

### What is an EIM/SCED?

An EIM/SCED is an automated, five-minute dispatch system that is intended to compute energy imbalance of load and generation in the market footprint, and dispatch the most economic resources to resolve that imbalance with the goal of displacing more expensive resources with less expensive

resources. EIM/SCED would provide participants a non-firm energy product, not firm-generating capacity that could ramp up and down to follow VERS, and not additional transmission capacity.

The EIM/SCED market design chosen by the NWPP-MC is based on the model used in the Southwest Power Pool and would be administered by an independent, non-profit entity, and governed by a board of directors that could be NWPP. The EIM/SCED would be supported and operated by an independent market operator chosen through the RFP process. The market operator would file the market design with FERC for approval, and its relevant tariffs would be FERC jurisdictional. The market operator would not assume any North American Electric Reliability Corporation (NERC) functional roles.

Participation in EIM/SCED would be voluntary for regional BAs. A certain number of BAs would need to join to provide needed liquidity to the market, but the design could function without 100-percent participation. Without participation by BPA and public power BAs, however, a Northwest EIM/SCED likely would not make sense, economically or operationally.

A market participant that is not a BA would have the choice of active participation in the market (submitting resources or loads to the market operator to schedule) or passive participation (continuing self-dispatch of resources and load).

Critical to the design and operation of the NWPP-MC EIM/SCED is that each participant must come to the market with the ability to balance its own needs within the hours. This "resource adequacy" requirement is intended to prevent participants from leaning on others in the market to meet their imbalance needs.

### Questions remain for preference customers

In a recent briefing by the three NWPP-MC co-chairs for members of Congress and staff, Mainzer made clear that BPA and others in the NWPP-MC are not interested in joining the CAISO/PacifiCorps EIM, or in having a day-ahead or capacity market structure in the region.

Mainzer believes that there would be regional benefits from a centralized dispatch market to address imbalances, including reducing individual reserve requirements for participants.

PGE's Piro told attendees that the EIM/SCED would not be a financial market, underscoring that participants must come to the market with sufficient assets to balance their own load/generation. The three co-chairs affirmed that it was criti-

*Continued on page 26*

## WASHINGTON, D.C., REPORT

cal that the governance structure of a Northwest EIM/SCED not subject non-jurisdictional regional utilities to further FERC jurisdiction.

Despite these assurances, a number of public power entities in the Northwest remain skeptical of an EIM/SCED market. To many preference customers, the cost/benefit analysis done to date is not compelling. They also want to know specifically who the regional winners and losers would be, and how their BPA power contracts would be treated.

They also question whether adoption of an EIM/SCED market would lead to more FERC jurisdiction. The NWPP-MC co-chairs have retained legal counsel and are talking with the Commission about some kind of "declaratory order" that would provide assurances on that score.

Also of concern is the potential for "scope creep" — whether it would be possible to keep the EIM/SCED from expanding into other energy markets, as has occurred in SPP and the Eastern electricity markets, which began as transmission dispatch organizations.

Watching what their public power brethren are experiencing in the other so-called organized markets has only deepened the concerns of some public power systems, as participants in those markets complain about the loss of local control, and steadily increasing costs and the lack of concern

from FERC and the RTOs regarding consumer impacts.

With a regional decision looming, NWPPA is working to educate its members about what an EIM/SCED market is and would do, the specifics of the NWPP-MC market design, and to provide an opportunity for members to ask questions of those who have been closest to the NWPP-MC effort.

To this end, NWPPA held three webinars in November. The first, "An Introduction to Energy Imbalance Markets," was presented on November 18 by Mid-West Electric Consumers Association Executive Director Bill Drummond. Therese Hampton, executive director of the Public Generating Pool, presented a November 21 webinar in which she described the NWPP-MC effort. Finally, Tacoma Public Utilities CEO Bill Gaines presented a third on November 25, addressing policy considerations that utility leaders should be taking when determining whether to support NWPP-MC efforts. Recordings of all three webinars can be accessed on [www.nwppa.org](http://www.nwppa.org) under Education/Register and then EIM Webinars. **NWPPA**

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## COVER STORY

by Christopher Brewton, Susan Penner, Clifton Stump, and Jessica Stockel

# Sitka celebrates completion of the Blue Lake Expansion Project

**S**itkans are a fiercely independent people. Like their fellow residents on Alaska's Baranof Island and others who choose to live in the more remote areas of the Northwest, they see their landscape for its beauty and its opportunity. So it didn't surprise the residents of the City and Borough of Sitka when 97 percent of them voted "yes" to the Blue Lake Expansion Project in 2000, increasing their electric rates by 35 percent per kilowatt to fund the expansion of a nearby dam and construction of a new 15.9-megawatt power plant.

