The Energy Experience Engages Students in a New, Creative Way
On the cover: Energy Northwest Wind Generation Technician Scott Immele was one of the many exhibitors at the award-winning The Energy Experience event at The REACH Museum in October 2015.

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Hack Attack 2.0 Focused on Managing the Inevitable

Over 35 general managers, board/commission members, and finance, engineering, and cybersecurity staff gathered in December at the Sheraton Portland Airport for Hack Attack 2.0, the second workshop about cybersecurity risks, trends, and incidents that NWPPA has offered to general managers and board members; the first Hack Attack workshop was held in December 2014.

“I walked away from the first Hack Attack class fearful that we were vulnerable to a cyber attack,” said Salem Electric General Manager Terry Kelly. “Over the past two years, we had applied many of the things that were brought to our attention from the first class, had completed a penetration test, and implemented many of the recommendations. I was much more comfortable, but certainly not content, after attending Hack Attack 2.0 and hearing all the challenges we still face.”

At the half-day workshop, seven experts shared information on cybersecurity challenges and vulnerabilities, advice on how to mitigate risks, and how some of them were addressing risks at their utilities. Presenters ranged from Missoula Electric Cooperative General Manager Mark Hayden talking about his experiences at his utility to E-ISAC Manager Fred Hintermister discussing current breaches occurring at utilities.

“Going into the conference, I thought I had a pretty good take on the cybersecurity management landscape but now I have a whole new perspective,” said Peninsula Light Company Engineering Manager Michael Simpson. “I am going back to the office with a laundry list of topics to share with the Penlight management team, ranging from governance challenges to comprehensive penetration testing.”

Columbia Basin Electric Cooperative General Manager Tommy Wolff said, “The biggest take-away I have is the concept that ‘cybersecurity is not an objective to reach, but a journey to endure.’ As hackers are always trying new methods to invade, we must be always vigilant to their activity.”

Key take-aways from other workshop attendees included: all employees need to be responsible for security, not just IT; as small to mid-sized utilities, we have shared concerns and tactics to address; we need to be very aware of risks; it is important to learn how to manage risks rather than just focusing on prevention; and some day we will be hacked so it is important to prepare for that inevitability.

Many attendees stayed after the half-day workshop to discuss their cybersecurity concerns with each other and exchange contact information for future collaboration efforts.

Idaho Falls Power General Manager Jackie Flowers stayed behind to express her appreciation to NWPPA staff for hosting the workshop. “This session was so jam-packed with great information,” she said. “I learned something in every session that will help my utility as we continue on this journey. This agenda was a home run – nice work, NWPPA!”

Three Items from NREL

By Maurice Martin

Those who attended Hack Attack 2.0 will recall that I wanted NWPPA members to know about the following three opportunities for engaging with NREL:

Cybergovernance Assessments

The word cybergovernance refers to the business processes and management practices that can either help or hinder cybersecurity. (This is not a technical review of network security controls.) NREL offers a cybergovernance assessment designed to help companies maximize their cybersecurity efforts. The NREL assessment employs a tool that draws on two of the best known and most respected security guidance documents in the electric sector (ES-C2M2 and the NIST Cybersecurity Framework). The NREL staff uses the tool (along with decades of industry experience) to create 1) a cybersecurity maturity score for utilities, and 2) a list of prioritized security controls that utilities can use to improve their security postures in both the information technology and operational technology spaces.

DOE Roadmap Assessment

NREL (along with eight other national labs) is conducting interviews on behalf of the DOE in order to get feedback on the “Roadmap to Secure Energy Delivery Systems,” a document that identifies a number of milestones for securing the grid. NREL is looking for utilities willing to have a 60-minute phone conversation and give their observations on the state of cybersecurity as they see it. This is not a security assessment of your utility — NREL is interested in your observations on industry-wide developments in cybersecurity.

Co-ops Meet to Discuss Cybersecurity

On January 18, NREL will host a summit organized by the National Rural Electric Cooperative Association on cybersecurity challenges. This event is free and open to NRECA’s member cooperatives. NRECA will discuss its $7.5 million, DOE-funded Rural Cooperative Cyber Security Capabilities Program (RC3), focused on assisting small- and medium-sized cooperatives that have few, or no, information technology staff. For more information or to register, visit www.eventbrite.com/e/addressing-cyber-security-risk-tickets-30343400929.

Maurice Martin is the senior technology leader at the Cyber-Physical Systems Security & Resilience Center, NREL. He can be contacted at maurice.martin@NREL.gov.
ANNUAL CONFERENCE AND MEMBERSHIP MEETING

PLEASE NOTE CONFERENCE DATE CHANGE

MAY 7-10, 2017

SUNRIVER RESORT | SUNRIVER, ORE.
Welcome Back to Anza Electric Cooperative

California’s Anza Electric Cooperative has rejoined the Association and we are excited to have them back!

Anza, Calif., located in southern Riverside County in the Anza Valley, is considered a high desert area and growing artists’ colony. The city, which is approximately 35 miles southwest of Palm Springs and 143 miles southeast of Los Angeles, has just over 3,000 residents.

Incorporated in 1951, Anza Electric has 737 miles of line in Southwest Riverside County covering the areas of Anza, Garner Valley, Pinyon, Alpine Village, Royal Carrizo, and parts of Aguanga. The 20-person staff, led by General Manager Kevin Short, serves 3,781 members and 5,000 meters.

For more information about Anza Electric, visit www.anzaelectric.org.

Survey Opportunity for Utility GMs

Recently, NWPPA met with a representative group of utility general managers to hear about the challenges being posed by declining kilowatt-hour sales as it applies to residential rate design. The discussion brought to light an interest in the breadth of these challenges across the NWPPA membership.

To help better understand these challenges, NWPPA has created a rate design survey to gather information on 1) what actions utilities are contemplating or taking regarding changes in their residential rate structure design, and 2) what the drivers to those changes might be. The survey is not intended to collect information on the actual rates themselves.

The survey will be released on January 23 and should take no longer than 20 minutes to complete. Watch the weekly eBulletin newsletter for a link to the short survey, and please complete it by February 17.

Once the survey is released on January 23, if you have any questions, please contact NWPPA at (360) 254-0109.
Safety Award Nominations Still Being Sought

The annual Utility Safety Contest Awards recognize NWPPA member utilities for the best safety records of 2016 based upon incident experience, utility size, and the total injury and illness (incidence) rate. Data for this contest is available on your OSHA Form 300 or OSHA Form 300A.

Contest entries are due by February 13, 2017. For entry forms and rules, go to nwppa.org/ eo. For additional information, please contact Scott Lowry at (360) 816-1448 or slowry@nwppa.org.

The winning utilities will be announced at the 2017 NWPPA Engineering & Operations Conference and Trade Show in Reno, Nev., during the evening banquet on April 13. Registration is now open for the conference and trade show at nwppa.org/ eo. With the annual E&O Conference, you won’t find a better buy for an event that includes linemen, engineering, and purchasing and stores roundtables; over 30 speakers on a variety of timely topics; over 180 exhibiting companies; and networking with colleagues (new or known) that are important to get your job done. We hope to see you there! NWPPA

Annual Nominations Are Due This Month

If you have not yet submitted your nominations for the 2017-2018 NWPPA Board of Trustees, 2017 annual awards, and/or 2017 resolutions, you still have a few weeks to do so; the due date for all is January 31. As a reminder, here is what the Association needs:

**Board seats**

Nominations for two vacant utility member seats and two vacant associate member advisory seats on the NWPPA Board of Trustees. The vacant utility seats are for a general manager from an Idaho cooperative, and a board director or commissioner from an Idaho cooperative or municipal. The vacant associate member advisory seats are for a manufacturing entity, and a generation and transmission entity.

**Awards**

Nominations for the Life Awards, Paul J. Raver Community Service Award, John M. George Public Service Award, William “Bill” McCrorie Distinguished Service Award, and Homer T. Bone Award.

**Resolutions**

Submissions for any new draft resolutions or updates to the existing 2016 resolutions.

If you have questions about any of the above categories, please contact NWPPA at (360) 254-0109 or nwppa@nwppa.org.
First-Ever Pot & Power Workshop Blows in to Portland

The word marijuana still induces snickers from many, but it is far from a laughing matter at many of our rural members’ utilities where they are seeing an increase in legal grow operations. Now legal in several states, these energy-intense businesses are creating new challenges for many power providers such as increased load issues, strained business-to-business relationships, large cash payments in person at customer service centers, and the myriad of security issues that comes along with the above issues.

Whether your state has already legalized marijuana, if legalization just passed recently, or it is a possible ballot measure in the future, you’ll want to attend this one-day workshop to get answers to your questions about the growing issues facing the utility industry.

During this event, NWPPA will host a series of speakers to focus on different viewpoints of the current struggles. Colorado REA Executive Director Kent Singer will be on hand to discuss the challenges, and lessons learned, that his utility has faced since the state legalized recreational marijuana through Colorado Amendment 64 in 2012.

Cowlitz PUD Electrical Engineer Jeff Bauman will share his PUD’s experience with new recreational growers as well as the established medical growing industry in Washington state.

Officer Kendra Ogren of the Washington State Liquor & Cannabis Board will discuss enforcement issues and what utility executives should know.

In addition to the session speakers, Singer will moderate a panel of CEOs and GMs to discuss the experiences they are facing in their utility, such as customizing loading and upsizing lines; custom transformers; DOE and BPA’s handling of power supply; whether or not growers and increased loads are here to stay; and what happens to the business model if marijuana is legalized at the federal level.

