NORTHERN WASCO COUNTY PEOPLE’S UTILITY DISTRICT
REGULAR SESSION
JUNE 5, 2018

PRESENT: Dan Williams, President
Connie Karp, Vice President
Roger Howe, Secretary
Clay Smith, Treasurer
Howard Gonser, Director

President Williams called the Regular Session to order at 4:00 p.m.

EXECUTIVE SESSION

4:01 p.m. President Williams recessed the Regular Session to convene into Executive Session as authorized by ORS 192.660 (2)(g) to consider preliminary negotiations involving matters of trade or commerce in which the governing body is in competition with governing bodies in other states or nations.

Those present for the Executive Session included the Board of Directors, General Counsel James Foster; General Manager Roger Kline; Assistant General Manager/Director of Power Resources Kurt Conger; Principal Engineer & Strategic Asset Planner Paul Titus; Executive Assistant Kathy McBride; Director of Corporate Services Cyndi Gentry; Chief Financial Officer/Director of Finance & Enterprise Risk Harvey Hall; Key Accounts Manager Justin Brock; Operations & Engineering Manager Pat Morehart and District Consultant Michele Chait, E3.

At 5:16 p.m. the Board adjourned from Executive Session to return to Regular Session.

The Board recessed for dinner.

At 6:00 p.m. President Williams reconvened the Board of Directors into Regular Session.

The following individuals were present during the Regular Session:

Counsel: James Foster

NWCPUD Staff: General Manager Roger Kline; Assistant General Manager/Director of Power Resources Kurt Conger; Principal Engineer & Strategic Asset Planner Paul Titus; Operations & Engineering Manager Pat Morehart; Key Accounts Manager Justin Brock; Contracts & Risk Specialist Sue Powers; Director of Corporate Services Cyndi Gentry; Executive Assistant Kathy McBride; Asset/Program Manager Steve Horzynek; Energy
Specialist Lance Kublick; Chief Finance Officer/Director of Finance & Enterprise Risk Harvey Hall; Hydro Electrical Technician Intern Cherish Southard

Visitors: Wasco County Sheriff's Department Representatives Alan Birchfield and Paul Ufford; Columbia Gorge Veterans Museum Representative Lisa Commander; EES Consulting, District Consultant, Ted Light; and Scott Taylor

PUBLIC COMMENT

Lisa Commander, Columbia Gorge Veterans Museum Representative, stated that the Economic Development Grant Funding that was awarded to the Columbia Gorge Veterans Museum, by the Northern Wasco County People's Utility District Board of Directors in 2017, has been spent.

Commander provided the Board will a letter and documentation attached showing the expenditure of the grant funding.

Commander stated that they have had 500 people visit the Veterans Museum since the grand opening last year. She thanked the Board for making a great investment in the community.

Commander invited the Board to come and visit the Museum. Currently the Museum is displaying, "Vietnam, 1968" through the first of July, and then "Combat Veterans of the Gorge".

CONSENT AGENDA

Items contained in the consent portion of the Agenda includes the following:

- Work Session Minutes of February 6, 2018
- Regular Session Minutes of May 1, 2018
- Work Session Minutes of May 10, 2018
- April Outage Report
- Energy Management/Marketing Report
- Checks/Vouchers
- April Financial Report
- April Write Offs
- Amended kWh Statement for the January 2018 Financial Report
- Amended kWh Statement for the February 2018 Financial Report
- Amended kWh Statement for the March 2018 Financial Report
The Board considered the approval of the June 5, 2018 Consent Agenda.

President Williams had a question pertaining to the Amended kWh Statements for the January through March 2018 Financial Reports.

Principal Engineering & Strategic Asset Planner Paul Titus stated that the kWh Statements needed to be adjusted due to the error found in the formula of calculation at the end of Quarter 1. The kWh Statements have been amended to restate what the District bought from Bonneville Power Administration (BPA) Priority Firm (PF), short term rate and non-federal resources. This also affected the District's line losses.

{{Director Gonser moved to approve the June 5, 2018 Consent Agenda as presented. Director Smith seconded the motion; it was then passed unanimously.}}

Assistant General Manager/Director of Power Resources Kurt Conger introduced Cherish Southard, Hydro Electrical Technician Intern, who is working at The Dalles Hydro Fishway Project. Southard is pursuing an electrical degree in Yakima, Washington. Southard is interested in hydro operations.

Cherish Southard stated that the welcome that she has received since becoming an employee has been amazing. She is having a great time.

DIVISION UPDATES

Engineering/Operations:

Before Operations & Engineering Manager Pat Morehart began his report, a date nail dated 1926, which was taken out of one of the power poles replaced along Highway 216, was shown to the Board.

Morehart provided the following report:

Tygh Valley Transmission Pole Replacement Project:

- International Line Builders (ILB), District Contractor, started the Tygh Valley Distribution Rebuild Project on April 16, 2018.
- At end of this week, the Tygh Valley Distribution Rebuild Project will be approximately 70% complete.
- The contractor has reconducted from the White River Park to the intersection of Highway 197 and Highway 216.
- Next week ILB will be working on the poles in the town of Tygh Valley.
Osmose:

- Osmose, District Pole Inspection Contractor, began the new round of pole inspections back on May 26, 2018.
- Osmose completed the work, for the current cycle of inspections, inspecting the structures on the 60 kV line between the District’s Three Mile Substation and White River Substation.
- Osmose has also inspected the poles in Tygh Valley, Dufur and Wamic.
- Of the poles inspected, 24 poles were found that needed to be replaced.
- District staff will be meeting with supervisors from Osmoses on June 13th to review inspection findings.
- Morehart reported on a pole that had been found during the inspection that was burnt off about five feet above the ground line in a remote area on Tygh Ridge. District staff went to work immediately to perform switching and to electrically isolate the compromised structure. District staff replaced the pole and completed the work in one day.

The Dalles Marina Rebuild Project:

- The recent flood levels on the Columbia River pushed boat houses at The Dalles Marina to interfere with the District’s electrical service to the Marina causing a fire in the eye of one of the boat houses.
- District staff responded immediately to the emergency dispatcher’s report of the fire and the Marina was de-energized on shore.
- Mid-Columbia Fire and Rescue extinguished the fire promptly saving the structure and containing the damage to the one boat house.
- For public safety and prudent utility practice, the Marina was de-energized until water levels subsided and a lowering trend was maintained.
- During that time, it was decided that the District would perform stray radiant and transient voltage and amperage testing to rule out the existents of those conditions before determining if the Marina should remain energized.
- A contractor with experience in electrical marina environments used special equipment to test the marina. The tests were performed on June 1st. The existence of radiant and stray voltage and current was found to be at low enough levels to not pose a danger.
- Due to the test results and the trend in lower water levels it was decided to leave the Marina energized.

During Morehart’s report, PowerPoint Slides were shown of the Tygh Valley Transmission Pole Replacement Project. A copy of the PowerPoint Slides is hereto attached and marked as Exhibit 1.
Operations:

- On the evening of May 23, 2018, District staff was called on to de-energize power in the neighborhood near East 16th Street and Nevada where a fully involved house fire was threatening a District pole and the surrounding homes.
- With the secondary service burnt down, the District’s on call staff opened disconnect switches feeding the primary circuit to approximately 30 residential customers until the fire was extinguished and work could be done safely on the burnt pole.
- The affected pole is still in service and is slated for replacement this summer.
- An emergency dispatcher called another time over a weekend in mid-May when a squirrel crawled up onto a primary riser pole outside of the District’s Tenth Street Substation and electrocuted himself.
- The contact from the squirrel did not trip the substation breaker. A grass fire was caused when the burning squirrel landed in the dry grass burning approximately a half acre of vacant property.

Vegetation Management Program:

- The District’s Vegetation Management Program continues to make progress in some of the District’s most difficult to access and heavily overgrown areas.
- Staff is still striving to reach a point where a systematic substation feeder trimming cycle becomes the method.
- Trees Inc., District Tree Contractor, is currently working on Wicks Reservoir Road. The line is remote and requires extensive climbing to access.
- Several photographs of vegetation removal by Trees Inc. were shown at this time. These photographs are hereto attached and marked as Exhibit 2.

American Public Power Association (APPA) Annual Conference:

- In May 2018, Asset/Program Manager Steve Horzynek attended the American Public Power Association (APPA) Annual Conference in North Carolina.
- Horzynek accepted on behalf of Northern Wasco County People’s Utility District the APPA Safety Award for no lost time injury accidents.