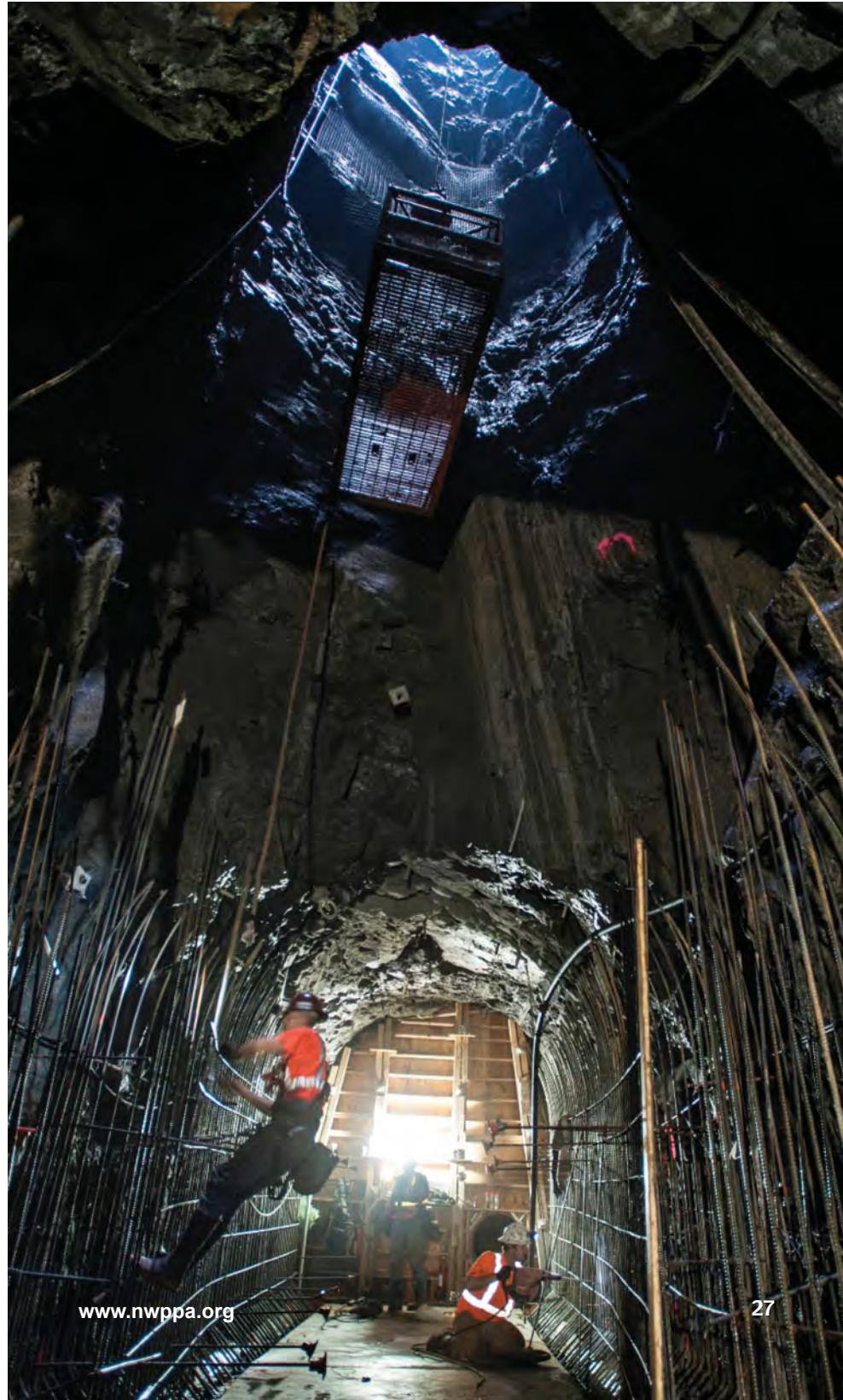
The new hydroelectric power that is being generated by the Blue Lake Expansion Project will directly and significantly decrease what had been their increasing dependence on diesel fuel for power generation. That vote took place four years ago. In mid-November they fired up three new 5.3-megawatt turbine/generators and wet-tested another 1.7-megawatt smaller unit that will come on line in early 2015, a project completed on time and within budget. All told, this new system will deliver 33 percent more power overall.