The workshop will be held from 8:30 a.m. to 4 p.m. on Wednesday, February 8, 2017, at the Embassy Suites Portland Airport, Portland, Ore. To register, please visit www.nwppa.org.
TRAINING OPPORTUNITIES

February, March, and April 2017

Please visit www.nwppa.org to view the full course descriptions for these and other courses.

FOREMAN LEADERSHIP SKILLS #4 — DEVELOPING MANAGEMENT SKILLS; BUILDING AN EFFECTIVE WORK GROUP
Who Should Attend: Foremen and crew leaders.
February 1–2, 2017 — Sacramento, Calif.

STAKING TECHNICIAN CERTIFICATION PROGRAM — CONSTRUCTION CONTRACT ADMINISTRATION
Who Should Attend: Staking technicians and engineers.
February 6, 2017 — Seattle, Wash.

STAKING TECHNICIAN CERTIFICATION PROGRAM — JOINT USE STAKING AND MAKE-READY SURVEYS
Who Should Attend: Staking technicians and engineers.
February 7, 2017 — Seattle, Wash.

STAKING TECHNICIAN PROGRAM — OVERHEAD/POLE-LINE STRUCTURE DESIGN AND LAYOUT
Who Should Attend: Staking technicians and engineers.
February 8, 2017 — Seattle, Wash.

NEW! POT & POWER WORKSHOP: A GROWING ISSUE IN THE UTILITY INDUSTRY
Who Should Attend: General managers, policymakers, operations managers, key accounts managers, and communications managers.
For more information, please see page 7.
February 8, 2017 — Portland, Ore.

STAKING TECHNICIAN CERTIFICATION PROGRAM — CONSTRUCTION CONTRACT ADMINISTRATION FOR CALIFORNIA UTILITIES
Who Should Attend: California utility staking technicians and engineers.
February 13, 2017 — Alameda, Calif.

STAKING TECHNICIAN CERTIFICATION PROGRAM — JOINT USE AND MAKE-READY SURVEYS FOR CALIFORNIA UTILITIES
Who Should Attend: California utility staking technicians and engineers.
February 14, 2017 — Alameda, Calif.

SENIOR LEADERSHIP SKILLS SERIES SESSION 1, SERIES 5 — LEAD YOURSELF
Who Should Attend: Directors, managers, graduates of the Leadership Skills Series, and newly appointed senior leaders.

NEW! ONLINE — KEY ACCOUNTS PROGRAMS
Who Should Attend: Utility professionals tasked with developing, leading, contributing, and/or maintaining a key accounts or business support program.
February 14–28, 2017 — Online Presentation

STAKING TECHNICIAN PROGRAM — OVERHEAD/POLE-LINE STRUCTURE DESIGN AND LAYOUT FOR CALIFORNIA UTILITIES
Who Should Attend: California utility staking technicians and engineers.
February 15–17, 2017 — Alameda, Calif.

EXCEL MASTERY
Who Should Attend: Anyone who currently uses Excel and would like to increase knowledge and efficiency applying calculations and database tools.

FOREMAN LEADERSHIP SKILLS #2 — EFFECTIVE PROBLEM SOLVING; TRANSITIONING FROM EMPLOYEE TO FOREMAN
Who Should Attend: Foremen and crew leaders.

LEADERSHIP SKILLS SERIES SESSION #1 — SITUATIONAL LEADERSHIP
Who Should Attend: Supervisors and managers, and employees who will be transitioning to a supervisory or managerial role in the future.

2017 NATIONAL ELECTRIC SAFETY CODE FOR UTILITY PERSONNEL
Who Should Attend: Engineers, line superintendents, operations supervisors, foremen, lead linemen, apprentices, safety personnel, and inspectors.
March 1–2, 2017 — Missoula, Mont.

SUBSTATION SERIES: SUBSTATION OVERVIEW & INSPECTIONS
Who Should Attend: Line and substation personnel, distribution engineers, and supervisors who have responsibility for transmission and distribution substations.
March 7–8, 2017 — Idaho Falls, Idaho

IT CONFERENCE: DEFEND YOUR CASTLE, RESISTANCE IS NOT FUTILE!
Who Should Attend: IT professionals and others who are responsible for information technology programs as well as members of the operations and engineering functions who would like to build a stronger relationship with IT.
March 8–10, 2017 — Seattle, Wash.

SUBSTATION SERIES: PRINT READING
Who Should Attend: Line and substation personnel and distribution engineers who have responsibility for distribution and transmission substations. Prerequisite: This class assumes students have some experience working with substation prints. If not, students must take the Substation Series: Overview and Inspections class where basic print reading will be covered.
March 9, 2017 — Idaho Falls, Idaho

ENTERPRISE RISK MANAGEMENT — ADDING VALUE TO YOUR ORGANIZATION
Who Should Attend: Chief financial officers, senior-level accounting staff, auditors, general managers/CEOs, policymakers, and legal counsel.
ELECTRIC UTILITY SYSTEM OPERATIONS
Who Should Attend: Any electric utility industry employee (utility or vendor) whose job performance will benefit from a basic understanding of the operations side of the utility business, including engineering; operations; safety; purchasing; information technology; regulatory and rates; customer service; public relations; legal; accounting; as well as utility commissioners and board members.

STAKING TECHNICIAN CERTIFICATION PROGRAM REFRESHER PHASE 1
Who Should Attend: Experienced staking technicians that have completed NWPPA's Certified Staking Technician Program.

ADMINISTRATIVE PROFESSIONAL CERTIFICATE LEVEL 1: DAY 1 — BUSINESS COMMUNICATION SKILLS
Who Should Attend: Administrative assistants, executive assistants, or employees in administrative or service-oriented roles.
March 14, 2017 — Tacoma, Wash.

SUBSTATION SERIES: SUBSTATION OVERVIEW & INSPECTIONS
Who Should Attend: Line and substation personnel, distribution engineers, and supervisors who have responsibility for transmission and distribution substations.

ADMINISTRATIVE PROFESSIONAL CERTIFICATE LEVEL 1: ALL FOUR DAYS
Who Should Attend: Administrative assistants, executive assistants, or employees in administrative or service-oriented roles.

ADMINISTRATIVE PROFESSIONAL CERTIFICATE LEVEL 1: DAY 2 — RESOLVING CONFLICT IN THE WORKPLACE
Who Should Attend: Administrative assistants, executive assistants, or employees in administrative or service-oriented roles.
March 15, 2017 — Tacoma, Wash.

LEADERSHIP SKILLS #4: HR BASICS & BUILDING A MORE EFFECTIVE WORKPLACE
Who Should Attend: Supervisors and managers, and those employees who will be transitioning to a supervisor or manager role in the near future.

LINEMAN SKILLS SERIES: 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.

ELECTRIC DISTRIBUTION SYSTEMS
Who Should Attend: Engineers, line workers, substation workers, apprentices, and support staff that have direct responsibility for the construction, operation, and maintenance of the utility’s distribution system. Prerequisite: It is highly recommended that students complete Electric Utility System Operations before attending this class. Those who do not must have substantial experience in the basics of electric systems and utility operations.
March 15–17, 2017 — Portland, Ore.

ADMINISTRATIVE PROFESSIONAL CERTIFICATE LEVEL 1: DAY 3 — UNDERSTANDING THE BASICS OF ELECTRICITY
Who Should Attend: Administrative assistants, executive assistants, or employees in administrative or service-oriented roles.
March 16, 2017 — Tacoma, Wash.

SUBSTATION SERIES: PRINT READING
Who Should Attend: Line and substation personnel and distribution engineers who have responsibility for distribution and transmission substations. Prerequisite: This class assumes students have some experience working with substation prints. If not, students must take the Substation Series: Overview and Inspections class where basic print reading will be covered.
March 16, 2017 — Tacoma, Wash.

ADMINISTRATIVE PROFESSIONAL CERTIFICATE LEVEL 1: DAY 4 — PERSONAL LEADERSHIP SKILLS
Who Should Attend: Administrative assistants, executive assistants, or employees in administrative or service-oriented roles.
March 17, 2017 — Tacoma, Wash.

SUBSTATION SERIES: SUBSTATION TRANSFORMERS & LTC MAINTENANCE
Who Should Attend: Line and substation personnel, as well as engineers who have responsibility for distribution and transmission substations.
March 22, 2017 — Sacramento, Calif.

ICS-400, ADVANCED ICS FOR COMMAND AND GENERAL STAFF
Who Should Attend: Personnel expected to perform in a management capacity in an expanding incident that may require a higher level of NIMS/ICS training. For prerequisites, please see the course description at www.nwppa.org.

SUBSTATION SERIES: SUBSTATION BATTERY MAINTENANCE AND TESTING
Who Should Attend: Line and substation personnel, as well as engineers who have responsibility for distribution and transmission substations.

ICS-300, INTERMEDIATE INCIDENT COMMAND SYSTEM FOR EXPANDING INCIDENTS
Who Should Attend: Personnel expected to perform in a management capacity in an expanding incident that may require a higher level of NIMS/ICS training. For prerequisites, please see the course description at www.nwppa.org.
March 28–30, 2017 — Anchorage, Alaska

NRECA CCD 2610: UNDERSTANDING THE ELECTRIC BUSINESS
Who Should Attend: Directors, policy makers, and general managers.
March 29, 2017 — Lakewood, Wash.

NRECA CCD 2630: STRATEGIC PLANNING
Who Should Attend: Directors, policy makers, and general managers.
March 30, 2017 — Lakewood, Wash.

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.
April 10, 2017 — Reno, Nev.

Continued on page 10
NWPPA ENGINEERING & OPERATIONS CONFERENCE AND TRADE SHOW
Who Should Attend: Electric utility engineering and operations personnel, as well as those in information technology, safety, purchasing, environmental, accounting, communications, or any area where a more in-depth knowledge of engineering and operations would be beneficial. For more information, see page 6.