American Public Power Association (APPA) National Lineworker Rodeo:

- Photographs of Apprentice Lineman Tucker McCabe, which were taken at the recent American Public Power Association (APPA) National Lineworker Rodeo, were shown to the Board. Copies of said photographs are hereto attached and marked as Exhibit 3.
- McCabe competed at the APPA National Lineworker Rodeo held in North Carolina in April 2018.
McCabe scored high in the academic portion of the competition and had competitive scores for time and technique in various tasks, such as insulator change-out, and hurt man rescue.

McCabe has been advanced to the third step of his apprenticeship.

The Board expressed how proud they are that McCabe went and competed at the APPA National Lineworker Rodeo.

**Finance and Risk:**

Chief Financial Officer/Director of Finance & Enterprise Risk Harvey Hall reported as follows:

- The District’s April Financial Report indicates $380,000 to the positive for the year.
- The current meter count is 10,271; the District’s active customer count is continuing to climb.
- The District’s kWh usage continues to grow. Last year the District was at 229 million kWhs. The District is about 13 million kWhs more than this time last year.
- The District is experiencing some load and base growth.
- The Board has been previously introduced to Enterprise Risk Management (ERM) where risk is looked at and considered.
- Hall is working with a consultant, that he would like to propose to the Board. This consultant would develop a frame work to look at risk and to determine the Board and District’s risk appetite.

Some discussion occurred regarding Enterprise Risk Management.

General Manager Roger Kline informed the Board that the District will use the International Standard Organization (ISO) Standard to make it fit for us.

Hall noted that the ISO Standard is a common one that is used by neighboring utilities; it is broadly accepted.

Director Gonser stated that he thinks it is a great idea; he is anxious to use the ERM process to make better decisions for the District.

Hall reported as follows on Other Post-Employment Benefits (OPEB):

- The District has had an OPEB audit done every three years; the last one being done in December 2016.
- The Government Accounting Standards Board (GASB) rules have changed; GASB 75 changes the way that the audit is performed.
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- The District is looking for a different auditor to perform the required OPEB audit this year. Staff spoke to McMillen and four other entities regarding the audit.
- McMillen stated that they could do the OPEB audit for a cost of $35,000. The District's prior OPEB audit cost only $2,500.
- McMillen, after speaking to the Special Districts Association of Oregon (SDAO) regarding pooling the audit with other Special Districts, came back to Hall with a cost of around $2,500.
- Hall is continuing the audit discussion with McMillen.

Some brief discussion occurred.

Power Resources:

Assistant General Manager/Director of Power Resources Kurt Conger informed the Board that he is giving his time to Corporate Services.

Corporate Services:

Director of Corporate Services Cyndi Gentry reported as follows:

- When the UPN Reset Project was being wrapped up, Gentry asked Business Analyst Consultant Marijane Thompsen to look at some large work items for Corporate Services.
- Thompsen is preparing information and plans, along with a draft task list.
- A couple of the items that staff is looking at is check payment scanning functionality, and the installation of card payment hardware at the front counter, which would allow the kiosk to be removed.
- The District's network needs to be updated before card swipe hardware can be installed. The District is out of switches and bandwidth.
- Another item that staff is looking at is the ONLINE Utility Exchange; a utility related credit check for new services.
- ONLINE Utility Exchange also provides collection services.
- Gentry asked if a member of the Board of Directors would be on an evaluation team to consider the services offered by ONLINE Utility Exchange.
- Staff would like input from the Board on what the credit check level should be to meet the needs of the District, as well as identifying if that is a service that the District needs to purchase.
- The District currently requires a letter of credit from another utility if the new customer does not have credit history with the District. In the absence of the letter of credit, the District has standards to set a deposit amount.

Some discussion occurred regarding ONLINE Credit Exchange.
President Williams stated that he would like to know how much staff time is spent monthly on un-collectibles.

President Williams and Director Karp expressed an interest in participating on the evaluation team to look at services from ONLINE Credit Exchange.

The last two items that Gentry reported on is as follows:

- Staff has been testing the latest version of UPN 37 over the last week and a half. The District can test without touching the system that is used to conduct business.
- A thank you card from the Lamoreaux family, District customer, was read out loud by Gentry. A copy of the thank you card is hereto attached and marked as Exhibit 4.

President Williams expressed the Board’s appreciation to Energy Management Specialist I Travis Hardy for his work with the District’s Low-Income Weatherization Program.

**General Manager:**

General Manager Roger Kline reported as follows:

- A few months ago, a presentation and discussion occurred with the Board and Iris Tilly, Barren Leibman, regarding the District’s Retirement Plan.
- A Request for Proposals for Retirement Services was distributed by Barren Leibman on the District’s behalf.
- A total of seven (7) responses were received back from the RFP.
- Kline will be speaking to Tilly by phone on the next step of the Retirement Plan review process.
- Kline will review the submitted proposals to come up with a recommendation for the Board’s consideration.
- Kline does not believe that Nationwide, the District’s current retirement services provider, responded to the RFP.

**General Counsel:**

General Counsel James Foster reported that he is still working with staff on developing templates for contracts so that the District has consistent contract language. Foster is working with Key Accounts Manager Justin Brock on some other matters.

Director Smith asked a question pertaining to the McNary Crane Failure Litigation.
Foster responded by stating that he has touched base with Klickitat PUD General Manager Jim Smith on a number of occasions. Smith has been advised to call Foster if he needs anything. Foster stated that since the last meeting there has been no dramatic changes in the litigation.

**NEW BUSINESS**

Conservation Potential Study:

Energy Specialist Lance Kubrick introduced to the Board Ted Light from EES Consulting. Light will be presenting a PowerPoint Presentation entitled “Conservation Potential Assessment”. A copy of the PowerPoint Presentation is hereto attached and marked as Exhibit 5.

Some of the highlights from Light’s presentation is as follows:

- EES Consulting has completed numerous Conservation Potential Assessment (CPA) for northwest utilities.
- The CPA is the estimation of conservation resource potential available in Northern Wasco County People’s Utility District service territory.
- The CPA Model does not predict how savings will be accomplished.
- Comparison of 2009 CPA and 2017 CPA Cost-Effective Potential for 10-Year is as follows:
  - Residential – 2009, 1.3; 2018, 1.4; 7% change
  - Commercial – 2009, 1.0; 2018, 0.5; -48% change
  - Industrial – 2009, 1.5; 2018, 0.2; -85% change
  - Agricultural – 2009, 0.0; 2018, 0.2; NA change
  - Distribution Efficiency – 2009, 0.0; 2018, 0.2; NA change
  - Total – 2009, 3.8; 2018, 2.3; -39% change
  - Note that the 2009 data refers to the CPA completed in 2009 for the time period of 2009 through 2028. The 2018 assessment is for the timeframe 2019 through 2038.
- Comparison of 2009 CPA and 2017 CPA Cost-Effective Potential for 20-Year is as follows:
  - Residential – 2009, 2.5; 2018, 2.4; -7% change
  - Commercial – 2009, 1.0; 2018, 1.1; 12% change
  - Industrial – 2009, 1.5; 2018, 0.3; -81% change
  - Agricultural – 2009, 9.0; 2018, 0.0; NA change
  - Distribution Efficiency – 2009, 0.0; 2018, 0.5; NA change
  - Total – 2009, 5.0; 2018, 4.3; -15% change
  - Note that the 2009 data refers to the CPA completed in 2009 for the time period of 2009 through 2028. The 2018 assessment is for the timeframe 2019 through 2038.
• The District can expect to achieve 0.2 - 0.3 aMW per year in conservation resources.
• The 2018 assessment has a lower conservation potential than the 2009 assessment.
• Key program areas: residential weatherization; residential lighting; commercial lighting, and industrial sector.

Electric System Reliability & Infrastructure Status Report:

Principal Engineer & Strategic Asset Planner Paul Titus stated that the Board was provided in the Board Packet with a copy of his memorandum regarding the District’s reliability statistics and the 2017 APPA eReliability Report. A copy of Titus memorandum and the 2017 APPA eReliability Report is hereto attached and marked as Exhibit 6.