### History

The project at Blue Lake arose as a result of the forward thinking of Sitka's Electric Department and the reality that whenever the cost of fuel oil increased, residents switched to electricity, quickly expanding their use into the 12-year energy cushion Sitka officials thought they'd created. The Sitka Electric Department is a proactive provider of power for the island's 9,000 year-round residents. The original group to pursue hydropower on the island was Sitka Wharf and Power Co. in 1913, choosing to build at the mouth of the creek, where today the new power plant stands. This early construction was flooded and rebuilt to the tune of \$125,000 in the 1930s.

*Continued on page 28*

*Gate shaft work behind the temporary submerged intake portal. Photo by Derik Olsen, courtesy of Barnard Construction Company.*



*The canyon offered a perfect configuration for a concrete arch dam; however, the majority of personnel and material delivery necessary to expand the dam would have to occur via the end of a crane hook.*

In the 1940s, Sitka Public Utilities took ownership, only to have the power plant wiped out by another flood in 1947. That flood, according to local history, prompted the forefathers of today's dam to begin planning for a dam upstream at the narrow rock canyon leading to Blue Lake beyond the natural barrier waterfall that prevented further fish travel upstream. The City voted to fund a 35-foot-high dam in 1956, but could not find any buyers for its bonds until 1958. From there, the City's pursuit of hydro persisted, taking them through two Blue Lake Dam expansions and the development of another hydro plant and reservoir at Green Lake.

Then in 2008, the Electric Department applied for a "capacity-related amendment" to its 2007 license from the Federal Energy Regulatory Commission (FERC) to raise the turbine capacity in their system by 160 percent and to raise the Blue Lake Dam to its "maximum geotechnically feasible" height. The City's original license for the Blue Lake hydroelectric facility was granted in April 1958.

First, they commissioned a feasibility study. After considering diesel, wind, tidal, and geothermal in addition to hydroelectric, the study was unequivocal: hydroelectric was the preferred path. Next, they commissioned designs for raising the 145-foot-tall Blue Lake concrete arch dam by 83 feet as well as designs for a new submerged intake structure; a power conduit; a powerhouse; a switchyard; primary and two secondary transmission lines; a 7,000+-foot-long power conduit extending from the intake on the lake to the powerhouse downstream; and another mini-hydro facility halfway down the canyon. The fish valve unit now has the capacity to produce 1.7 megawatts while performing its duty in constantly feeding

*Getting a ride to work. Photo by Derik Olsen, courtesy of Barnard Construction Company.*

approximately 75 cfs of water into Sawmill Creek to ensure stream and fish health. This unit was constructed under the same project agreement.

### Taking action

In 2011, Sitka hired Construction Manager McMillen LLC to manage construction of the project. McMillen merged with Jacobs Associates in December 2014 becoming McMillen Jacobs Associates and now specializes in providing comprehensive multidiscipline technical capabilities on a wide range of water resources, hydropower, dams, transportation, and tunnel projects delivered by both design-bid-build and design-build. The firm has 19 offices throughout North America, Australia, and New Zealand. McMillen's role within the Blue Lake Expansion Project centered on construction quality control as well as environmental oversight and was expanded to include project public relations.

In September 2012, Sitka's Assembly unanimously awarded Barnard Construction Company, Inc. the nearly \$100 million contract to construct all of the complexities of this project. Headquartered in Bozeman, Mont., Barnard specializes in dam, reservoir, and hydropower construction and rehabilitation. Barnard's experience in tunneling and inland marine work has proven beneficial as well. Barnard's team was used to tackling projects in logically remote locations and challenging climates, including numerous projects in the Northwest — most recently the Snoqualmie Falls hydroelectric redevelopment; removal of the Elwha and Glines Canyon Dams; and Wanapum Dam future unit infill projects.