SENIOR LEADERSHIP SKILLS SERIES SESSION 2, SERIES 5 — LEAD YOUR TEAMS
Who Should Attend: Directors, managers, graduates of the Leadership Skills Series, and newly appointed senior leaders.
April 11–12, 2017 — Coeur d’Alene, Idaho

RAISING YOUR ENERGY IQ, 201 (FORMERLY UNDERSTANDING RESIDENTIAL ENERGY USAGE)
Who Should Attend: All utility employees can benefit from this course, especially those who interact with customers; employees who have the need to explain residential home energy consumption; and employees in member/customer service, conservation, marketing, community outreach, and renewable energy. Recommended, but not required, is completion of the Raising Your Energy IQ, 101 (formerly High-Bill Inquiries) class.
April 18–19, 2017 — Portland, Ore.

HARDENING WINDOWS NETWORKS
Who Should Attend: Network, server, desktop, and security administrators; and management-level individuals interested in this topic.

LEADERSHIP SKILLS #3: PERSONALITIES AND ATTITUDES IN THE WORKPLACE
Who Should Attend: Supervisors, managers, and employees who will be transitioning to a supervisory or managerial role in the future, and have completed Leadership Skills Session #1: Situational Leadership.
April 26–27, 2017 — Coeur d’Alene, Idaho

NUTS AND BOLTS OF WORK ORDERS
Who Should Attend: Employees involved in any aspect of preparing and/or processing work orders for their electric utility, or employees outside the accounting area who want a better understanding of the work order process.
April 27–28, 2017 — Coeur d’Alene, Idaho

Energy Northwest’s more than 1,000 employees pursue excellence in performance and innovation every day. We’re honored to receive this year’s award.
I am especially proud that in the closing days of 2016 our membership grew to 152 as we welcomed Heber Light & Power in Heber City, Utah; Wheatland Rural Electric Association in Wheatland, Wyo.; and Anza Electric Cooperative in Anza, Calif. I believe it is important to note that NWPPA has not had a Wyoming or Utah public power member for many, many years. We also increased our British Columbia membership by welcoming the City of Penticton and the District of Summerland. These new members are each preparing for the future as they make investments in their employees, their utility, and their communities through what NWPPA has to offer.

So what else happened in 2016?

Most importantly we continued our work as a premier workforce development and education provider – our core mission – for public power in the West. We delivered 236 classes in eight states (Washington, Oregon, Idaho, Alaska, California, Montana, Utah, and Nevada) with over 5,700 attendees, which is close to 30 percent of the employee base of all of our public power members. This is our second highest number of attendees in a single year and we couldn’t have done it without your support. Attendance for the Engineering & Operations Conference and Trade Show was one of the highest ever, but we also saw strong attendance at the Annual Meeting, Northwest Communications and Energy Innovations Conference (NIC), Power Supply, and 3 Cs. (Interested in attending a training event this year? Check out our 2017 Training Catalog on www.nwppa.org to see what is available.)

NWPPA continued to voice our membership’s concerns on federal legislative issues. For example, we had a successful west-wide reception in Washington, D.C., with PPC, OPUDA, WPUDA, OMEU, ICUA, Energy Northwest, NCFA, and several other western state partners from Southern California, Arizona, and Colorado. This reception was very well attended by congressional staff and public power representatives, and was a terrific opportunity to convey the importance of public power and our collective position on key energy policy issues to those who attended.

We backstopped the reception with our annual D.C. Rally to D.C. to meet with key congressional contacts in one-on-one meetings to discuss issues important to NWPPA members, such as rights of ways, hydropower, vegetation management, and wild fire funding. NWPPA sponsored and co-sponsored resolutions that were adopted at both APPA and NRECA for more than one of the above issues, and we were fortunate to be able to work directly with House and Senate staff on these issues as they evolved. Additional resolutions of note during the rally were municipal bonds, RUS funding, Endangered Species Act, and changes in Environmental Protection Act policy – the last of which will be decided in the courts.

While this congressional session ended without passage of significant improvement or progress on energy policy, we will continue to make our voice heard as the 115th Congress gets underway.

Back at the office in Vancouver, we published NWPPA’s weekly eBulletin and monthly Bulletin magazine without fail. These important communication tools keep our members informed about what others are doing via best practices and lessons learned. We hope you have noted the diversity of issues and utilities represented throughout the year; however, if we’ve missed a great story from your utility, let us know because we will always make room to talk about things our members are doing.

In closing out the year I want to say a heartfelt thank you for your continued support. We are doing well, and in many areas I would even say great! Nonetheless, we continue to strive to do better and do more. A couple of exciting opportunities for 2017 are partnering with Ruralite Services on a communications project (more to come), and working with members to better define and explore the challenges of rate design in a world of declining kilowatt-hour sales volume.

We understand and appreciate that you invest in NWPPA, and therefore we have the obligation to provide a return to you for that investment – whether through education and workforce development; giving voice to your concerns through the legislative process; or providing you with timely and useful information. Our commitment is to continue to fulfill this obligation in 2017 and beyond.

Be well,
Anita
Idaho Falls Power Completes Refurbishment of 1938 Hydropower Plant

Idaho Falls Power, a department of the City of Idaho Falls and one of the oldest public power utilities in the Northwest, is situated on the Snake River in Southeast Idaho. Its reliance on hydropower dates to its inception in 1900 when the city installed a turbine in an irrigation canal to power street lights when there was not a full moon. Today, IFP now owns and operates five hydroelectric facilities generating 56 megawatts for its 27,000 customers.

The oldest of its hydro projects, the Old Lower Plant, was built during the Roosevelt Administration in 1938 under the Works Progress Administration. This plant consists of two vertical Kaplan turbine-driven 1.8-megawatt generators. Its two turbines were a workhorse for the city for 73 years, even surviving the Teton Dam breach flood in 1976 that destroyed the other hydro facilities the city owned and operated at the time. In 2011 it looked as if the Old Lower Plant had reached the end of its life when a fault occurred in the transformer and extended to the stators of both units, disabling the entire plant.

Given the age of the generators, turbines, and the plant in general, IFP evaluated rebuilding the units to determine if it was an economically viable option. The analysis demonstrated a return on investment over a 35-year period using several energy cost scenarios. With an estimated rehabilitation cost of $7.8 million, the feasibility was deemed viable in all scenarios.

The rebuilding of the plant began in late 2013 with IFP staff disassembling the plant. Even though a catastrophic failure was the cause of the plant coming off-line, the equipment was well past end-of-life. For example, the turbines had lost a good deal of blade material; in fact, cavitation damage had carved holes completely through the blades in several locations. The stay vanes all had deep cracks, the wicket gate bushings were all but gone, and the electromechanical relays and governor control systems were in need of replacement.

To avoid short cuts on critical equipment in a state-mandated low-bid environment, IFP procured the major equipment components directly in independent bids and hired, through bid, a general contractor to manage the reassembly and commissioning.

While operations staff were disassembling the units, engineering staff collaborated with specialized consultants to develop specifications and a detailed Statement of Qualifications to ensure only qualified contractors would bid on the complex project.

IFP awarded the general contractor bid to Hydro Consulting and Maintenance Services in June 2014. HCMS's scope of work included cleaning up and repairing reusable parts, and installing the two new turbines, 4-MVA generation step-up transformer, and rewound generators.

By 2014, the major equipment was onsite: two new vertical Kaplan turbines from China Huadian Engineering Company, rewound generators from SIMMCO, and a new generation step-up transformer from WEG in Mexico.

HCMS installed the new transformer, breaker, and foundations at the substation to deliver generation to IFPs grid. HCMS installed the rehabilitated wicket gates, head cover, bridges, bearings, turbines, generators, governors, and all of the electrical protection and control equipment. Construction took 13 months to complete and the plant began generating power again on August 27, 2016, during testing.
HCMS completed the testing and commissioning and handed IFP the keys to the newly rebuilt plant on September 9, 2016. IFP invited the business community through the Chamber of Commerce to a ribbon-cutting ceremony on September 22 to celebrate the plant’s return to service.

Since being commissioned, the plant has already shown improvements in efficiency and power by producing more than what was capable before the rebuild, from 3.3 megawatts to 3.6 megawatts now.

IFP continues to test the plant’s output to better understand how much additional generation can be achieved, particularly in low-flow periods through adjustment of the turbine blade pitch and wicket gate opening.

The Old Lower Rehabilitation project took two and a half years and was completed at a total cost of approximately $7.2 million, including consulting, installation, testing, and the new equipment. The total cost is $600,000 less than the feasibility study figure used to determine the viability of the rebuild, icing on the cake for an already successful project.

As with every large project, there are learning opportunities. The most significant lesson for IFP engineering staff is the importance of project planning to develop strong and complete specifications, particularly absent a thorough set of record drawings. Although the specifications for this project were thought to be very comprehensive – more than 300 pages – gaps were discovered as the work progressed. Defining in as much detail as possible all those activities that fall within the scope of the project will limit the number of potential change orders and disputes later. Also, more clearly defined roles and responsibilities of the owner and contractor would have alleviated confusion in areas of the project.

All in all, IFP is pleased with the outcome of the project and thrilled to have retained the service of a facility that has been a significant part of our rich hydro heritage.

John Barksdale, PE, PMP is an electrical engineer at Idaho Falls Power and can be reached at jbarksdale@ifpower.org.
Are Utility Pole-Mounted Cameras Unlawful?

