

Jennifer Anders
Chair
Montana

Bo Downen
Montana

Guy Norman
Washington

Patrick Oshie
Washington



Northwest Power and Conservation Council

Richard Devlin
Vice Chair
Oregon

Ted Ferrioli
Oregon

Jim Yost
Idaho

Jeffery C. Allen
Idaho

Council Meeting Corvallis, Oregon September 17-18, 2019

Tuesday, September 17

Council Vice-Chair Richard Devlin convened the meeting at 2:33 p.m. Council Members Jim Yost, Ted Ferrioli, Guy Norman, Pat Oshie, Jeffery Allen and Bo Downen were in attendance. Council Chair Jennifer Anders joined by phone.

Reports from Fish and Wildlife, Power and Public Affairs Committee chairs

Fish and Wildlife

Committee Chair Guy Norman talked about a field trip earlier that morning to tour the Minto Adult Fish Collection Facility and Detroit Dam on the North Santiam River. The hatchery is collecting spring Chinook and is performing genetic separation. It helps pass natural fish upstream to spawn and will be a future source for reintroduction efforts above Detroit Dam. At the dam, they looked at efforts to reduce water temperature for salmon and steelhead. The timeframe for the installation of the temperature control system is 2021-2024. Installing a fish passage system would come after 2024. It's a challenging and expensive situation that is subject to funding.

Power

Committee Chair Richard Devlin reported on four items:

A forecast of draft loads with energy efficiency frozen. People want to talk about what new resources might be needed, but first we have to determine what the load will be over the next 20 years. Factors include population changes, economic conditions, and expectations

on climate change and temperatures. New factors to consider include possible increases in behind the meter solar, some with battery storage and the rate of penetration of electric vehicles in transportation markets.

1. The committee discussed cost effective methods for providing reserves. It was beneficial because we have to plan for reserve requirements. There also was a presentation on the existing system for power production. Gillian Charles, energy policy analyst, reviewed new power generation coming online.
2. The retirement of coal plants was discussed. Over the next 10 years, over 45% of the coal fleet is expected to retire.
3. There will be a presentation tomorrow on resource adequacy. It's important to understand that coal retirements in 2021 will take us beyond our standard from a loss of load probability (LOLP) of 5% to 7.5%. With subsequent, expected coal retirements, the LOLP will get to 8.3%. If the retirements occur earlier, the LOLP could go to 33%. However, the entities retiring coal plants could put other resources in place. It will be our job in the Power Plan to determine what the best course of action is for replacing those power needs.

Public Affairs

Committee Chair Jeffery Allen said the committee's 12th Congressional Tour was well attended and was a success. There was positive feedback and a good bipartisan spirit. Member Allen said that when they follow up, they'll find they have friends and access to members of Congress. He thanked Public Affairs Division director Mark Walker and Council staff. It's between Idaho and Montana for who hosts the next one. There is no committee meeting this month.

Member Jennifer Anders reported on the Transboundary Conference, which was sponsored by the Columbia Basin Trust and the Council. Assisting with the planning was Chief Joe Pierre from the Ktunaxa Nation and Margie Hutchinson from the Colville Tribe. The conference covered climate change, invasive species, reintroduction, the Columbia River Treaty, river governance and energy. Ben Kujala, Power Division manager, facilitated the talk on energy. One of the highlights was a field trip to the Columbia River headwaters. It was a great opportunity for the Council to fulfill its role with the public. Members Anders, Norman and Devlin praised the work of John Harrison, information officer, and Laura Robinson, program analyst and tribal relations advisor, in putting on the conference. There were 288 delegates. Member Anders gave opening and closing remarks.

1. **Briefing on Status of Federal Energy Efficiency Standards:** Kevin Smit, senior energy efficiency analyst; and Tom Eckman, Tom Eckman LLC.

Kevin Smit, senior energy efficiency analyst, introduced Tom Eckman, of Tom Eckman LLC, whom he described as the Yoda of energy efficiency standards. Smit said that in

preparation for the 2021 Power Plan, it is important to understand the status of federal appliance efficiency standards. New standards implemented since the Seventh Power Plan are accounted for in the Council's load forecast and reduce forecasted regional loads. Appliance efficiency standards also provide baselines for the Council's energy efficiency supply curves.