## Timeline and project milestones

- December 19, 2007 — City files Informational Document notifying stakeholders of intent to amend FERC license for Blue Lake Expansion
- March 10, 2008 — City files Notice of Intent to file a capacity-related amendment to our FERC license
- November 23, 2010 — City files License Amendment with FERC
- January 12, 2012 — FERC releases Notice of Availability of FERC-prepared Environmental Assessment
- May 30, 2012 — FERC issues Final Environmental Assessment and License Amendment
- November 20, 2012 — Construction begins
- August 17, 2014 — Generation outage begins
- October 24, 2014 — Generation outage ends
- October 29, 2014 — Final concrete placement poured
- November 14, 2014 — Substantial completion of the Blue Lake Expansion Project

hoisting. To establish the Liebherr at the jobsite required nearly 40 truckloads up a narrow gravel road before it could be assembled.

### Project components and progress at the dam

After mobilizing to the site, the construction team hit the ground running. Subcontractor Blue Lake Tunnelers completed all of the underground excavations — including a 900 LF intake tunnel, a 110 VF shaft for the gate house, a 415 LF adit tunnel, and a 350 VF shaft for an underground surge chamber. Southeast Earthmovers completed the surface excavation work for the dam staging area, project access road, intake structure, and the powerhouse. With the surface and underground excavations nearly completed, the team began concrete construction on all areas of the project, including the dam raise, intake tunnel, gate shaft, and powerhouse.

The team physically raised the 145-foot dam by 83 feet in stages. The left and right abutment contact to rock was raised in 10-foot lifts. Each monolith required approximately 100 CY of concrete, meaning the dam alone required over 8,000 CY to complete. Constructing a thrust block on the left abutment added another 900 CY of concrete delivered via crane to the opposite side of the canyon, over 320 feet from the crane pad.

Working through the winter on the island took thorough pre-planning. In scheduling the work from the outset, the team focused on having the new intake tunnel ready for concrete placement and finish work during the winter. Fluctuating lake levels created limited work windows below the existing high-water mark for the new intake structure, tunnel, and gate shaft. To complete more work in the first year, the team installed a temporary concrete plug in the intake tunnel. This sealed the 12-foot-by-14-foot horseshoe-shaped tunnel, allowing completion of a significant portion of work that was originally scheduled for completion during a very short low-water window in 2014.

Work in and on the water also had to be conducted with precision and care — the City of Sitka draws its potable water through the same intake at Blue Lake; the penstock forks just before reaching the powerhouse to feed the community's water delivery system. Water in the lake is some of the purest in the U.S., requiring only minimal treatment. Further testament to the water's quality is the popularity of products produced by the local microbrewery that utilize the pristine waters of Blue Lake.

### New powerhouse

Work on the project's new powerhouse was equally as critical to the community's energy independence. Roughly two miles downstream where Sawmill Creek empties into Silver Bay, the concrete structure for the new powerhouse took shape. ASRC McGraw Constructors installed the steel building and precast panel walls. Once the building's roof was in place, NAES Power Contractors installed the three 5.3-megawatt Francis turbines, manufactured by Gilbert, Gilkes

*Continued on page 30*



& Gordon, Ltd. Electrical and mechanical balance of plant construction ramped up as the turbine generators were installed. The City of Sitka's entire system operates from the new Blue Lake SCADA control room. In mid-November 2014, the City's operation staff started full-time operation of the powerhouse and it is now the lead generating station for the City.

### Mobilizing the community/sharing project ownership

With 97 percent of the community of Sitka supporting the project and all of Sitka bearing the burden of paying for it, there was an understanding that the community would play a big role in the outcome. Even before construction began, the Electric Department along with Pundit Productions made a video to explain the importance of expanding hydro and the benefits it would provide.

Shortly after construction kicked off, the City announced that public tours would run one Sunday a month for the first 100 residents to sign up. The sign-up sheets filled in a matter of hours for each of the 10 public tours offered. After each tour, residents expressed appreciation that they were able to see first-hand what was happening and how it affected them. On the last tour the public was asked to enter a contest guessing when the new dam concrete would get wet by the quickly rising level of Blue Lake. The winning family got a private tour and couldn't have been more excited!