The recent occupation of the Malheur Wildlife Refuge in Eastern Oregon produced no shortage of unusual scenes. Among them was occupier Levoy Finicum scaling a utility pole near a power transformer and prying open a white box attached to the top. Inside the box were two video cameras – apparently used to monitor the activities of the occupiers. The cameras were tossed to the ground and denounced by the occupiers as further evidence of the invasion of their freedom and privacy by a government unmoored from its Constitutional limitations.

In this instance, the Malheur occupiers actually may have had a valid point. At least one federal court has held that the government may not – without first obtaining a search warrant – use utility pole-mounted video surveillance cameras in a manner that continuously records the activities of individuals on private property, where they have a reasonable expectation of privacy. Of course, whether or not one’s expectation of privacy is “reasonable” is both highly subjective and fact-specific. Another recent federal appellate court decision found – under very similar circumstances – that no warrant was required in order to place a camera on a utility pole.

For utility pole owners, these conflicting federal court decisions do not send a clear signal of whether consenting to the installation of such pole-mounted cameras would violate the Constitutional rights of their customers. For example, could a pole owner face potential legal liability for granting permission to install a surveillance camera, which is later found to be an unlawful search and seizure? On a more practical level, do pole owners really want either police detectives or “patriots” shimmying up and down their poles to install and remove cameras? This article will discuss the state of the law as it applies to utility pole-mounted surveillance, and offers “best-practices” for pole owners to use to mitigate potential legal liability.

The government’s power to pry into the private lives of individuals is directly limited by the Fourth Amendment.
home, such that law enforcement was required to obtain a search warrant. The federal court found that Mr. Vargas reasonably expected that his private activities in his front yard would not be subject to such constant, covert surveillance. The judge believed that the fact that Vargas socialized and even urinated in his yard indicated an expectation of privacy. None of the evidence found by law enforcement upon executing the subsequent search warrant would be admissible to prove the criminal charges.

6th Circuit Court of Appeals Decision

In a similar case, the U.S. Court of Appeals for the 6th Circuit found that the defendant did not have a reasonable expectation of privacy while in the front yard of his farm in rural Tennessee. The ATF, acting without a search warrant, installed a video camera on a utility pole about 200 yards from the farm of defendant Houston. The video feed was operated continuously for 10 weeks. The video captured images of Houston outside and near his home while on his property. Based on the video evidence, the ATF obtained a search warrant and ultimately found more than 25 firearms on the property.

Unlike the Vargas case, the 6th Circuit found that the ATF’s continuous and covert surveillance of Houston’s property and the outside of his home did not violate the Fourth Amendment. The 6th Circuit found that Houston had no reasonable expectation of privacy with respect to any activity that could have been viewed by passersby on public roads. The Court was persuaded that the ATF could have stationed an agent at the top of the utility pole 24 hours a day, 7 days a week, for 10 weeks to observe Houston’s property. The ATF should not be punished, therefore, for choosing to conduct such surveillance using a camera rather than in person.

Best Practices for Pole Owners

These two cases, although interesting, do not offer pole owners much guidance when law enforcement requests access to poles for surveillance purposes. Although the 6th Circuit is the higher court, its decisions are not necessarily binding in other circuits. Further, each of these cases is highly fact-specific. It would be too much to ask pole owners to try to judge whether a search warrant is required prior to granting access in any particular instance.

Always require a search warrant

Because it is difficult, if not impossible, to tell whether or not a search warrant is required, my first advice to pole owners would be to always require a search warrant as a matter of policy. When there is a valid search warrant, there can be no Fourth Amendment violation. Thus, the utility is on very safe ground allowing access to its poles pursuant to and consistent with a search warrant. Further, by requiring a search warrant as a matter of policy, the pole owner at least has the assurance that the target of such surveillance has been vetted by an impartial magistrate. Likewise, the burden of obtaining a search warrant should be relatively small. It is unlikely that critical evidence would be lost or destroyed during the few days that it would take to obtain a warrant.

Require a license agreement

My second piece of advice to pole owners would be to require law enforcement to execute a license agreement prior to attaching any cameras or other facilities to a pole. The license agreement would be very similar to a pole attachment agreement—perhaps more narrowly tailored for the type of facility to be attached and the duration of the attachment. Such license agreement should, at a minimum, address each of the points highlighted below:

- **Identification of all poles and attachments.** As part of the license agreement, the attaching law enforcement entity should be required to clearly identify each pole to which an attachment will be made. Law enforcement should also specify the nature of the attachment—for example its size and weight, whether it requires a power supply, and any other details relevant to the safe use of the pole.

- **Attachment specifications.** The license agreement should set forth the pole owner’s technical specifications for such attachments. This will help ensure that the attachment is made and maintained in a safe manner by qualified persons, and that it otherwise complies with all applicable safety codes and standards.

- **Indemnity.** The license agreement should have a very strong and broadly worded indemnity provision. The indemnity should cover not only accidents that may be caused by the attacher or its attachments, but it should also expressly indemnify the pole owner against any legal action alleging an infringement of privacy rights. Given that the attacher is almost certain to be a governmental entity, the indemnity should not be subject to tort claim limits or any other statutory limitations of liability that may otherwise apply to the attaching entity.

- **Costs.** While the pole owner may choose to allow law enforcement access to utility poles on a temporary basis without charging a rental rate, pole owners are still entitled to recover their out-of-pocket expenses associated with administering the license agreement and facilitating (or making) the attachment itself.

Avoid Consenting to the Use of Poles Located on Private Property

Finally, I would advise pole owners to exercise additional caution with respect to poles that are located on private property (not owned by the pole owner) as compared to poles located in public rights of way. Poles are usually located on private property pursuant to an easement. By their nature, however, easements are limited in scope. A typical utility easement might allow the pole owner permission to install and maintain a pole on private property only for the purpose of providing utility services. Allowing law enforcement to spy on the property owner or its neighbors is clearly outside of the scope of providing utility services.

Richard Lorenz is a partner at Cable Huston LLP, a full-service law firm located in Portland, Ore. He can be contacted at rlorenz@cablehuston.com. This article first appeared in Western Energy Institute’s Spring 2016 WE Magazine and is being reprinted with permission.
You want to create a positive experience with consumers, both in person and online, but how can you ensure your website works well for everyone? By making sure members with vision, hearing, and mobility challenges can access and understand your online content.

Utility websites should consider following the Americans with Disabilities Act website accessibility guidelines. Wonder what an ADA-friendly website looks like? Here’s a great example.

Inside Peninsula Light’s Website Redesign

Peninsula Light Company in Gig Harbor, Wash., enlisted Ruralite Services to redesign their website, PenLight.org.

“We’re very pleased with the outcome,” said Jonathan White, PenLight’s director of marketing and member services. “We have gotten great comments from our staff and members. The end result was beyond my expectations.”

The new responsive design is mobile friendly, a great perk for PenLight members looking at the site on smart phones or tablets. But the biggest change was an eye toward ADA guidelines.

The old website design featured a rotating slideshow with text-heavy graphics, two navigation sections (a line at the top and a list of quick links on the left side), and a drop-down menu for services. These design choices made viewing the site difficult for members with vision and cognitive challenges.

Videos are not used on the site, but if they were, closed captioning would have been an issue, too.

The New Design Made Four Big Changes

To make sure anyone could easily understand content, PenLight removed graphics with heavy text overlays. Instead, program promotions (paperless billing, Project Help, Ambassador Program) use images with blocks of text underneath.

A slider with program marketing messages changed from automatically rotating messages to only advancing when an arrow is clicked.

Navigation was streamlined. Five buttons with the most common actions take center stage, with words under the button icons clearly explaining the content (Manage Account, One-Time Payment, Prepay Program, Power Outages, and Save Money and Energy).

Images were tagged with meaningful alternative text.

How Can Your Site Improve?

Some elements of a website, such as slideshows and PDFs, can be fixed once and require no further action. Other aspects, such as image tags, must be regularly maintained.

- **Pause-enabled slideshows.** Slideshows must have a pause function. Imagine how frustrating it might be to have a screen reader tell a consumer what one slide says, only to get interrupted when the next slide appears.

- **Rich-text documents:** PDFs present a problem for vision-impaired readers. Since most PDFs are one big image, screen-reading software cannot read them. Consumers who use text enlargement programs are also out of luck. We recommend publishing documents in HTML or another rich-text format in addition to the PDF format.

- **Image tags:** When you upload an image to your website, you can add a caption and alternate text. No matter how you describe an image, put something in the alternate text box. Otherwise screen readers read out the location of the image file instead. Wonder how many of your website’s images need alt text? Use WAVE (wave.webaim.org), a basic website accessibility evaluation tool. Plug in your website address to see what alternate text pops up for your images. But this tool is not foolproof — far from it. Users often assume everything they see is a cause for concern, but often flags can be false positives. There are also issues WAVE often does not pick up that can be cause for alarm. Human eye review is the best approach; the WAVE tool is just a starting point.
When you look beyond simple structural changes, website accessibility is more art form than science.

Consider image tags. Every time an image is added to a website, it must be tagged with a description of what the image shows. How do you make those tags meaningful? Do you describe the colors of a sunset by a soaring mountain or simply say the image depicts a mountain with the sun setting nearby?

Website managers who take the time to tag all images with alternate text are 80 percent of the way to website accessibility. But this is an ongoing effort, much like cutting your grass. Websites are dynamic, and must be maintained.

Whoever creates content for your website plays a big role. Train everyone involved with the website to keep accessibility in mind.

Charlie Stanley is the website solutions manager at Ruralite Services, Inc. and can be contacted at support@ruraliteservices.com.
Flowers Named One of Idaho’s 2017 Women of the Year

More than 200 Idaho women were nominated by peers, colleagues, and mentors to vie to be one of the Idaho Business Review’s 2017 Women of the Year. Ninety-five of those nominated completed and sent in detailed applications that included resumes, letters of recommendation, and personal statements. Ten selection committees evaluated the applicants.