Some of the highlights from Titus’ presentation on the District’s electric system reliability and infrastructure status is as follows:

• Since 2013 the District has used APPA’s eReliability Tracker, a web-based software to track outages and create reliability metrics.
• The yearly cost for this web-based software is $100.
• APPA provides an annual report that provides reliability indices and compares the District to other utilities within a region and customer size class.
• The District has 10,043 customers, which is Class 4 (6,798 – 12,695 customers), with an approximate total of 85 utilities.
• The District is located within Region 9, which includes Oregon, Washington, Idaho, Montana and Alaska with 10 utilities.
• The District’s major event threshold is 6.3997 minutes, System Average Interruption Duration Index (SAIDI).
• The top five occurrence rates for sustained outage causes in the District’s Region are equipment, scheduled, tree, storm and bird.
• Momentary outages will be able to be tracked better once the District deploys AMI meters.

Titus reviewed and discussed with the Board at great length the following four graphs which were included in his presentation material:

- System Average Interruption Duration Index (SAIDI)
- System Average Interruption Frequency Index (SAIFI)
- Customer Average Interruption Duration Index (CAIDI)
- Average Service Availability Index (ASAI)
Titus stated in closing that the District is doing good. It is still important for the District to reinvest in our infrastructure resiliency and make sure we provide the most reliable service that we can to our customers.

Kline stated that the take away message from Titus’ presentation is that the District’s electric system is still strong. However, some of the metrics are trending in the wrong way. The District needs to continue to invest in our electric system.

Consideration and approval of Contract for The Dalles Marina Rebuild Project:

Asset/Program Manager Steve Horzynek presented a PowerPoint Presentation entitled “Port of The Dalles Marina Electrical Upgrade”. A copy of said PowerPoint Presentation is hereto attached and marked as Exhibit 7.

Some of the highlights from Horzynek’s presentation are as follows:

- Overhead transformer at The Dalles Marina is at capacity.
- Overhead lines with limited connection options and aged support structures.
- Hazards during high water.
- There is no ability to provide required Ground Fault (GFCI) protection.
- Limited service capacity to customers during peak occupancy.
- Outages are very common during peak occupancy.
- The District serves 63 meters at The Dalles Marina.
- Some of the following planned upgrades come with state mandates and increase in codes:
  - New pad mount transformer on shore.
  - Proper system ground protection.
  - Increased service capacity providing reliability during peak occupancy.
  - Industry standard marine electric distribution system.
  - All conductors mounted to the dock above water line.
  - Improved lighting.
  - Provide proper infrastructure against electric shock drowning.3
- Each meter pedestal has two meters with lights.
- The District has received a lot of support from the marina tenants.
- Ready read meters are currently being used at the marina.

Some discussion occurred regarding The Dalles Marina Rebuild Project and the estimated completion date for the project.

General Manager Kline noted that the District does not have a separate rate class for temporary residential. The project cost is not to exceed $800,000.
Horzynek stated that staff estimates that the project will be completed by mid-September, if everything lines out with contractor’s time schedule. The plan is that the overhead structure will stay in place while the work is being done.

Kline informed the Board that the District is hosting a meeting with The Dalles Marina tenants on the evening of Thursday, June 7th. Tenants will be updated on the District’s rebuild plans. Kline stated that Horzynek has done an excellent job overseeing the project. The District manages the electrical distribution system, but we do not raise or lower the river.

Information on The Dalles Marina Rebuild Project will be shared with members of the public after the meeting with the marina tenants. The District has engineering drawings that are 100% complete. There is nothing that could not be changed or revised in the drawings if concerns are raised by the tenants.

***It was the consensus of the Board of Directors for staff to continue with The Dalles Marina Rebuild Project at a cost not to exceed $800,000***.

**OLD BUSINESS**

Decision on awarding Economic Development Grant Funding:

General Counsel James Foster provided the Board with the names of the organizations that did not meet the requirements of the District’s Economic Development Grant Program. Foster’s comments are as follows:

**City of The Dalles:**

- The City of The Dalles’ Grant Application did not meet the budget requirements. Only costs were provided; no income was noted in the budget.
- There is no indication in the Application that the project will be started within the next 12 months; it is four years out.

**Deschutes Rim Health Clinic:**

- Grant funding cannot be awarded to the Deschutes Rim Health Clinic since the Clinic is located outside the District’s boundaries.

**Wasco County Sheriff Reserves:**

- Foster noted his concern with the response received, at the May Board Meeting from the Sheriff’s Department Representative, when he asked the question if the District funded the purchase of the equipment, could the needed funding for the
physical and psychological exams be obtained from another source. The answer to Foster's question was no.

- Foster does not know how the District can expend money on the equipment if the County is unable to fund the exams of potential Sheriff Reserve candidates.
- Foster feels it is a good program in terms of the benefit to the community.

**Wasco County/City of The Dalles Museum Commission:**

- The Wasco County/City of The Dalles Museum Commission failed to submit their grant application on time. The application was withdrawn by Donna Lawrence on May 1, 2018 after she learned that the application was submitted one day late.

**Wasco County 4-H Association:**

- The application from the Wasco County 4-H Association was received one day late.
- The 4-H Association’s Grant Application did not identify any hard goods; they were all consumables.

Alan Birchfield, Wasco County Sheriff's Department Representative, stated there was a misunderstanding during the Sheriff's Department grant application presentation as to the Department being able to come up with the funding for the physical and psychological testing, if the District only funded the equipment request. Birchfield expressed to the Board that he believes that he could come up with the needed funding for the exams. At the time of the presentation, Birchfield had stated that he did not have any money in the budget for the costs of the exams.

At this time, the Board took each Economic Development Grant Application and noted if they supported the grant request. The Board’s support is noted below:

**Dufur School District, $15,000:**

- Directors Gonser, Howe, Karp and Williams supported the project; Director Smith does not.

{{Director Karp moved to award Northern Wasco County People's Utility District Economic Development Grant Funding to the Dufur School District in the amount of $15,000. Director Gonser seconded the motion.

President Williams suggested that the Board consider all the applications first before making a motion.

**Director Karp withdrew her motion. Director Gonser withdrew his second.}}
Mid-Columbia Economic Development District:

- Directors Gonser, Karp and Williams supported the project; Directors Howe and Smith do not.

Tygh Valley Rural Fire Protection District:

- Directors Gonser, Howe, Karp and Williams supported the project; Director Smith does not.

Wasco County Sheriff Reserves:

Director Howe asked Alan Birchfield if he could guarantee that the Sheriff’s Department could get the needed $3,000 for the exam costs if the Board was to award Economic Development Grant Funding for the purchase of the equipment.

Birchfield responded to Director Howe’s question by stating that he will have $3,000 in the Sheriff’s Department budget on July 1, 2018. The exam costs for the other volunteers is the amount that he does not have currently in his pocket.

Foster stated that the equipment request was based on a certain number of volunteers that would take the exams. He asked if the Sheriff’s Department does not have the money for the exams, what is the equipment for?

Further discussion occurred.

It was noted by Paul Ufford that the equipment cost for each Sheriff Reserve Volunteer is $1,675.

Birchfield noted that he has funding for eight (8) exams. There are six volunteers who need equipment. Currently the Reserves are using hand-me-down equipment.

- Directors Howe, Karp, Gonser and Williams supports funding $13,400 to the Wasco County Sheriff Reserves, which represents the cost of the equipment for six (6) individuals; Director Smith does not support.

Director Smith noted that he states each year that he does not approve of the economic development program due to the lack of participation in his District directly. Director Smith is opposed again; he does not like the way appropriations are made.

Port of The Dalles, $20,000:

- Directors Gonser, Howe, Karp and Williams supported funding $16,000 to the Port of The Dalles; Director Smith does not.
The total costs of the projects supported by members of the Board is $54,860.

The Board recessed at 8:06 p.m. to consider individually the dollar amount that they would support to award to the various applicants.

At 8:17 p.m. the Board reconvened.

Director Howe suggested the following Economic Development Grant allocations:

- Tygh Valley RFPD - $4,960.00
- Wasco County Sheriff Reserves - $13,400.00
- Port of The Dalles - $16,000
- Mid-Columbia Economic Development District - $5,469.55
- Dufur School District - $10,170.45

Director Gonser moved to award Economic Development Grant Funding to the following organizations in the amounts listed: Tygh Valley Rural Fire Protection District, $4,960.00; Wasco County Sheriff Reserves, $13,400.00; Port of The Dalles, $16,000.00; Mid-Columbia Economic Development District, $5,469.55; and Dufur School District, $10,170.45. Director Howe seconded the motion; it was then passed by a vote of four (4) to one (1); Directors Williams, Karp, Howe and Gonser voted yes, while Director Smith voted no.