Eckman provided a history of standards. In the mid-70s, the Energy Policy and Conservation Act (EPCA) established test procedures for consumer products. In 1979, the act was amended to let the DOE set standards. When targets weren't met, the National Appliance Energy Conservation Act of 1987 established minimum efficiency standards for common appliances and DOE review schedules. The Energy Policy Act of 1992 added standards for more products. The Energy Policy Act of 2005 set new standards. The Energy Policy Act of 2007 updated standards for 13 products and set a schedule for review.

For example, refrigerators used to use 1200 kWh a year. Now it's closer to 400 kWh, even with new features and technology advances. Washers have declined from 900 kWh to 250 kWh. Today, there are 60 categories of appliances and equipment.

The legislative directives for standards are:

Cost effective max tech – Any new or amended equipment shall be designed to achieve the maximum improvement in energy efficiency that the secretary determines is technologically feasible and economically justified.

Anti-back sliding provision – Amended standards cannot increase the maximum allowable energy use, or decrease the minimum required energy efficiency of a covered product. Manufacturers didn't want to invest in improving equipment and see it go backward, stranding their assets, Eckman said.

Reading from his slides, Eckman said the DOE must consider seven factors when determining standards:

1. The economic impact on the manufacturers and on the consumers;
2. The savings in operating and maintenance costs throughout the estimated average life of the product compared to any increase in the price;
3. The total energy savings from the standard (the appliance has to use 125 kWh a year to regulate it — the DOE is looking for big savings);
4. Any lessening of the utility or the performance resulting from the imposition of the standard;
5. The impact of any lessening of competition, as determined in writing by the attorney general, that is likely to result from the imposition of the standard (DOE pays a lot of attention to this);

6. The need for national energy conservation; and
7. Other factors the secretary considers relevant.

Eckman reviewed the standards revision process. He said it's somewhat arcane. DOE may issue an RFI or may just issue a notice of proposed rulemaking. It's three long years before a final rule is announced. Then, implementation is three to five years, and analysis takes six year.

He said the standards process is subject to the political climate. He reviewed congressional activity under different presidents. The pace of DOE standards updated between 2008 and 2016 was unprecedented. It had a significant impact on load growth for utilities. From the Seventh Plan, Eckman charted load impacts over time.

By statute (EISA 2007), DOE is required to review standards every six years and test procedures every seven years. Based on its review, DOE can decide to retain the current standard or increase the minimum efficiency requirement. However, DOE is legally prohibited from relaxing the minimum efficiency requirement.

Since 2017, the Department of Energy has missed statutory deadlines for reviewing 22 standards and 17 test procedures. While the slowdown in federal standards efforts does not have a marked effect on savings in the near-term, a persistent slowdown could have significant impact on long-term goals and increase the cost to utilities to achieve all cost-effective conservation.

DOE plans to publish 18 actions to energy conservation standards and to publish 11 actions related to test procedures before the end of 2019. Eckman said there are concerns that these will be relitigated.

Eckman said that DOE recently released two rules that effectively reverse prior light bulb energy efficiency standards:

- A final rule rolls back a 2017 light bulb definition that would expand the standards to cover the full range of bulb shapes and sizes, that eliminates efficiency standards for about half of the six billion light bulbs used in U.S. homes and businesses.
- A proposed determination eliminates EISA's "backstop" 2020 standards for "A-lamps," which are the pear-shaped bulbs that make up the other half of light bulbs used in U.S. homes. This also might get relitigated.

Eckman said there will probably be a lot of lawsuits. Washington and Oregon are among 16 states and New York City that are expected to litigate. The major issue is whether DOE violates the anti-backsliding provisions of the EPCA. This is a big deal, he said.

The implications of DOE's recent actions (and inaction) on standards for Council planning:

- Increases the range of load forecast uncertainty, since "enacted standards" can no longer be assumed to be final and "update schedules" are not predictable.
- Increases the remaining energy efficiency potential that is cost-effective (because standards typically capture the cheapest savings) to acquire through utility and NEEA programs.
- Reduces the ability to rely on federal standards as a mechanism for achieving regional savings. It's not a good outcome for low cost and reduced uncertainty, Eckman said.

An area where progress is being made is negotiated rulemaking, he said. The American Heating and Refrigeration Institute petitioned DOE's Appliance Standards and Rulemaking Federal Advisory Committee (ASRAC) to negotiate a standard for commercial variable refrigerant flow air conditioners and heat pumps (known as VRFs). They should have a standard by the end of the year and then it will go out for a rulemaking process. Eckman said that manufacturers aren't happy because they thought they would be done, but the industry's testing didn't represent how efficient the equipment is, and it's about 50% wrong. Work by the Council, California IOUs, Northwest Energy Efficiency Alliance, and the American Council for an Energy-Efficient Economy have worked to ensure that test procedures have realistic efficiency ratings.