One of the 50 women receiving the award is Idaho Falls Power General Manager and NWPPA Board of Trustees Second Vice President Jackie Flowers. Flowers has been the general manager of Idaho Falls Power for the past 10 years.

These 50 women will be honored at a reception, dinner and awards gala on March 9 at the Boise Centre. One woman of the 50 will be named at the end of the evening’s event and honored as the Idaho Business Review Woman of the Year. A dedicated magazine featuring all of their stories will be published with the March 10 Idaho Business Review.

This marks the 12th year that Idaho Business Review has honored women leaders in the state.

Okanogan PUD Celebrates Linemen, Morris

In October, JD Adams, Rod Little, Micah Somes, and Eric McKinney represented Okanogan PUD (Wash.) as one of 206 teams that attended the International Lineman’s Rodeo in Bonner Springs, Kan. The Okanogan PUD team participated and placed well in the Journeyman Best of the Best competition, the Hurtman Rescue, Pole Climb, and Mystery Events.

The next month, during the regular Okanogan PUD Board of Commissioner meeting on November 21, General Manager John Grubich presented a 15-year Service Award to Mindy Morris for her service to the utility. Morris is currently the customer records specialist headquartered in the Okanogan office.

NLI Breaks Ground on Community Solar Project

This spring, Northern Lights (Sagle, Idaho) will be building the first cooperative community solar project in Idaho. The 50-kilowatt solar system is expected to produce approximately 165 kilowatt-hours of electricity per year per unit.

The community solar project was originally conceived by the NLI Board of Directors and given the go-ahead based on the level of interest and desire to support solar shown by many co-op members.

NLI’s power supply currently comes from the Bonneville Power Administration and NLI’s Lake Creek dam. This community solar project is a step in examining additional renewable energy sources.

NLI is offering their members the opportunity to purchase shares of the solar project and to receive energy credits based on its production. There will be 386 units available for NLI members to purchase, with the subscription cost being $300 per unit and a maximum of five units per member. NLI members will have the option of financing the cost over 12 months on their electric bill.

“We are excited about community solar, which will allow NLI members to benefit from this increasingly popular source of electricity, while providing educational opportunities for local residents and experience for NLI as we plan for the future,” said NLI Board President Steve Elgar. “The NLI Board is committed to this project. Every NLI director is purchasing shares in the community solar project.”
Lassen MUD Names 2016 Employee of the Year

Lassen Municipal Utility District (Susanville, Calif.) is pleased to announce the 2016 LMUD Employee of the Year: IT Manager Nick Dominguez.

Dominguez joined the LMUD team in January 2013 as the district's first IT operations technician. New to the utility industry and armed with a bachelor's degree in computer science from UC Davis, Dominguez brought a fresh outlook to the district's IT needs and challenges. In the short time he has been with the district, he has implemented programs and policies that have moved LMUD into the 21st century.

LMUD General Manager Doug Smith said, “Nick is an extremely valuable part of the LMUD team, over the past year he has taken the initiative to successfully manage several key projects for the district, including the automated metering infrastructure, the implementation of the supervisory control and data acquisition system (SCADA), and the GIS mapping of the district's electrical system.”

“I'm lucky to be part of such a great group of people,” said Dominguez. "Not only at LMUD but the entire public power sector is full of amazing and talented individuals. I truly enjoy every day.”

Washington PUDs Recognize Hydropower

Mason PUD No. 3 (Shelton), Mason PUD No. 1 (Shelton), Benton PUD (Kennewick), Franklin PUD (Pasco), and Clallam PUD (Carlsborg) raised awareness of the value of hydropower by passing resolutions proclaiming December 15, 2016, as Hydropower Appreciation Day.

In recognizing the value of hydropower, the PUDs noted that hydropower is the Northwest's premier clean, renewable, and reliable resource, providing nearly 60 percent of the region's electricity and 90 percent of its renewable energy.

In addition, a press release from Franklin and Benton PUDs highlighted the additional benefits of hydropower, stating, “Hydroelectricity is the crown jewel that makes renewable power sources like wind and solar work in the Pacific Northwest. Hydropower can be called on at a moment's notice to fill in the gaps when there isn't enough wind or sun to generate electricity. Clean, reliable, and renewable energy is the reason big companies like Google, BMW, REC Silicon, and others have located operations in our region. This helps reduce their carbon footprint, save money on operations, and raise their status among their competitors.”

Chelan Employees Honored for Service

Two Chelan County PUD (Wenatchee, Wash.) employees were honored last month by state and regional utility organizations for bringing people together to help PUD customer-owners and help save energy across the region.

Scot Erickson, Customer Service supervisor, received the William T. Elmgren Public Service Award Thursday from the Washington PUD Association (WPUDA) at the group's annual meeting in Vancouver, Wash. Andrew Grassell, Energy Development/Conservation manager, received the Leadership in Energy Efficiency Award for Collaboration the same day in Portland, Ore., from Northwest Energy Efficiency Alliance.

Erickson is nearing his 30th anniversary with Chelan PUD. His career at Chelan PUD includes work as an auto mechanic and a meter shop foreman before moving to customer service in 1995. Now he supervises the utility clerks in the District's offices in Chelan and Leavenworth, and is a liaison with key commercial and industrial customers. Erickson was organizer and chief volunteer for numerous PUD community activities, including United Way, Habitat for Humanity, Rebuilding Together and Wenatchee's award-winning Make A Difference Day.

Grassell joined Chelan PUD in 2000 and received honors for co-chairing a collaborative group of more than 40 people charged with developing a long-term, regional strategy for accelerating energy efficiency in the consumer products market. The leadership skills needed to help the diverse group reach its goal to lay out an achievable plan is no surprise to Grassell's supervisor.

“Andrew’s approach to bringing people together and helping them succeed is evident in the leadership he’s shown here and at the utility organizations where he represents Chelan PUD,” said Gregg Carrington, Energy Resources managing director.

Randy Payne Joins Skamania PUD

Skamania PUD (Carson, Wash.) announced that they have hired Randy Payne to the position of manager of Finance & Administration.

Payne performed similar roles with Tidewater Barge Lines and the Port of Skamania County. His combined private and public sector work experience provide a strong background for helping the PUD strive to meet its goal of providing the best possible utility service at the lowest cost consistent with sound business principles.

Payne received his Bachelor of Science degree in accounting from Portland State University.

(R-L) LMUD IT Manager Nick Dominguez and LMUD General Manager Doug Smith.
SVP Field Workers Reach 1,000-Day Milestone

Over the holidays, Silicon Valley Power (Santa Clara, Calif.) employees hit a 1,000-day milestone without accidents or injuries requiring someone to miss a day of work. SVP field workers perform all the tasks needed to keep the local electrical grid up and running, including power line, power pole, and substation maintenance and repairs; power outage response; and services to business and residential customers whose electric service requires attention from their utility.

The 1,000th day without a mishap was December 3. “Workplace safety is our highest concern,” said SVP Transmission and Distribution Division Manager David Padilla. “While every member of our field staff is responsible for keeping that in mind, it really takes a team effort to make it happen. Concentrating on the job at hand while looking out for fellow workers is a very effective way to avoid mistakes and accidents on the job.” NWPPA

Energy Northwest Named Employer of the Year by AWB

The Association of Washington Business award caps a years-long effort by Energy Northwest (EN) to improve employee engagement and work-life balance; rededicate its efforts to be a military-friendly employer through focused veteran recruitment and hiring programs; and to promote STEM education in its community.

“We have a focus on selecting, developing, and retaining the right people, and I believe this award certainly reflects those efforts,” CEO Mark Reddemann said. “This award also acknowledges the importance of promoting workforce diversity through hiring programs, such as internships and veteran hiring. As a 24/7 operation, I especially want to thank the family members of our workforce for their understanding and support.”

From the AWB news release: “Twenty employers from across the state were honored and six took home top awards in the Association of Washington Business’ first-ever Evening of Excellence awards program in Seattle. Each employer was recognized for exemplifying the community spirit and stewardship that make Washington a great place to live and work.” NWPPA

Clallam PUD Establishes Heroes Award

At its November 21 commission meeting, Clallam County PUD (Carlsborg, Wash.) commissioners passed a resolution establishing a PUD Heroes Program. After the resolution was unanimously passed, the first two recipients of the award were honored: Joe Helvey, a journeyman lineman, and Sam Parks, a line foreman.

On the morning of April 27, Helvey was about to drive across a recently completed bridge in Port Angeles when he noticed a young woman starting to climb over the railing. His reaction was to slam on the brakes and quickly run towards the woman. As he reached the woman, she was over the rail and just hanging on but ready to let go. Helvey reached out and grabbed her wrist and pulled with all that he had. The local law enforcement soon arrived and took control. Helvey gathered himself and walked away quietly back to his vehicle.

On the evening of August 29, one of Clallam County PUD’s employees suffered a medical event that caused him to lose consciousness while driving home. As he crossed into oncoming traffic, Parks was two cars behind and noticed what had happened and stopped to render help. He automatically went into action along with others that soon arrived; the doors were locked so they broke the windows and Parks started CPR. Medical aid arrived and between the two they worked on him. When the aid left for a defibrillator, Parks worked on the victim by himself. The employee survived and said that he owes his life to his coworker. NWPPA

Alex Miller Hired at Cowlitz PUD

Cowlitz PUD (Longview, Wash.) has announced that Alex Miller is the new director of regulatory and regional affairs. Miller will be responsible for managing, coordinating, and implementing intergovernmental activities for the District; he will serve as the PUD’s primary representation to the various federal, state, local, and elected bodies of importance to the District. Miller will play a key role in coordination of District-wide objectives.