ITEMS FROM BOARD MEMBERS

Energy Northwest Executive Board Meeting:

Director Smith reported as follows on the Energy Northwest Executive Board Meeting on May 24th in Boise, Idaho:

- The Energy Northwest Executive Board discussed what to do about the newest request from Bonneville Power Administration (BPA) for another regional cooperation debt procedure.

Some discussion occurred after Director Smith suggested that District staff review the meeting materials that he brought back on the BPA proposal. Director Smith would like to have staff’s recommendation on the proposal before the upcoming Energy Northwest Executive Board’s conference call.

General Manager Roger Kline commented that he thinks it is a good exercise to have the analysis, but he does not think staff would do it full justice as the economist would do at the Public Power Council (PPC).
***It was the consensus of the Board of Directors that the District remain neutral on the request from Bonneville Power Administration for a regional cooperation debt procedure***.

### BOARD REPORTS / ITEMS FROM BOARD MEMBERS

**Oregon People's Utility Districts Association (OPUDA):**

Director Smith reported as follows on the recent Oregon People's Utility Districts Association (OPUDA) Board Meeting:

- OPUDA's Bylaws, Article VIII Standing and Ad Hoc Committees, was discussed.
- Bonneville Power Administration (BPA) Grid Modification Plan on metering changes is ongoing.
- Northern Tier Transmission Group (NTTG) and ColumbiaGrid may combine.
- Ice Harbor Dam will need to spill a huge amount of water to comply with the order on gas limits.
- BPA has $510 million in reserves.
- On May 18, 2018 the water year was at 127.9.
- The spill charge will be $10.2 million.
- The updated OPUDA Directory was to have been printed on May 30th.
- OPUDA Board members need to come up with ideas on who the Rock Star Award should be presented to at this year's OPUDA Annual Conference.
- OPUDA received a clean audit.
- Central Lincoln PUD's budget for 2019 was approved with no increase. Central Lincoln PUD is talking about moving their headquarters.
- Tillamook PUD will have no increase next year. Tillamook moved from a two-year scholarship program to a four-year scholarship program.
- Emerald PUD has installed 3,000 AMI meters. Emerald PUD hopes to have 18,500 AMI meters installed by the end of the year.

**Northwest Public Power Association:**

Director Smith reported as follows:

- Northwest Public Power Association (NWPPA) is in good financial shape.
- NWPPA is looking at $4.4 million in cash.
- NWPPA has received a clean audit.
- Last year, NWPPA had a 5% revenue increase.
NWPPA had $314,000 in surplus. Because of NWPPA’s financial health there is a possible 10% one-time dues reduction in 2019.

The Idaho National Laboratory has a week-long learning program on cyber security that is free. Director Smith feels that the District should take advantage of the free program.

Energy Northwest:

Energy Northwest had a successful $2 million bond sale at a good interest rate.

The Columbia Generation Station’s last outage was caused by a transformer failure. The plant was down for six days.

Director Gonser presented for the Board’s consideration suggested changes to the Oregon People’s Utility Districts Association (OPUDA) Bylaws, Section VIII Standing and Ad Hoc Committees. Copies of the language being proposed by OPUDA and the suggested changes to the Bylaws as proposed by Director Gonser and President Williams are hereto attached and marked as Exhibits 8 and 9.

Some discussion occurred regarding the proposed language changes to Section VIII of the OPUDA Bylaws.

General Counsel James Foster had two suggestions. Foster suggested that the word “lobbyists” in the Directors’ proposal, Section 1. B., be changed to “lobbyist(s)” and that Section 2 be added to the Directors’ proposal to complete the entire Article VIII Section of the Bylaws.

***It was the consensus of the Board of Directors to support the proposed revised language to the Oregon People’s Utility Districts Association (OPUDA) Bylaws, Section VIII Standing and Ad Hoc Committee, as further revised per General Counsel’s suggestions***.

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<td>June 6, PPC Forum - Dan Williams, Howard Gonser, Connie Karp, Clay Smith and Roger Howe</td>
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<td>June 7, PPC Executive Committee Meeting - Dan Williams, Howard Gonser, Connie Karp, Clay Smith, Roger Howe and James Foster</td>
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<td>June 7, NWPPA HDL Workshop – Dan Williams, Howard Gonser, Connie Karp, Clay Smith, Roger Howe and James Foster</td>
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<td>June 13-14, NWPPA Senior Leadership Skills Series Session 3: Coaching – Clay Smith and Roger Howe</td>
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<td>June 22, OPUDA Meeting – Dan Williams, Howard Gonser, Connie Karp, Clay Smith and Roger Howe</td>
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July 17, Strategic Action Plan Work Session, 1-3 p.m. – Dan Williams, Howard Gonser, Connie Karp and Clay Smith
July 20, OPUDA Meeting – Dan Williams, Howard Gonser, Connie Karp and Clay Smith

General Counsel James Foster requested the Board’s approval for his attendance at the American Public Power Association (APPA) Legal & Regulatory Conference on October 7 – 10, 2018 in Charleston, South Carolina.

***It was the consensus of the Board of Directors to authorize General Counsel James Foster to attend the American Public Power Association’s Legal & Regulatory Conference in Charleston, South Carolina on October 7-10, 2018***.

There being no further business the meeting adjourned at 8:59 p.m.

[Signature]
President

ATTEST:

[Signature]
Secretary
Tygh Ridge Transmission Pole Replacement

Pat Morehart
Operations & Engineering Manager
Trees Inc Recent Line Clearance
Tucker McCabe – APPA Lineworker’s Rodeo
Travis -- And all of you wonderful people involved with the PUD Weatherization Program, times over. I've spent my whole life trying to help others, and now being on the receiving end I'm not quite sure how to express myself to the extent that I feel. Except to say you all, everyone involved, are God Sent Angels.

Below ... I feel like I've been blessed a million times over. I've spent my whole life trying to help others, and now being on the receiving end, I'm not quite sure how to express myself to the extent that I feel. Except to say you all, everyone involved, are God Sent Angels.

you all are so much appreciated for your kindness, you all helped transform my home into a safer and more comfortable haven. Hugs to you all. And I pray you --
Each and every one will receive the kindness and blessings you've given me for yourselves ten times over. To all of you wonderful souls who have helped me, I pray you much love, blessings and peace.

Thank you from the Lamoreau family.
NORTHERN WASCO PUD
CONSERVATION POTENTIAL ASSESSMENT

JUNE 5, 2018

Presented by:

Ted Light, Project Manager
light@eesconsulting.com
(971) 247-4013

A registered professional engineering and management consulting firm with offices in Kirkland, WA, and Portland, OR
www.eesconsulting.com
About EES Consulting

Background

How Savings Will be Achieved

Program Achievements

Results

Summary

Questions?
ABOUT EES CONSULTING

- Multi-Disciplinary Consulting Firm with Offices in Kirkland, WA and Portland, OR
- Completed Numerous Conservation Potential Assessments for NW Utilities
- Specialize in Utilizing Models and Methods of NW Power Council’s 5th, 6th, and 7th Power Plans, Adapting for Utility-Specific Analyses
- Working with the Cadmus Group on potential assessment for BPA
- Developed “Handbook for Potential Assessments in the Northwest”
- Involved in Washington state EIA rules on CPAs
Estimate of conservation resource potential available in Northern Wasco PUD’s service territory

The conservation potential is:

- Technically Possible
- Achievable (accounting for market barriers, market maturity)
- Cost-Effective
BACKGROUN – CHANGES SINCE 2009

- New measures: LEDs, Ductless Heat Pumps, Heat Pump Water Heaters*
- Natural Gas Prices
- New Power Plan – Emphasis on Capacity
  - Hourly Load Profiles
  - Deferred Generation Capacity value
  - Social Cost of Carbon
- Updated building stock
- Updated financial parameters, specific to Northern Wasco PUD
- Program Achievement
HOW SAVINGS WILL BE ACHIEVED

- CPA Model Does Not Predict How Savings Will be Accomplished
- Savings Could be Realized Through
  - Utility programs
  - Utility share of the Northwest Energy Efficiency Alliance’s accomplishments
  - State & federal codes and standards
NORTHERN WASCO PUD SAVINGS HISTORY
## 2017 CPA RESULTS