As project construction came to an end, a period known as the generation outage occurred where for 65 days not only was the existing Blue Lake powerhouse shut down, but also the drinking water provided by Blue Lake was replaced with treated drinking water from Indian River. The project teams installed a significant temporary water treatment facility to provide quality drinking water to City residents. The commu-

### Mission Statement

*"The mission of the Sitka Electric Enterprise Fund is to provide adequate and reliable electric service for all consumers connected to the Sitka electric power distribution system."*

**Christopher Brewton, Utility Director**

*The Dumag Family won a private tour of the dam by guessing when the dam concrete would get wet by the rising Blue Lake.*

nity was asked to conserve energy during the generation outage to limit the amount of diesel fuel generation required. The efforts by residents and the project team alike resulted in almost no diesel use during the outage. While many were not happy about the generation outage, most understood why it was necessary.

Videos, photos, and monthly updates have been provided via multiple sources including City Assembly meetings, radio/television broadcasts, newspaper articles, Facebook, and a custom website. To celebrate the end of such an amazing and immense project in Sitka's history, a public dedication ceremony will be held in May 2015.

### Cost/ultimate value to ratepayers

The Blue Lake Expansion Project has been hugely successful, due in large part to the support and commitment of the community, elected leadership, and a strong, cohesive project team. This commitment has allowed the project team to focus entirely on getting the project constructed on time and budget. With this new hydroelectric capacity the ratepayers will avoid the high cost of diesel generation and the City will have sufficient energy available to encourage and allow for the community's economic growth. [NWPPA](#)

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- Complete the online Job Opportunities ad placement form at [www.nwppa.org](http://www.nwppa.org).
- NWPPA reserves the right to edit all listings in order to fit size requirements in the publication.

## POSITION: Software Developer

COMPANY: Chelan County PUD (Wenatchee, Wash.)

SALARY: To low \$90,000 annually.

DEADLINE TO APPLY: December 17, 2014.

TO APPLY: Application and job details can be found online at [www.chelanpud.org](http://www.chelanpud.org).

## POSITION: Resource Operations Analyst

COMPANY: City of Tacoma (Tacoma, Wash.)

SALARY: \$64,188.80-\$104,915.20 annually.

DEADLINE TO APPLY: December 20, 2014.

TO APPLY: Apply online at [www.cityoftacoma.org/jobs](http://www.cityoftacoma.org/jobs). Attach a detailed resumé and cover letter that includes job experience, major responsibilities, and accomplishments related to this position.

## POSITION: Superintendent, Generation Maintenance

COMPANY: Sacramento Municipal Utility District (Sacramento, Calif.)

SALARY: \$112,450-\$140,402 annually.

DEADLINE TO APPLY: December 23, 2014.

TO APPLY: Apply online at [www.smud.org/en/about-smud/careers/index.htm](http://www.smud.org/en/about-smud/careers/index.htm).

## POSITION: Electric Distribution Systems Manager

COMPANY: City of Ashland (Ashland, Ore.)

SALARY: \$7,117.07-\$8,651.07 monthly.

DEADLINE TO APPLY: December 24, 2014.

TO APPLY: Apply online at [www.ashland.or.us](http://www.ashland.or.us). A completed online City application must be filed with the Personnel Office before the deadline and may be supplemented with a resumé of work experience.

## POSITION: Power and Energy Programs Analyst III

COMPANY: Benton PUD (Kennewick, Wash.)

SALARY: \$69,620-\$87,025 annually, DOQ.

DEADLINE TO APPLY: December 31, 2014.

TO APPLY: Submit online application located at [www.bentonpud.org/careers](http://www.bentonpud.org/careers). A cover letter is strongly preferred and can be uploaded, along with a resumé, into the system during the online application process.

## POSITION: Apprentice Lineman/Groundman

COMPANY: Consumers Power Inc. (Philomath, Ore.)

SALARY: \$16.79-\$29.78 hourly.

DEADLINE TO APPLY: December 31, 2014.

TO APPLY: Submit cover letter and resumé to Consumers Power Inc., Attn. Human Resources Dept., P.O. Box 1180, Philomath, OR 97370, fax (541) 929-8501, or email to [debg@cpi.coop](mailto:debg@cpi.coop).

## POSITION: General Manager

COMPANY: Franklin PUD (Pasco, Wash.)

SALARY: DOE.

DEADLINE TO APPLY: January 1, 2015.