Cowlitz PUD Board President Dena Diamond-Ott looks forward to bringing Miller on board. “We are excited to have Alex join the Cowlitz PUD team,” she said. In 2017, Cowlitz will be facing many regulatory issues that will increase costs to the District. Our hope is with a strong presence in Olympia we will be ready to fight for our customers and help reduce any negative regulatory impacts.”

Miller previously served as vice president of regulation and treasurer at NW Natural in Portland, Ore. Prior to that, he was vice president of Business Development at PacifiCorp. Miller has 35 years of experience in the utility industry focused on regulatory affairs and finance.

Miller began on January 5, 2017. NWPPA
Tillamook Hires Simmons as New GM

The Tillamook People’s Utility District Board of Directors hired Todd Simmons as the PUD’s new general manager, effective January 3, 2017. Simmons has 25 years of experience working in the utility industry, including 10 years with Pacific Gas & Electric and the last 15 years with Eugene Water & Electric Board. In addition to other duties at EWEB, he managed gas, electric, and water operations.

Simmons is very active with emergency management; he was the FEMA Region 10 coordinator for the APPA Mutual Aid Working Group and participated on the Western Regional Mutual Aid Group. He has been a national firefighter and served as an emergency medical technician for 11 years with Lane County Fire District #1. Simmons was also a board member of the Oregon Water and Wastewater Agency Response Network.

Kay Replaces Geddes at Lewis County

On December 20, 2016, during their regularly scheduled commission meeting, the Lewis County PUD (Chehalis, Wash.) commissioners appointed Daniel Kay to replace Bob Geddes to serve as the manager of Lewis County PUD.

Kay graduated from WSU with a Bachelor Degree in electrical engineering and a Master Degree in business administration. Kay became part of the PUD family in 1994 as its electrical engineer; in 1999, he obtained his Professional Engineer license and advanced to the system engineer position at the District. He was further promoted in 2007 to the engineering manager position. As the manager of Lewis County PUD, Kay will serve under the direction of the three publicly elected PUD commissioners.

Geddes, who retired at the end of the year, worked as the manager of Lewis County PUD since December 2011. As manager, he oversaw all aspects of the operation of the PUD, including the Cowlitz Falls Hydroelectric Project. Geddes came to Lewis County PUD from Pend Oreille PUD after serving as their manager for about 12 years. The commissioners and staff at Lewis County PUD wish him the best in his retirement.

Hatfield Auditorium Dedicated at Pacific PUD

Pacific County PUD (Long Beach, Wash.) celebrated the PUD’s newly constructed Willapa Operations Center with a ribbon-cutting ceremony last month. The 6,200-square-foot addition attaches the PUD’s main office to the warehouse, and includes five new offices, a new board room/auditorium, and restrooms.

Along with the addition, the PUD’s existing board room/auditorium was remodeled into a records retention room and a small conference room. Although the addition is not fully completed, the PUD had planned the event months in advance to dedicate the new auditorium to Ron Hatfield, the PUD’s second-longest-serving commissioner. He served for 28 years and is completing his final term in office this month.

ORECA Honors Werner Buehler

Last month, the Oregon Rural Electric Cooperative Association (ORECA) held its 74th annual meeting at the Grand Hotel in Salem. The day culminated with Oregon Trail Electric Cooperative Executive Vice President and General Manager Werner Buehler receiving ORECA’s highest honor: the Distinguished Service Award.

“This is an honor we bestow on the elite of the elite and Werner is indeed one of the groundbreakers of our industry,” said ORECA Executive Director Ted Case. “Werner is just a tremendous person with a great heart and with over four decades in the business I have called on his expertise many times over the years. He’s got so much knowledge in his head and I know I’ve just got to extract every little bit that I can before he retires.”

“Forty-six years is a long time and nobody who makes this journey does it by themselves,” said Buehler. “I feel so honored and appreciative of all of those who have taught me, supported me, and brought me to this point.”

Buehler is set to retire in early 2017.

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**PowerSafe® OGi Batteries Released by EnerSys®**

EnerSys, the global leader in stored energy solutions for industrial applications, has expanded its line of backup power solutions for the utility and renewable energy industries with PowerSafe® OGi batteries. The multi-cell design reduces the rack footprint and is ideal for tight space requirements. PowerSafe® OGi batteries provide space savings and reliable service life in standby float applications.

“Space is often at a premium in battery rooms – especially in older facilities as power demands exceed existing space,” explained George Brendahl, marketing manager of nuclear and utility at EnerSys. “PowerSafe® OGi batteries have a smaller footprint than traditional vented lead acid batteries, requiring less rack space and delivering more power per square inch.”

Its low-antimony alloy plates provide improved cycling performance over traditional lead-calcium batteries and extend watering intervals approaching the levels of typical calcium cells.

EnerSys manufactures and distributes reserve power and motive power batteries, battery chargers, power equipment, battery accessories, and outdoor equipment enclosure solutions to customers worldwide. For more information on EnerSys, visit www.enersys.com.

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**Varasset Version 5.7 Released**

Accent, a Northwest IT firm specializing in utilities, has released version 5.7 of its highly successful Varasset software platform.

Varasset is used by power and communications companies across the U.S. for asset management, work management, and utility pole attachment joint use. Varasset’s highly configurable architecture easily accommodates each utility’s unique workflows.

A few highlights from the latest release include debut of Varasset MXAM – Varasset Mobile Work & Asset Management; integration with Microsoft Power BI; and improvements to the Varasset Platform such as extended help-system functionality supporting all modules, cascading picklists on dynamic attribute grids, and run SSRS reports from plugins.

Varasset’s core functionality includes asset management, work management, mobile work/inspections, integrated Esri mapping, specialty billing, and business intelligence and data analysis.

Accent Business Services is a Northwest IT firm specializing in utilities. For more information, please visit www.varasset.com.

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**T&B Launches New Corrosion-Free Product**

Thomas & Betts (T&B), a member of the ABB Group, has launched T&B® Fittings Sand Cast Aluminum Form 7 Conduit Bodies, made of CorroStall® aluminum alloy, which is among the most corrosion-resistant aluminum alloys. After 1,200 hours of five-percent salt fog testing, the CorroStall aluminum alloy enabled the T&B Fittings Sand Cast Aluminum Form 7 Conduit Bodies to remain free of red rust and surface pitting.

In addition to the superior corrosion resistance of the CorroStall aluminum alloy, the selection of T&B Fittings Sand Cast Aluminum Form 7 Conduit Bodies is available in all common styles and sizes, as well as LU, the universal conduit elbow that is unique to T&B, which replaces styles LL, LR, LB, and C in most applications.

T&B Fittings Sand Cast Aluminum Form 7 Conduit Bodies are recommended for electrical systems in harsh environments, especially where salinity or chemical compounds are present.

Thomas & Betts Corporation is a global leader in the design, manufacture, and marketing of essential components used in utility, industrial, commercial, and residential applications. For more information about T&B Fittings Sand Cast Aluminum Form 7 Conduit Bodies, please visit www.tnb.com and select T&B on the “Brands” tab, or call (800) 238-5000.

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**FLIR Launches Five New Thermal Cameras**

On January 4, FLIR Systems, Inc. announced the launch of five new thermal imaging cameras, including two new third-generation FLIR ONE thermal camera attachments for smartphones, two new dual sensor thermal cameras for drones, and a ruggedized compact thermal camera for home and building inspectors. All five products feature FLIR Lepton®, FLIR’s revolutionary thermal microcamera core, and FLIR’s patented multispectral dynamic imaging (MSX®) technology, which dramatically improves image quality and readability by dynamically embossing high-fidelity, visible-light details onto the thermal imagery.

“These innovative new thermal imaging devices further extend the utility and value of low-cost thermal imaging into consumer and small business applications,” said FLIR President and CEO Andy Teich. “Thermal imaging is more accessible than ever today thanks to our continued effort to make the technology smaller, more powerful and more affordable. We’re excited to provide a thermal imaging ‘sixth sense’ with the third generation FLIR ONE, FLIR Duo for drones, and FLIR C3 camera for professional users.”

FLIR Systems, Inc. is a world leader in the design, manufacture, and marketing of sensor systems that enhance perception and awareness. For more information, go to www.FLIR.com.
Ted Case Named Ruralite’s 2016 Communicator of the Year

Ruralite Services is pleased to announce Ted Case as its Communicator of the Year for 2016. Case is the executive director of the Oregon Rural Electric Cooperative Association, based in Wilsonville, Ore. Among his many responsibilities is providing content for Ruralite magazine, ORECA’s monthly publication for its members.

In selecting Case for the award, Ruralite editors cited his well-written, informative features on interesting topics and people; monthly thought-provoking columns; and genuine interest in serving ORECA members.

“Every month, I look forward to seeing who and what Ted is going to share with his readers,” said Ruralite Assistant Editor Jennifer Brown, who coordinates production of the magazine for ORECA. “His enthusiasm for writing is both obvious and contagious. He is committed to keeping his members informed and entertained.”

Since 1954, Ruralite Services members have pooled resources to create powerful (and affordable) communications tools, including magazines, newsletters, reports, calendars, directories, social media support, websites, and more. For more information, visit www.ruraliteservices.org.

Novinium Hires Four New Employees

On December 2, Novinium, an end-to-end safety and reliability solutions provider for utilities, announced the hiring of four new team members. The new hires are James Schlagenhaft, Jason McCary, Chris Forbis, and Lee Getzewich.