### Cost Effective Potential - Base Case (aMW)

<table>
<thead>
<tr>
<th></th>
<th>2-Year</th>
<th>6-Year</th>
<th>10-Year</th>
<th>20-Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td>0.3</td>
<td>0.8</td>
<td>1.4</td>
<td>2.4</td>
</tr>
<tr>
<td>Commercial</td>
<td>0.1</td>
<td>0.2</td>
<td>0.5</td>
<td>1.1</td>
</tr>
<tr>
<td>Industrial</td>
<td>0.1</td>
<td>0.2</td>
<td>0.2</td>
<td>0.3</td>
</tr>
<tr>
<td>Agricultural</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Distribution Efficiency</td>
<td>0.0</td>
<td>0.1</td>
<td>0.2</td>
<td>0.5</td>
</tr>
<tr>
<td>Total</td>
<td>0.4</td>
<td>1.3</td>
<td>2.3</td>
<td>4.3</td>
</tr>
</tbody>
</table>
## RESULTS – COMPARISON

<table>
<thead>
<tr>
<th></th>
<th>10-Year</th>
<th></th>
<th></th>
<th>20-Year</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2009</td>
<td>2018</td>
<td>% Change</td>
<td>2009</td>
<td>2018</td>
<td>% Change</td>
</tr>
<tr>
<td>Residential</td>
<td>1.3</td>
<td>1.4</td>
<td>7%</td>
<td>2.5</td>
<td>2.4</td>
<td>-7%</td>
</tr>
<tr>
<td>Commercial</td>
<td>1.0</td>
<td>0.5</td>
<td>-48%</td>
<td>1.0</td>
<td>1.1</td>
<td>12%</td>
</tr>
<tr>
<td>Industrial</td>
<td>1.5</td>
<td>0.2</td>
<td>-85%</td>
<td>1.5</td>
<td>0.3</td>
<td>-81%</td>
</tr>
<tr>
<td>Agricultural</td>
<td>0.0</td>
<td>0.0</td>
<td>NA</td>
<td>0.0</td>
<td>0.0</td>
<td>NA</td>
</tr>
<tr>
<td>Distribution Efficiency</td>
<td>0.0</td>
<td>0.2</td>
<td>NA</td>
<td>0.0</td>
<td>0.5</td>
<td>NA</td>
</tr>
<tr>
<td>Total</td>
<td>3.8</td>
<td>2.3</td>
<td>-39%</td>
<td>5.0</td>
<td>4.3</td>
<td>-15%</td>
</tr>
</tbody>
</table>
BENCHMARKING CHANGES

RESIDENTIAL POTENTIAL

- Water Heating
- Lighting
- HVAC
- Electronics
INDUSTRIAL POTENTIAL

Wood
Process Loads
Lighting
Hi-Tech
Energy Management
District can expect to achieve 0.2-0.3 aMW per year in conservation resources

Lower conservation potential than 2009 assessment, in line with recent achievement

Results show higher sensitivity to avoided cost assumptions

Key Program Areas:
- Residential Weatherization
- Residential Lighting
- Commercial Lighting
- Industrial Sector
THANK YOU
Since 2013, the District has used eReliability Tracker, a web-based software offered from American Public Power Association (APPA), to track outages and create reliability metrics. The yearly cost for this subscription service is $100. APPA provides a report at the end of the calendar year that provides reliability indices and compares to other utilities within a region and customer size class. These numbers are used in KPI reporting for benchmarks and for submission towards APPA RP3 application.

The District has 10,043 customers which is Class 4, 6,798 – 12,695 customers, with an approximate total of 85 utilities. Also, the District is located within Region 9, which includes Oregon, Washington, Idaho, Montana and Alaska, with 10 utilities.

Attached is the 2017 APPA eReliability Report and graphs of past results, which indicate the District has been outperforming in most instances as compared to other utilities. Even with the positive results, capital investment in facilities and resiliency is still needed to provide exceptional customer satisfaction.

Thanks,

Paul
ANNUAL BENCHMARKING REPORT 2017 eRELIABILITY TRACKER
Northern Wasco County PUD

Funded by a grant from the Demonstration of Energy & Efficiency Developments (DEED) Program, the eReliability Tracker Annual Report was created by the American Public Power Association (the Association) to assist utilities in their efforts to understand and analyze their electric system. This report focuses on distribution system reliability across the country and is customized to each utility. The data used to generate this report reflect activity in the eReliability Tracker from January 1, 2017 to December 31, 2017. Note that if you currently do not have a full year of data in the system, this analysis may not properly reflect your utility's statistics since it only includes data recorded as of February 3, 2018; therefore, any changes made after that date are not represented herein.

I. General Overview

Reliability reflects both historic and ongoing engineering investment decisions within a utility. Proper use of reliability metrics ensures that a utility is not only performing its intended function, but also is providing service in a consistent and effective manner. Even though the primary use of reliability statistics is for self-evaluation, utilities can use these statistics to compare with data from similar utilities. However, differences such as electrical network configuration, ambient environment, weather conditions, and number of customers served typically limit most utility-to-utility comparisons. Due to the diverse range of utilities that use the eReliability Tracker, this report endeavors to group utilities by size and region to improve comparative analyses while reducing differences.

Since this report contains overall data for all utilities that use the eReliability Tracker, it is important to consider the effect that a particularly large or small utility can have on the rest of the data. To ease the issues associated with comparability, reliability statistics are calculated for each utility with their respective customer weight taken into account prior to being aggregated with other utilities. This means that all utilities are equally weighted and all individual statistics are developed on a per customer basis.

The aggregate statistics displayed in this report are calculated from utilities that experienced more than two outages in 2017. Also, utilities that experienced no outages this year, or did not upload any data, will have None/Null values in their report for their utility-specific data and were not included in the aggregate analysis.

The aggregate statistics provided in the following sections of the report are based on data from 253 utilities.
This report separates utilities into groups of equal numbers of utilities according to their number of customers served. As seen in Table 1, the customer size distribution of utilities that use the eReliability Tracker is split into five distinct customer size class groups of approximately 85 utilities per group.

Your utility belongs to customer size class 4 and region 9.

Table 1
Customer size range per customer size class

<table>
<thead>
<tr>
<th>Class</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class 1</td>
<td>0 - 1,497</td>
</tr>
<tr>
<td>Class 2</td>
<td>1,498 - 3,126</td>
</tr>
<tr>
<td>Class 3</td>
<td>3,127 - 6,797</td>
</tr>
<tr>
<td>Class 4</td>
<td>6,798 - 12,695</td>
</tr>
<tr>
<td>Class 5</td>
<td>12,696 - 650,000</td>
</tr>
</tbody>
</table>

Since the utilities considered in this report represent a wide variety of locations across the United States, each utility is also grouped with all others located in their corresponding American Public Power Association region. Figure 1 shows the number of utilities using the eReliability Tracker in each Association region and Figure 2 displays the Association's current United States map of regional divisions.

Figure 1
Number of eReliability Tracker utilities per Association region

![Bar chart showing the number of utilities per Association region.]

Figure 2
Association map of regions

![Map of the United States showing regions.]
II. IEEE Statistics

When using reliability metrics, a good place to start is with the industry standard metrics found in the IEEE 1366 guide. For each individual utility, the eReliability Tracker performs IEEE 1366 calculations for System Average Interruption Duration Index (SAIDI), System Average Interruption Frequency Index (SAIFI), Customer Average Interruption Duration Index (CAIDI), Momentary Average Interruption Frequency Index (MAIFI) and Average Service Availability Index (ASAI).

When collecting the necessary data for reliability indices, utilities often take differing approaches. Some utilities prefer to include information as detailed as circuit type or phases impacted, while others include only the minimum required. In all cases, the more details a utility provides, the more practical their analysis will be. As a basis for calculating these statistics in the eReliability Tracker, the following are required:

- Total number of customers served on the day of the outage
- Start and end date/time of the outage
- Number of customers that lost power

Due to the differences in how some utilities analyze major events (MEs) relative to their base statistics, it is important to note how they are calculated and used in this report. An example of a major event could be severe weather, such as a tornado or thunderstorm, which can lead to unusually long outages in comparison to your distribution system's typical outage. In the eReliability Tracker and in this report, the Association's major event threshold is used, which is a calculation based directly on outage events, rather than event days. The major event threshold allows a utility to remove outages that exceed the IEEE 2.5 beta threshold for events, which takes into account the utility's past outage history up to 10 years. In the eReliability Tracker, if a utility does not have at least 36 outage events prior to the year being analyzed, no threshold is calculated; therefore, the field below showing your utility's threshold will be blank and the calculations without MEs in the SAIDI section of this report will be the same as the calculations with MEs for your utility. More outage history will provide a better threshold for your utility.