TO APPLY: Apply online at [www.franklinpud.com](http://www.franklinpud.com).

## POSITION: Communications/Public Relations

COMPANY: Cowlitz PUD (Longview, Wash.)

SALARY: DOQ.

DEADLINE TO APPLY: January 5, 2015.

TO APPLY: Go to [www.cowlitzpud.org](http://www.cowlitzpud.org) for a complete list of requirements. Provide a cover letter, resumé, completed supplemental questions, self-edited writing sample, and completed Cowlitz PUD application.

## POSITION: Field Services Representative

COMPANY: Copper Valley Electric Association (Glennallen, Alaska)

SALARY: \$25.00 per hour.

DEADLINE TO APPLY: January 23, 2015.

TO APPLY: Apply online at [www.cvea.org](http://www.cvea.org).

## POSITION: Distribution Engineering Supervisor (DES)

COMPANY: Mission Valley Power (Pablo, Mont.)

SALARY: \$39.11-\$46.56 hourly, DOQ.

DEADLINE TO APPLY: February 28, 2015.

TO APPLY: Apply online at [www.cskt.org](http://www.cskt.org). For more information, call Kerry at (406) 883-7944.

## POSITION: Manager of Power Production

COMPANY: Cordova Electric Cooperative, Inc. (Cordova, Alaska)

SALARY: \$90,000-\$110,000, DOE.

DEADLINE TO APPLY: Open until filled.

TO APPLY: Submit resumé and cover letter detailing your interest and qualifications for this position, and three professional references. For information and application, go to [http://cordovaelectric.com/?page\\_id=109](http://cordovaelectric.com/?page_id=109).

## POSITION: Journeyman Meterman (U13-115)

COMPANY: Portland General Electric (Portland, Ore.)

SALARY: \$40.98 per hour.

DEADLINE TO APPLY: Open until filled.

TO APPLY: Apply online at [https://PGN.igreentree.com/CSS\\_External/CSS\\_Page\\_Referred.ASP?Reg=U13-115](https://PGN.igreentree.com/CSS_External/CSS_Page_Referred.ASP?Reg=U13-115).

## POSITION: Dispatch Manager — Regular

COMPANY: Matanuska Electric Association (Palmer, Alaska)

SALARY: DOE.

DEADLINE TO APPLY: Open until filled.

TO APPLY: Download, complete, and submit MEA employment application at [www.mea.coop](http://www.mea.coop).

## POSITION: GIS Specialist

COMPANY: Umatilla Electric Cooperative (Hermiston, Ore.)

SALARY: Competitive wage and benefits.

DEADLINE TO APPLY: Open until filled.

TO APPLY: Apply online at [www.umatillaelectric.com](http://www.umatillaelectric.com). Applications may also be obtained in person at 750 W. Elm Ave., Hermiston, Ore., by email at [hr@umatillaelectric.com](mailto:hr@umatillaelectric.com), or by calling (541) 289-0380.

## POSITION: Utility Billing Supervisor & Analyst

COMPANY: Umatilla Electric Cooperative (Hermiston, Ore.)

SALARY: DOE.

DEADLINE TO APPLY: Open until filled.

TO APPLY: Obtain applications in person at 750 W. Elm Ave., Hermiston, Ore., at [www.umatillaelectric.com](http://www.umatillaelectric.com), by email at [hr@umatillaelectric.com](mailto:hr@umatillaelectric.com), or by calling (541) 289-0380.

## POSITION: Executive Assistant

COMPANY: Umatilla Electric Cooperative (Hermiston, Ore.)

SALARY: DOE.

DEADLINE TO APPLY: Open until filled.

TO APPLY: Applications and job description may be obtained at [www.umatillaelectric.com](http://www.umatillaelectric.com), by email at [hr@umatillaelectric.com](mailto:hr@umatillaelectric.com), or by calling (541) 289-0380.

## POSITION: Journeyman Lineman

COMPANY: Ohop Mutual Light Company (Eatonville, Wash.)

SALARY: \$38.27 per hour, plus NRECA benefit package.

DEADLINE TO APPLY: Open until filled.

TO APPLY: Call Kenneth Klotz at (253) 847-4363, ext. 103, or email to [ken@ohop.coop](mailto:ken@ohop.coop). **NWPPA**

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