Schlagenhaft is the new regional operations manager for the Southwest region. In this position, he is responsible for providing leadership, supervision, and technical expertise across area managers in the Southwest region.

McCary is a chemist and will work with Novinium to aggressively expand its research and development initiatives and help bring new technologies to market. He comes to Novinium from the aerospace industry where he was a formulations scientist focused on explosives research and development.

Forbis joins Novinium as a controls and instrumentation engineer. He will be part of a dedicated team focused on improving capabilities in design, implementation, controls measurement, and instrumentation system for Novinium products.

Getzewich is a project manager in the engineering division. He will be responsible for project management and development of new products for Novinium.

Novinium provides underground cable rehabilitation for more than 300 utility customers across the globe. For more information, visit www.novinium.com.

NISC Teams with Survey & Ballot Systems

National Information Solutions Cooperative (NISC), a leading provider of technology solutions to utility and telecommunications organizations worldwide, announced seamless customer integration with Survey & Ballot Systems (SBS), a leading provider of election services to member organizations.

“The integration with SBS is a prime example of integrating technology for the betterment of engaging members with their cooperatives,” said NISC Utility Solutions Product Line Manager Nate Boettcher.

Cooperatives that utilize both SBS and NISC solutions will now have the ability to provide their members with an easy way to promote their board elections. Those members will be able to log into SmartHub and cast their member vote alongside making a payment or viewing their usage.

“We’re excited to be partnering with NISC, an organization we consider to be truly innovative. This is a wonderful opportunity for SBS to help NISC members improve their elections with secure and easy voting,” said Peter Westerhaus, vice president of SBS.

NISC provides advanced solutions, services, and support to more than 800 independent telephone companies, electric cooperatives, and other public power entities. Additional information can be found at www.nisc.coop.

2017 NWPPA Conferences

Mark your calendar now to attend these upcoming conferences!

NWPPA ENGINEERING & OPERATIONS CONFERENCE AND TRADE SHOW
April 10–13 — Reno, Nev.

NWPPA ANNUAL CONFERENCE AND MEMBERSHIP MEETING
May 7–10 — Sunriver, Ore.

NORTHWEST COMMUNICATIONS AND ENERGY INNOVATIONS CONFERENCE (NIC)
September 17–20 — Sacramento, Calif.

LABOR & EMPLOYEE RELATIONS GROUP (LERG) ANNUAL MEETING
October 11–13 — Spokane, Wash.

3 Cs CONFERENCE
October 25–27 — Spokane, Wash.

NWPPA/APA ALASKA ELECTRIC UTILITY CONFERENCE
November 13–15 — Anchorage, Alaska

For more information on these and other events, go to our 2017 Event Catalog on our website at www.nwppa.org.
In an Era of Uncertainty, Count on Action in the 115th Congress

After public sentiment favoring change in Washington prevailed in November, the coming year promises exactly that – dramatic change in policy direction and in political discourse, with a heavy dose of uncertainty to boot.

January’s inauguration ushers in not just a new administration, but a new political reality with the ascension of Donald Trump to the presidency. A person with little taste for political norms and, at times, open contempt for a government he saw as incompetent and corrupt, President-elect Trump embodies a decision-making style that remains unpredictable to most.

That may change, too, as Trump settles in to his new role and the structures and pace of democratic policymaking temper his approach. One thing that is clear is that despite conflicts and questions, the alignment of Republican power in Congress and the White House will foster significant activity in the 115th Congress. That means NWPPA members will need to be on high alert to weigh in on fast-moving and often-changing policy dialogues.

Lights, Camera, Tension in Early Hearings

The first order of business will be Senate confirmation of the new president’s cabinet and political appointees. The process may highlight simmering tensions concerning not only individual nominees’ fitness and positions, but also potential conflicts of interest and Russian influence.

However, the political theater may not be quite as spectacular with respect to nominees for agencies of interest to NWPPA and the electric sector, and may provide opportunities to get key policy questions answered.

Texas Gov. Rick Perry, the nominee for Energy secretary, can expect sharp questions about whether he still intends to abolish the department he has been tapped to lead (doing so would require an act of Congress). Senators will also likely try to find out more about the administration’s plans to restart Yucca Mountain and how to interpret a transition team memo requesting the names of individual civil servants who worked on climate issues.

The Interior secretary nominee, Rep. Ryan Zinke (R–Mont.), should face less-pointed scrutiny, although there may be lingering questions about allegations of improper travel voucher use. His confirmation hearings will likely serve as a platform for Senate Democrats to criticize the Trump Administration for its stance on endangered species and its intent to boost oil, gas, and coal extraction, but few expect meaningful opposition to conservation-minded Zinke.

Not so for the lightning-rod nomination of West Virginia Attorney General Scott Pruitt to lead the Environmental Protection Agency (EPA), an agency he is currently suing. Pruitt will likely be asked about how, exactly, a Trump EPA will walk back from the Clean Power Plan and how far environmental protection will be rolled back under his tenure. Much of this debate is expected to play out in the courts, making Pruitt – a top attorney – a smart choice for Trump.

This Is Not a Drill: Municipal Bonds at Risk in Tax Reform

Even before the Senate begins processing nominations, the House is likely to move on a long-awaited overhaul of the tax code. GOP members of the Ways and Means Committee met in December to map out plans to pass a reform bill using “reconciliation” procedures, which allow major legislation to pass quickly, with a simple majority in the Senate.

The framework for such a bill is likely to come from the blueprint released by Ways and Means Chair Kevin Brady (R–Texas) and Speaker Paul Ryan (R–Wis.) in June 2016. That draft is short on specifics, but public power advocates have drawn strong inferences that the tax exemption for municipal bonds is likely to be repealed or modified to raise revenue for the overhaul. Conversations with members and staff close to the negotiations confirm that municipal bonds are very much at risk.

Although NWPPA and others in public power have spent years educating members of Congress on the importance of municipal bonds, more outreach will be needed now that tax reform is on a fast track. If municipal bonds are included as revenue raisers in initial drafts, it will require herculean efforts to remove the provisions and titanic pressure to sink a final bill that includes them.
Regulatory U-Turn May Cause Whiplash

Congress and the newly installed Trump Administration will also focus early efforts on undoing Obama-era regulations. In Congress, significant attention has focused on the Congressional Review Act, which allows expedited consideration of legislation to scrap any regulation issued within a certain time frame – in this case, some 140 regulations that came out after May 2016 would be subject to repeal.

Most of the regulations of greatest interest to NWPPA are older than that, however, and will need to be revisited through different means. Rules currently being challenged in the courts, such as the Waters of the U.S. rule and the Clean Power Plan, may be more difficult to undo and could land the Trump Administration back in court, facing a different set of challengers.

Despite the complicated legal status, the outcome for those two rules is clear: neither will go forward as designed. That may provide relief for many utilities, particularly those concerned about new permitting requirements under the Waters of the U.S. rule. The Trump Administration is expected to be able to withdraw that rule and reconsider it.

The demise of the Clean Power Plan will impact states differently depending on their existing resource inventory and political response to the rule. Further, there remain significant questions about how the Trump Administration could proceed, and whether it would try to roll back the Endangerment Finding that, under the Clean Air Act, compels regulation of carbon dioxide.

Will Smoke Clear for Energy Bill, Infrastructure, Other Items?

With a jam-packed calendar in the first part of the year, it is not clear if or when Congress could move on other priorities, such as re-starting work on an energy bill along the lines of the one that died at the end of session in 2016. While the Senate Energy and Natural Resources Committee will be focused on nominations, the House Energy and Commerce Committee is expected to devote significant attention to replacing the Affordable Care Act. Those distractions may make action on an omnibus bill difficult, although it may be possible for smaller, non-controversial pieces to move individually. It is also not clear whether there is appetite or capacity in Congress to take on the major infrastructure bill President-elect Trump has touted, especially after cost estimates raised concerns among conservatives.

Several committees are planning to try and make progress on other areas of interest to NWPPA. House Resources Committee Chair Rob Bishop (R–Utah) has said he would like to move a dramatic overhaul of the Endangered Species Act, and the Agriculture Committees in both chambers plan to look at reauthorizing the Commodity Futures Exchange Commission, which governs commodity swaps utilities use to manage risk. With renewed concerns about hacking, cybersecurity will also continue to be an area of focus. It will be important for NWPPA to monitor these committees as legislation could move quickly.

Bright Spots: Administration Support for Vegetation Management, SMRs

The change in administration holds significant promise for two NWPPA priorities. The vegetation management provisions included in the House version of the 2016 energy bill may see new life when their lead sponsor, Zinke, takes the helm at the Interior Department. While legislation would still be required to shift liability from utilities for fire damages that occur when they have not trimmed vegetation, Zinke could direct agencies in his department to speed up approvals of utility requests to use federal rights-of-way to do so.

In addition, the Trump Administration appears poised to continue the Obama Administration’s support for one critical energy area: small modular reactors (SMRs). A memo from the transition team to the DOE asked several questions about how the new administration can support SMRs. That bodes well for the NuScale SMR project slated for the Idaho National Lab, which involves NWPPA members UAMPS, Idaho Falls Power, and Energy Northwest.

Known Unknowns

As the 115th Congress takes shape, action on these and other items may be upended by world events or changing political realities. There are several key tensions at play after the election that will not be easily or predictably resolved. And, if 2016 taught us one thing, it’s to be prepared for the unexpected.