Your utility's APPA major event threshold is __________ (minutes).\(^1\)

The tables in this section can be used by utilities to better understand the performance of their electric system relative to other utilities nationally and to those within their region or size class. In the SAIDI section, indices are calculated for all outages with and without major events; furthermore, the data are broken down to show calculations for scheduled and unscheduled outages. For each of the reliability indices, the second table breaks down the national data into quartile ranges, a minimum value, and a maximum value.

\(^1\) If there is no major event threshold calculated for your utility, these fields are left blank and the calculations in this report including Major Events and excluding them will be the same. Your utility must have at least 36 outage events recorded in the eReliability Tracker in order to calculate a Major Event Threshold.
System Average Interruption Duration Index (SAIDI)

SAIDI is defined as the average interruption duration (in minutes) for customers served by the utility system during a specific time period.

Since SAIDI is a sustained interruption index, only outages lasting longer than five minutes are included in the calculations. SAIDI is calculated by dividing the sum of all customer interruption durations within the specified time frame by the average number of customers served during that period. For example, a utility with 100 customer minutes of outages and 100 customers would have a SAIDI of 1.

Note that in the tables below, scheduled and unscheduled calculations include major events. Also note that wherever major events are excluded, the exclusion is based on the APPA major event threshold.

Table 2
Average SAIDI for all utilities that use the eReliability Tracker (with and without MEs), belong to your region, and are grouped in your customer size class

<table>
<thead>
<tr>
<th></th>
<th>All</th>
<th>No MEs</th>
<th>Unscheduled</th>
<th>Scheduled</th>
</tr>
</thead>
<tbody>
<tr>
<td>Your utility's SAIDI:</td>
<td>63.5717</td>
<td>36.5016</td>
<td>60.2302</td>
<td>3.3511</td>
</tr>
<tr>
<td>Average eReliability Tracker SAIDI</td>
<td>161.7605</td>
<td>62.1498</td>
<td>157.4675</td>
<td>4.4295</td>
</tr>
<tr>
<td>Average SAIDI for Utilities Within Your Region</td>
<td>179.1688</td>
<td>66.8243</td>
<td>169.2191</td>
<td>10.1163</td>
</tr>
<tr>
<td>Average SAIDI for Utilities Within Your Customer Size Class</td>
<td>230.6849</td>
<td>70.9849</td>
<td>226.9916</td>
<td>3.7064</td>
</tr>
</tbody>
</table>

Table 3
Summary statistics of the SAIDI data compiled from the eReliability Tracker

<table>
<thead>
<tr>
<th></th>
<th>All</th>
<th>No MEs</th>
<th>Unscheduled</th>
<th>Scheduled</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum Value</td>
<td>0.1282</td>
<td>0.1282</td>
<td>0.1282</td>
<td>0</td>
</tr>
<tr>
<td>First Quartile (25th percentile)</td>
<td>23.6535</td>
<td>10.6552</td>
<td>20.5479</td>
<td>0</td>
</tr>
<tr>
<td>Median Quartile (50th percentile)</td>
<td>54.863</td>
<td>27.2189</td>
<td>52.3865</td>
<td>0.097</td>
</tr>
<tr>
<td>Third Quartile (75th percentile)</td>
<td>120.8739</td>
<td>60.6194</td>
<td>114.7618</td>
<td>1.3001</td>
</tr>
<tr>
<td>Maximum Value</td>
<td>5208.0378</td>
<td>1412.0408</td>
<td>5199.7198</td>
<td>208</td>
</tr>
</tbody>
</table>

Figure 3
Average SAIDI for all utilities that use the eReliability Tracker per region
System Average Interruption Frequency Index (SAIFI)

SAIFI is defined as the average number of instances a customer on the utility system will experience an interruption during a specific time period.

Since SAIFI is a sustained interruption index, only outages lasting longer than five minutes are included in the calculations. SAIFI is calculated by dividing the total number of customer interruptions by the average number of customers served during that time period. For example, a utility with 150 customer interruptions and 200 customers would have a SAIFI of 0.75 interruptions per customer.

Table 4
Average SAIFI for all utilities that use the eReliability Tracker, belong to your region, and are grouped in your customer size class

<table>
<thead>
<tr>
<th>Metric</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Your utility's SAIFI:</td>
<td>0.7314</td>
</tr>
<tr>
<td>Average eReliability Tracker SAIFI</td>
<td>0.8515</td>
</tr>
<tr>
<td>Average SAIFI for Utilities Within Your Region</td>
<td>0.9241</td>
</tr>
<tr>
<td>Average SAIFI for Utilities Within Your Customer Size Class</td>
<td>0.8991</td>
</tr>
</tbody>
</table>

Table 5
Summary statistics of the SAIFI data compiled from the eReliability Tracker

<table>
<thead>
<tr>
<th>Statistic</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
<td>Minimum Value</td>
<td>0.0009</td>
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<tr>
<td>First Quartile (25th percentile)</td>
<td>0.2812</td>
</tr>
<tr>
<td>Median Quartile (50th percentile)</td>
<td>0.6357</td>
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<tr>
<td>Third Quartile (75th percentile)</td>
<td>1.0948</td>
</tr>
<tr>
<td>Maximum Value</td>
<td>8.0499</td>
</tr>
</tbody>
</table>

Figure 4
Average SAIFI for all utilities that use the eReliability Tracker per region

![Average SAIFI for all utilities that use the eReliability Tracker per region](image)
Customer Average Interruption Duration Index (CAIDI)

CAIDI is defined as the average duration (in minutes) of an interruption experienced by customers during a specific time frame.

Since CAIDI is a sustained interruption index, only outages lasting longer than five minutes are included in the calculations. It is calculated by dividing the sum of all customer interruption durations during that time period by the number of customers that experienced one or more interruptions during that time period. This metric reflects the average customer experience (minutes of duration) during an outage.

Table 6
Average CAIDI for all utilities that use the eReliability Tracker, belong to your region, and are grouped in your customer size class

<table>
<thead>
<tr>
<th>Your utility's CAIDI:</th>
<th>86.9172</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average eReliability Tracker CAIDI</td>
<td>321.6103</td>
</tr>
<tr>
<td>Average CAIDI for Utilities Within Your Region</td>
<td>171.8783</td>
</tr>
<tr>
<td>Average CAIDI for Utilities Within Your Customer Size Class</td>
<td>227.8248</td>
</tr>
</tbody>
</table>

Table 7
Summary statistics of the CAIDI data compiled from the eReliability Tracker

<table>
<thead>
<tr>
<th>Minimum Value</th>
<th>11.7835</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Quartile (25th percentile)</td>
<td>60.0011</td>
</tr>
<tr>
<td>Median Quartile (50th percentile)</td>
<td>94.8976</td>
</tr>
<tr>
<td>Third Quartile (75th percentile)</td>
<td>151.0141</td>
</tr>
<tr>
<td>Maximum Value</td>
<td>22979.18</td>
</tr>
</tbody>
</table>

Figure 5
Average CAIDI for all utilities that use the eReliability Tracker per region
Momentary Average Interruption Frequency Index (MAIFI)

**MAIFI** is defined as the average number of times a customer on the utility system will experience a momentary interruption.

In this report, an outage with a duration of less than five minutes is classified as momentary. The index is calculated by dividing the total number of momentary customer interruptions by the total number of customers served by the utility. Momentary outages can be more difficult to track and many smaller utilities may not have the technology to do so; therefore, some utilities may have a MAIFI of zero.

**Table 8**

Average MAIFI for all utilities that use the eReliability Tracker, belong to your region, and are grouped in your customer size class

<table>
<thead>
<tr>
<th>Your utility's MAIFI:</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average eReliability Tracker MAIFI</td>
<td>0.3515</td>
</tr>
<tr>
<td>Average MAIFI for Utilities Within Your Region</td>
<td>0.0935</td>
</tr>
<tr>
<td>Average MAIFI for Utilities Within Your Customer Size Class</td>
<td>0.309</td>
</tr>
</tbody>
</table>

**Table 9**

Summary statistics of the MAIFI data compiled from the eReliability Tracker

<table>
<thead>
<tr>
<th>Minimum Value</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Quartile (25th percentile)</td>
<td>0</td>
</tr>
<tr>
<td>Median Quartile (50th percentile)</td>
<td>0</td>
</tr>
<tr>
<td>Third Quartile (75th percentile)</td>
<td>0.1166</td>
</tr>
<tr>
<td>Maximum Value</td>
<td>25.0421</td>
</tr>
</tbody>
</table>

**Figure 6**

Average MAIFI for all utilities that use the eReliability Tracker per region
Average Service Availability Index (ASAI)

ASAI is defined as a measure of the average availability of the sub-transmission and distribution systems that serve customers.