Eckman said the Council has participated in federal standards since the early 1990s. But there are tradeoffs to consider going forward. Kevin Smit is ready to assume the role. It just depends if the Council wants to be committed or just involved.

2. Presentation on Bonneville Power Administration plan to join Energy Imbalance Market

Ben Kujala, Power Divisions director, introduced Steve Kerns, director of grid modernization, Bonneville Power Administration.

Kerns is working on modernizing transmission assets and evaluating new marketing opportunities for BPA. He reviewed drivers for market changes. In the early 1990s, the region's hydro operators were picking up the phone and taking orders. There was very little trading going on. Trading today is still about the same as 20 years ago. Kerns described the load during different time periods.

Kerns mentioned the duck curve and said that intermittent energy doesn't match how we trade bilaterally in the Northwest. The Federal Columbia River Power System has 20,000 MW of installed capacity. The big 10 hydro projects can move quickly. It's about determining how to get value out of that. Transmission use is changing and the footprint has grown. Others are wheeling across BPA's system to use the EIM. Solar growth is creating excess. Soon we will be having more California solar coming into the system.

Reading from his slides, Kerns talked about the market context for looking into the EIM:

- A well-designed electricity market is built on a foundation of resource adequacy and has features that provide for intra-hour energy balancing and that compensate explicitly for capacity resources that provide system reliability and flexibility.
- BPA views the EIM as one piece of a well-designed market. Additional market functions are required to fully compensate BPA for the capacity value of the flexible and carbon-free federal power system.
- BPA will continue to work with CAISO and stakeholders to enhance regional resource adequacy by ensuring that flexible resources are appropriately compensated for the services that they provide.

Bonneville initiated a formal stakeholder process in July 2018 and has wrapped that up, Kerns said. Bonneville began discussions with CAISO in September 2018.

Kerns said their modeling suggests that dispatch benefits from EIM participation will quickly pay for itself and will result in ongoing annual net benefits of \$29 million – \$34 million. Analysis has determined that EIM participation is a cost-effective, nonwires solution and an effective intra-hour congestion management tool.

EIM participation will also result in the efficient dispatch of generation to meet load across the entire EIM footprint. It also will:

- Provide increased visibility and discipline in the dispatch and marketing of federal power and transmission assets;
- Create additional visibility of conditions across the grid which will enhance reliability; and
- Allow BPA to effectively participate in the development of future markets, which will appropriately compensate flexible resources for the services that they provide.

Joining the market helps you get your act together, Kerns said. Otherwise, there's a price to pay. It will provide more discipline to BPA, and value to the agency and its customers.

Kerns listed eight evaluation issues from his slides.

1. Relationship of EIM to other emerging markets
2. Balancing authority resource sufficiency
3. EIM settlements – we found experts at BPA to learn how these work, he said.
4. Market power – there needs to be a market monitoring function. This calculation is not hydro-friendly. We're hopeful that there will be a positive outcome with FERC.
5. Treatment of transmission
6. Generation participation model (FCRPS) – if we join, how will we participate? We tried to find a solution that balanced hydraulic automation of our system. We looked at submitting the big 10 hydro projects as one generator. But we could deoptimize the system. We landed on an aggregation model that groups different projects.
7. Governance – what is the role of public power in the EIM? We want to find a way to enhance it.
8. Carbon obligation in EIM – right now, if we sell into California, we have to buy a carbon allowance. If we can't sell to California, what would it do to the business proposition? We need a legislative solution to get authorization to sell directly to California, Kerns said.

Member Downen asked, What type of product will BPA deliver to the EIM, beyond your preference customers? I'm not sure I'd call it a product, Kerns replied. We'll still do bilateral trading, months ahead and day ahead. But when we get to the hour before, we will look at Grand Coulee and Chief Joseph. We think your base schedules are going to be 6,000 MW, but you can go up to 6,500 MW and down to 5,500 MW. We're going to offer that flexibility into the market and put a price on it got every five-minute interval of that hour. That's the value proposition and not something we can do right now. There's no bilateral market for trading five-minute energy. It's a new market opportunity that should give us \$29 million – \$30 million in benefit for power revenue.