Elizabeth K. Whitney is managing principal of Meguire Whitney, NWPPA’s Washington, D.C., consulting firm. She can be reached at either (207) 712-7521 or elizabeth@meguirewhitney.com.
The Energy Experience was the culmination of a vision of public utilities in the Tri-Cities, Wash., area to have a Mid-Columbia regional STEM-focused educational energy and environmental summit. The event targeted middle school students to create awareness and transfer knowledge about energy generation, production, safety, efficiency, conservation, environmental stewardship, and public power. An eager, committed planning team of public power professionals was recruited and soon expanded the event to include partners beyond public power to provide comprehensive education about the energy industry. Partners included NWPPA members Franklin PUD, Benton PUD, Benton REA, Energy Northwest, City of Richland Energy Services, and Bonneville Power Administration; as well as Benton Conservation District, Cascade Natural Gas, the Mid-Columbia Energy Initiative (MCEI) through TRIDEC (which is the regional economic development organization), Ben Franklin Transit, and The REACH Museum and Interpretive Center (the Tri-Cities’ area center for cultural, historical, and recreational attractions).

2015 was the first year of an ongoing partnership of regional energy partners to impart this critical knowledge to 7th and 8th graders in the Mid-Columbia region.

“The Energy Experience provided an opportunity for students throughout the Columbia Basin to interact directly with energy professionals,” said The REACH Museum CEO Lisa Toomey. “Most importantly, they are developing a keen understanding of the critical role our energy producers play in powering the Pacific Northwest.”

BPA Grant and Partner Funding Contributions

The REACH applied for and was awarded a $5,000 BPA Science and Energy Education Grant to help with event expenses as it was the venue for the event.

BPA Account Executive Larry Felton said, “This project was rated very highly of the roughly five top candidates for FY 2015 grant funding. All the elements were there to showcase this exciting new STEM-focused educational event.”

BPA offers grants to non-profit organizations, government organizations, and others working in education for K-12 grade students. The grants are available for projects that advance student awareness, understanding, and interest in the issues and science involved in energy generation and transmission in the Pacific Northwest. Projects could focus on hydroelectricity, wind, and other sources of electric power; methods of conserving electricity; environmental studies; engineering and technology studies and activities; and others. The intent of the grants is to support science, technology, engineering, and math (STEM) education with specific emphasis on electric utility issues.

Partners contributed exhibitor fees and in-kind support to plan and staff the event; prepare materials and handouts; and market the event to teachers. Approximately 50 partner employees participated on the day of the event and numerous others worked on pre-event activities.

Curriculum and Target Audience

The team selected an audience of 7th and 8th graders since middle school is a critical time to teach students about energy, fulfill core education standards, and help them understand environmental stewardship, energy efficiency, and conservation, as well as the role these can play in determining our energy future. The team focused on key themes of energy and energy production in the areas of hydropower, wind, solar, nuclear, natural gas, conservation, and also options for college and careers in energy and environmental science.

The Energy Experience Event

Over 600 7th- and 8th-grade students, teachers, and adult leaders attended the event on October 6, 2015, as part of the national Public Power Week celebration. Each exhibitor provided a hands-on, interactive learning station covering topics
about power generation; transmission and distribution, including hydro, nuclear, solar, and wind; natural gas; energy conservation and efficiency; and safety. Exhibitors introduced students to careers in the energy industry at the Career Corner inside, and through equipment displays throughout the venue, including bucket trucks, transformers, poles, power lines, gas pipes, electric circuits, and discussions with energy professionals.

Some of the exhibitors and exhibits included:

Benton PUD and the Benton Conservation District co-hosted an activity at the Energy Experience explaining hydropower. Students were surprised to learn that most of the electricity they use daily is generated at local dams. A brief overview of the hydropower generation process was given, as well as an explanation of how electricity is transferred from the dam to the points of use, such as schools and homes. Since local rivers are home to salmon runs, this activity also highlighted multiple safe salmon routes around dams, including penstock, spillway, juvenile bypass facilities, and fish ladders. Fish transportation around dams via barges and specialized semi-trucks was also explained. Students learned that local rivers provide both electricity and salmon habitat, and each student was rewarded with a gummy salmon candy.

BPA brought two of their largest bucket trucks to the event, and the students liked to suit up in the linemen’s safety gear and stand in the bucket truck. BPA linemen enjoyed answering questions about the equipment and safety in particular. Safety is the most important aspect for the BPA linemen, and they explained the importance of working safely to the students while being out in the field.

Franklin PUD brought their Traveling Renewable Energy Kiosk – known as TREK – to the event to give students a firsthand view of how renewable energy can power a home.

This rolling educational display includes a compressor for a ductless heat pump as well as photovoltaic electric solar panels which are mounted to the front and top of the trailer, producing electricity that is sent to the battery bank inside where the energy is stored. A 200-watt wind turbine is mounted on the outside rear of the trailer, which also charges the batteries when the wind is blowing.

The City of Richland’s exhibit was called Squishy Circuits. This was a hands-on exercise for the students where they used a battery (generator), conductive and resistive dough (power lines), LEDs, motors, and buzzers (loads) to configure different types of electrical circuits. Students built circuits to demonstrate short, parallel, and series circuits, and model how a distribution system operates. What a blast!

The REACH included a tour of the museum introducing students to the exhibits that focus on energy, including BPA, Energy Northwest, and the Columbia Basin Project—Grand Coulee Dam exhibits. Education curators provided detailed information to students about careers in the electric and gas utility industries and environmental science, and the high school and college coursework required. Columbia Basin College discussed its energy and STEM-related course offerings, including its Nuclear Technology Program.

Energy Northwest not only has a semi-permanent display at The REACH, which was a perfect backdrop for their exhibit to educate students about nuclear and wind power, but they also created a Scavenger Hunt for questions to be answered at each booth. Once completed, the students turned in their answer sheet for a goodie bag filled with energy trinkets. Some of the scavenger hunt questions ranged from 1) how many miles of high-voltage line is in BPA’s transmission system, to 2) how long ago did the Greeks build the temple to the Oracle of Delphi centered around natural gas? Do you know the answer?

(For the answers, go to page 29.)
With support from Energy Northwest, Washington Green Schools joined the Energy Experience to work with kids on smart energy choices. Using kill-a-watt meters, kids explored how much energy incandescent, CFL, and LED bulbs use in order to operate. This experience taught students that using more efficient options can save energy and money.

**Objectives Achieved**

The Energy Experience was a huge success, and the planning team achieved its primary objective to educate students and teachers about the energy industry and the countless ways it impacts their daily lives. The media ran numerous stories and news reports about the event, which further promoted the objective. Although not a primary objective, another positive outcome was the ongoing professional and personal relationships the team forged by collaborating on this effort.

“We pride ourselves on the plethora of energy resources right here in the Tri-Cities, including hydropower, nuclear, wind, and solar,” said Stacey Azure, Franklin PUD’s communications specialist. “We want to engage our younger generation by teaching them the benefits and challenges of all these resources. The Northwest today is an oasis of clean, renewable energy, the result of its hydro heritage – something we are proud of – dam proud that is!”

**Looking toward Our Future**

Participants and planners of The Energy Experience felt pride in the project when they saw the excitement and interest in the children at the event; however, recognition from their communication and public power peers also reconfirmed that they had done a great job. In September, the Energy Experience team was the proud recipient of the 2016 NWPPA first-place communications award in the Wild Card category at NWPPA’s annual Northwest Communications and Energy Innovations Conference. The team has already begun planning The Energy Experience 2017 and looks forward to creating another successful learning opportunity – for students and participants alike!

“We’re already making plans for The Energy Experience in 2017,” said Dawn Senger, Richland Energy Services energy specialist and the team leader of the 2017 event. “We’re building on what we learned from the first event and are planning an even better event later this year. We hope to see you there!”

Debbie Bone-Harris is the manager of Public Affairs at Franklin PUD in Pasco, Wash., and was the chair of the inaugural event. She can be contacted at either (509) 546-5973 or DBHarris@franklinpud.com.
Scavenger Hunt

Visit each station to find the answers to the questions below. Turn in your completed answers for a goodie bag before you leave today. Good luck!

**Station #1 - BPA (Bucket Truck, Bike & Photo Booth)**

How many miles of high voltage line is in BPA's transmission system?

More than 15,000 miles

**Station #2 - Cascade Natural Gas (Explosive limits of natural gas)**

A temple to the Oracle of Delphi was built in Greece above one of the most famous natural gas vents in history. These flaring gas vents were naturally occurring, yet often thought of as a supernatural phenomenon. How long ago did the Greeks build the temple centered around natural gas?

- a) Around 800 BCE
- b) After Mt. Vesuvius erupted in 79 AD
- c) 1896 for the Athens Summer Olympics

**Station #3 - Richland Energy Services (Seashy Circuits)**

Does electricity flow through an opened or closed circuit?

Closed circuit

**Station #4 - Benton REA (Lighting Display and Conservation)**

What does the abbreviation LED stand for?

Light-emitting diode

**Station #5 - Franklin PUD and Ben Franklin Transit (Traveling Renewable Energy Kit and Electric Bus – Solar/Wind)**

Name three sources we get our local power/energy from.

Hydro, Nuclear, Wind
### JOB OPPORTUNITIES

The Job Opportunities is a service provided to NWPPA member systems and associate members. Member price is $115 per listing for a 30-day period.

- Job Opportunities ads are also accepted from non-members. Ads are $350 per listing for a 30-day period.
- **Copy must be received before the 25th of the month prior to the month of publication** (for example, February 25 for March issue).
- The Bulletin is mailed by the 15th of each month.
- Complete the online Job Opportunities ad placement form at www.nwppa.org.
- NWPPA reserves the right to edit all listings in order to fit size requirements in the publication.

For more detailed listing information, visit www.nwppa.org/job.

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<td>$80,000 per year</td>
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