This load-based index represents the percentage availability of electric service to customers within the time period analyzed. It is calculated by dividing the total hours service is available to customers by the total hours that service is demanded by the customers. For example, an ASAI of 99.99% means that electric service was available for 99.99% of the time during the given time period.

Table 10
Average ASAI for all utilities that use the eReliability Tracker, belong to your region, and are grouped in your customer size class

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Your utility's ASAI (%):</td>
<td>99.9906</td>
</tr>
<tr>
<td>Average eReliability Tracker ASAI</td>
<td>99.9693</td>
</tr>
<tr>
<td>Average ASAI for Utilities Within Your Region</td>
<td>99.9677</td>
</tr>
<tr>
<td>Average ASAI for Utilities Within Your Customer Size Class</td>
<td>99.9561</td>
</tr>
</tbody>
</table>

Table 11
Summary statistics of the ASAI data compiled from the eReliability Tracker

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum Value</td>
<td>99.0091</td>
</tr>
<tr>
<td>First Quartile (25th percentile)</td>
<td>99.9779</td>
</tr>
<tr>
<td>Median Quartile (50th percentile)</td>
<td>99.9896</td>
</tr>
<tr>
<td>Third Quartile (75th percentile)</td>
<td>99.9954</td>
</tr>
<tr>
<td>Maximum Value</td>
<td>99.9999</td>
</tr>
</tbody>
</table>

Figure 7
Average ASAI for all utilities that use the eReliability Tracker per region

![Average ASAI per region graph](image)
2016 Energy Information Administration (EIA) Form 861 Data

Form EIA-861 collects information on the status of electric power industry participants involved in the generation, transmission, distribution, and sale of electric energy in the United States, its territories, and Puerto Rico.

EIA surveys electric power utilities annually through EIA Form 861 to collect electric industry data and subsequently make that data available to the public. In 2014, EIA began publishing reliability statistics in their survey from utility participants; therefore, the Association included EIA reliability statistics in this report for informational purposes. Please note that the following data includes investor-owned, rural cooperative, and public power utilities that were large enough to be required to fill out the full EIA 861, not the EIA 861-S form (for smaller entities). In addition, since the collection and release of EIA form data lags by more than a year, the data provided here is based on 2016 data only. Therefore, it is suggested that the aggregate statistics contained herein be used only as an informational tool for further comparison of reliability statistics.

In the table, if an entity calculates SAIDI, SAIFI, and determines major event days in accordance with the IEEE 1366-2003 or IEEE 1366-2012 standard, they are included under the "IEEE Method" columns. If the entity calculates these values via another method, they are included under the "Other Method" columns.

Additionally, it looks as though a number of utilities submitted incorrect data, which shows itself most in the average SAIFI numbers. For more general information on reliability metrics you can see the Association’s website at http://publicpower.org/reliability. Although EIA collected other reliability-related data, the tables below only include SAIDI and SAIFI data. The full set of data can be downloaded at this link: http://www.eia.gov/electricity/data/eia861/

Table 12
Summary statistics of the SAIDI data compiled from 2016 data collected by EIA

<table>
<thead>
<tr>
<th></th>
<th>IEEE Method</th>
<th>Other Method</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All</td>
<td>No MEDs</td>
</tr>
<tr>
<td>Average</td>
<td>314.2593</td>
<td>128.6160</td>
</tr>
<tr>
<td>Minimum Value</td>
<td>0.2840</td>
<td>0.0000</td>
</tr>
<tr>
<td>First Quartile (25th percentile)</td>
<td>81.7025</td>
<td>54.3800</td>
</tr>
<tr>
<td>Median Quartile (50th percentile)</td>
<td>154.8600</td>
<td>101.9000</td>
</tr>
<tr>
<td>Third Quartile (75th percentile)</td>
<td>292.7500</td>
<td>164.5150</td>
</tr>
<tr>
<td>Maximum Value</td>
<td>6957.4700</td>
<td>1099.0700</td>
</tr>
</tbody>
</table>

Table 13
Summary statistics of the SAIFI data compiled from 2016 data collected by EIA

<table>
<thead>
<tr>
<th></th>
<th>IEEE Method</th>
<th>Other Method</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All</td>
<td>No MEDs</td>
</tr>
<tr>
<td>Average</td>
<td>1.6569</td>
<td>1.2989</td>
</tr>
<tr>
<td>Minimum Value</td>
<td>0.0040</td>
<td>0.0000</td>
</tr>
<tr>
<td>First Quartile (25th percentile)</td>
<td>0.8800</td>
<td>0.6700</td>
</tr>
<tr>
<td>Median Quartile (50th percentile)</td>
<td>1.3400</td>
<td>1.0700</td>
</tr>
<tr>
<td>Third Quartile (75th percentile)</td>
<td>2.0600</td>
<td>1.5600</td>
</tr>
<tr>
<td>Maximum Value</td>
<td>29.0000</td>
<td>28.0200</td>
</tr>
</tbody>
</table>
Analysis of Miles of Line and Interruptions

Benchmarking metrics were created to help utilities explore the relationship between outages, overhead line exposure, and customer density. More specifically, by using interruptions per overhead mile of line and customers per mile utilities can benchmark reliability against system characteristics along with the customer normalized metrics included in the rest of the report. These system topography-related metrics can be helpful in understanding, for example, utility reliability against weather and animal-related outages relative to similarly dense and exposed utilities.

Your utility's overhead miles of line as reported by Ventyx: **198.15**

**Table 14**
Analysis of overhead miles of line and interruptions

<table>
<thead>
<tr>
<th></th>
<th>Interruptions per Mile</th>
<th>Customers per Mile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Your Utility:</td>
<td>0.3482</td>
<td>50.5678</td>
</tr>
<tr>
<td>Average for eReliability Tracker Utilities</td>
<td>0.9053</td>
<td>104.7849</td>
</tr>
<tr>
<td>Average for Utilities Within Your Region</td>
<td>0.6005</td>
<td>108.212</td>
</tr>
</tbody>
</table>
III. Outage Causes

Equipment failure, extreme weather events, wildlife and vegetation are some of the most common causes of electric system outages. However, certain factors, such as regional weather and animal/vegetation patterns, can make a different set of causes more prevalent to a specific group of utilities. The following sections of this report include graphs depicting common causes of outages for your individual utility, all utilities in your region, and all utilities using the eReliability Tracker. The charts containing aggregate information are customer-weighted to account for differences in utility size for a better analytical comparison.

For example, a particularly large utility may have a large number of outages compared to a small utility; in order to avoid skewing the data towards large utilities, the number of cause occurrences is divided by customer size to account for the differences. In the figures below, the data represent the number of occurrences for each group of 1000 customers. For instance, a customer-weighted occurrence rate of "1" means 1 outage of that outage cause per 1000 customers on average in 2017.

Note that the sustained outage cause analysis is more comprehensive than the momentary outage cause analysis due to a bigger and more robust sample size for sustained outages. Regardless, tracking both sustained and momentary outages helps utilities understand and reduce outages. To successfully use the outage information tracked by your utility, it is imperative to classify and record outages in detail. The more information provided per outage, the more conclusive and practical your analyses will be.

Sustained Outage Causes

In general, sustained outages are the most commonly tracked outage type. In many analyses of sustained outages, utilities tend to exclude scheduled outages, partial power, customer-related problems, and qualifying major events from their reliability indices calculations. While this is a valid method for reporting, these outages should be included for internal review to make utility-level decisions. In this section, we evaluate common causes of sustained outages for your utility, corresponding region, and for all utilities that use the eReliability Tracker. It is important to note that in this report, sustained outages are classified as outages that last longer than five minutes, as defined by IEEE 1366.
Figure 8
Top five customer-weighted occurrence rates for common causes of sustained outages for all utilities that use the eReliability Tracker Service

Figure 9
Top five customer-weighted causes of sustained outages for your utility

Figure 10
Top five customer-weighted occurrence rates for sustained outage causes in your region

For each utility, the number of occurrences for each cause is divided by that utility’s customer size (in 1000s) to create an occurrence rate that can be compared across different utility sizes.
**Momentary Outage Causes**

The ability to track momentary outages can be difficult or unavailable on some systems, but due to the hazard they pose for electronic equipment, it is important to track and analyze momentary causes. In this section, we evaluate common causes of momentary outages for your utility, region and customer size class as well as common causes for all utilities that use the eReliability Tracker. Please note that only outages lasting less than five minutes are classified as momentary, as defined by IEEE 1366.

**Figure 11**
Top five customer-weighted occurrence rates for common causes of momentary outages for all utilities that use the eReliability Tracker Service

![Bar chart showing occurrence rates of momentary outage causes.]

**Figure 12**
Top five customer-weighted causes of momentary outages for your utility

![Bar chart showing occurrence rates of momentary outage causes for the user's utility.]

If your utility has less than eight momentary outages recorded in the eReliability Tracker, this graph will be blank.
Thank you for using the eReliability Tracker, and we hope this report is useful to your utility in analyzing your system. If you have any questions regarding the material provided in this report, please contact:

APPA's Reliability Team

Michael J. Hyland
Alex Hofmann
Tanzina Islam
Christina Ospina
Ethan Epstein

American Public Power Association
2451 Crystal Drive, Suite 1000
Arlington, VA 22202

reliability@publicpower.org

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System Average Interruption Duration Index (SAIDI) -
The average interruption duration (in minutes) for customers served by the utility system during a specific time period - (Customers impacted x Outage Duration / Average of all customers)

<table>
<thead>
<tr>
<th></th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>NWCPUD SAIDI</td>
<td>15.9294</td>
<td>22.0325</td>
<td>58.2888</td>
<td>61.5366</td>
<td>63.5717</td>
</tr>
<tr>
<td>Average SAIDI</td>
<td>133.6884</td>
<td>111.6347</td>
<td>97.0148</td>
<td>92.3956</td>
<td>161.7605</td>
</tr>
<tr>
<td>Region SAIDI</td>
<td>93.739</td>
<td>281.861</td>
<td>448.1401</td>
<td>151.0079</td>
<td>179.1688</td>
</tr>
<tr>
<td>Class SAIDI</td>
<td>201.0751</td>
<td>87.1486</td>
<td>87.4765</td>
<td>85.4668</td>
<td>230.6849</td>
</tr>
</tbody>
</table>

The average interruption duration (in minutes) for customers served by the utility system during a specific time period - (Customers impacted x Outage Duration / Average of all customers)
System Average Interruption Frequency Index (SAIFI) -
The average number of instances a customer on the utility system will experience an interruption during a specific time period - (Sum of impacted customers during outage / Average of all customers)

<table>
<thead>
<tr>
<th>Year</th>
<th>NWCPUD SAIFI</th>
<th>Average SAIFI</th>
<th>Region SAIFI</th>
<th>Class SAIFI</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>0.0893</td>
<td>0.8056</td>
<td>0.6607</td>
<td>1.0026</td>
</tr>
<tr>
<td>2014</td>
<td>0.3461</td>
<td>0.9615</td>
<td>1.5575</td>
<td>0.8387</td>
</tr>
<tr>
<td>2015</td>
<td>0.7227</td>
<td>0.7355</td>
<td>1.3615</td>
<td>0.5571</td>
</tr>
<tr>
<td>2016</td>
<td>0.3762</td>
<td>0.7961</td>
<td>0.6521</td>
<td>0.7013</td>
</tr>
<tr>
<td>2017</td>
<td>0.7314</td>
<td>0.8515</td>
<td>0.9241</td>
<td>0.8991</td>
</tr>
</tbody>
</table>
Customer Average Interruption Duration Index (CAIDI) -

The average duration (in minutes) of an interruption experienced by customers during a specific time frame - (Customers impacted x Outage duration / Sum of customers impacted)

<table>
<thead>
<tr>
<th>Year</th>
<th>NWCPUD CAIDI</th>
<th>Average CAIDI</th>
<th>Region CAIDI</th>
<th>Class CAIDI</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>178.4755</td>
<td>137.656</td>
<td>142.4651</td>
<td>161.156</td>
</tr>
<tr>
<td>2014</td>
<td>63.6616</td>
<td>108.8292</td>
<td>162.7736</td>
<td>107.7752</td>
</tr>
<tr>
<td>2015</td>
<td>80.6516</td>
<td>113.6645</td>
<td>248.4204</td>
<td>109.2855</td>
</tr>
<tr>
<td>2016</td>
<td>163.5578</td>
<td>134.3941</td>
<td>508.2063</td>
<td>116.6985</td>
</tr>
<tr>
<td>2017</td>
<td>86.9172</td>
<td>321.6103</td>
<td>171.8783</td>
<td>227.8248</td>
</tr>
</tbody>
</table>
Average Service Availability Index (ASAI) -
The measure of the average availability of the sub-transmission and distribution systems that serve customers

<table>
<thead>
<tr>
<th></th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>NWCPUD ASAI</td>
<td>99.997%</td>
<td>99.996%</td>
<td>99.989%</td>
<td>99.988%</td>
<td>99.991%</td>
</tr>
<tr>
<td>Average ASAI</td>
<td>99.978%</td>
<td>99.979%</td>
<td>99.982%</td>
<td>99.983%</td>
<td>99.969%</td>
</tr>
<tr>
<td>Region ASAI</td>
<td>99.982%</td>
<td>99.954%</td>
<td>99.916%</td>
<td>99.977%</td>
<td>99.968%</td>
</tr>
<tr>
<td>Class ASAI</td>
<td>99.962%</td>
<td>99.983%</td>
<td>99.984%</td>
<td>99.984%</td>
<td>99.956%</td>
</tr>
</tbody>
</table>
Port of The Dalles Marina Electrical Upgrade

Steve Horzynek
Asset/Program Manager – Engineering Team Lead
Current Conditions/Issues

- Overhead transformer at capacity
- Overhead lines with limited connection options and aged support structures
- Hazards during high water
- No ability to provide required Ground Fault (GFCI) protection
- Very limited service capacity to customers during peak occupancy
- Outages very typical during peak occupancy
Planned Upgrades

• New pad mount transformer on shore
• Proper system ground protection
• Increased service capacity providing reliability during peak occupancy
• Industry standard marine electric distribution system
• All conductors mounted to the dock above water line
• Improved lighting
• Provide proper infrastructure against electric shock drowning
Dock Mounted Distribution Transformer
EATON Lighthouse SS
Two Meter Pedestal with light
AMENDED AND RESTATED BYLAWS
OF
OREGON PEOPLE’S UTILITY DISTRICT ASSOCIATION, INC.
ENACTED MAY 11, 2012

ARTICLE VIII
Standing and Ad Hoc Committees

Section 1. In order to effectively and efficiently carry out the work and business of the Association, the following Standing Committees shall be appointed by the President:

A. The Budget Committee shall be composed of a representative from each Regular Member PUD. They shall meet prior to the annual meeting in order to prepare a budget for approval at the annual meeting.

B. The Legislative Oversight Committee shall be composed of the Regular Member’s General Manager or their staff delegate and the President of the Board of Directors. They are charged with working with the OPUDA lobbyist to take legislative action and advise the Board of Directors about legislative activities.

Section 2. The President may appoint such ad hoc committees as the President deems necessary or appropriate from time to time to advance the policies and accomplish the objectives of the Association. The membership and activities of ad hoc committees shall be at the direction of the President. Ad hoc committees shall be created and/or renewed annually at the discretion of the current President.
ARTICLE VIII

STANDING AND AD HOC COMMITTEES

Section 1. In order to effectively and efficiently carry out the work and business of the Association, the following Standing Committees shall be appointed by the President:

A. The Budget Committee shall be composed of a representative from each Regular Member PUD. They shall meet/communicate in order to prepare a budget for Board approval by the end of the calendar year.

B. The Legislative Oversight Committee shall be composed of the Regular Member’s General Manager or their staff delegate and the President of the Board of Directors. They are charged to work with the OPUDA lobbyists, devise a legislative plan, seek Board approval, and carry out necessary actions.

NOTE: THE UNDERLINED INFORMATION ABOVE ARE CHANGES TO THE PROPOSED OPUDA BY-LAW REVISIONS...