Kerns said a letter has been released with more details. He said there are still some policy questions. They haven't figured out how to allocate costs or implement resource efficiency. He laid out some policy decisions they'll be making in the next month or so. They received a lot of comments last July 27. There's a lot of support for signing the agreement, he said.

Kerns said BPA will issue a record of decision in the next week or two. He reviewed the EIM decision process. If BPA administrator Elliot Mainzer signs the implementation agreement, then it will land in their rate case. So there's a sense of urgency to get things done before we launch into our rate and tariff cases. In fall 2021, BPA will issue draft and final close-out letters.

Looking at the timeline, Kerns said there's quite a bit of work to do: modernizing the grid, how they make decisions and how to submit bids into the EIM. March 2022 is the go-live date, which feels like the right amount of time.

Kerns shared links for more information:

BPA's EIM Stakeholder process and meetings:

<https://www.bpa.gov/Projects/Initiatives/EIM/Pages/Energy-Imbalance-Market.aspx>

BPA's Grid Modernization Initiative:

<https://www.bpa.gov/goto/GridModernization>

Member Ferrioli asked about the phrase, “appropriately compensated for the service that they provide — flexible, carbon-free capacity value.” You talked about the ability to deliver a range of power over a period of time and that would come with guarantees, and that’s one mechanism for capturing value. Are there others? Kerns said it used to be called a flexible ramping product. You know a day ahead in order to meet the duck curve ramp. You’d be standing ready and be paid a capacity component in addition to the energy value.

Member Ferrioli asked if there’s been conversations with consumers of that capacity, and that they agree there’s value in that. Kerns replied that he can only point to the stakeholder process for this product and what they’re saying.

Member Ferrioli said we’ve seen our commodity markets focus on what to sell to what people will buy, which is better unless all you’re going to sell is a commodity. We sell a very valuable, low-cost commodity. The question is how to get the value-added benefit.

Member Yost asked if Kerns has looked at what hardware, software and processes are needed. Yes, it was part of the cost/benefit analysis, Kerns replied. They have an estimate on how much it will cost for new systems and processes. They have done a lot of benchmarking. They have spent time with Idaho Power on what worked and what didn’t. There are third-party vendors who can help as well. They have a good handle on what needs to be done.

Member Yost said the market seems to be changing monthly in a way we never expected a couple of years ago. Everyone’s trying to get a benefit. There will be changing market conditions. Kerns said that for those of us around in 2001, a dry year can do a lot of damage if we’re not prepared for it. It’s important to have mechanisms set up so there’s resource adequacy and efficiency.

Introduction of Council Member Bo Downen

Member Devlin introduced Bo Downen, new Council Member from Montana. Member Downen said that after many years of second-guessing this body, he’s now in it. He already

knows the Council Members, staff and other stakeholders, and he's looking forward to getting to work with them.

3. Update on avian predation in the Columbia River Basin

Laura Robinson introduced Dr. Dan Roby, Oregon State University; and Allen Evans, Real Time Research. Roby has been involved in predation research for 20 years. The Council has a predation management strategy in its 2020 program to expand the management of predators.

Reading from his slides, Roby provided background on how the three management plans came about. The avian predation research program began in 1997. Avian predation is a major source of smolt mortality for multiple ESA-listed salmonid populations in the Columbia Basin. Caspian terns and double-crested cormorants have the highest per-capita impacts on smolt survival of all the bird species studied. Juvenile steelhead and fall Chinook salmon are particularly susceptible to predation by terns and cormorants.

Research is focused on trying to quantify impacts. Caspian terns and double-crested cormorants nesting on East Sand Island depredated up to 25 million smolts annually, or roughly 15% of the surviving out-migrants to the estuary.

Caspian terns nesting on Crescent and Goose islands in the Columbia Plateau region consumed annually from 5% – 30% of out-migrating smolts from some listed steelhead populations.

Management of terns and cormorants to reduce their impacts on smolts was called for in regional planning documents (e.g., FCRPS BiOp).

Management plans are focused on Caspian terns on East Sand Island, double-crested cormorants on East Sand Island, and Caspian terns on Goose and Crescent Islands.

The tern plan seeks to:

1. Reduce the size of the colony from 10,000 to 3,125, using passive dissuasion.
2. Prevent nesting elsewhere.
3. Create an alternative habitat.
4. Conduct monitoring to measure effectiveness.

The cormorant plan seeks to:

1. Reduce the size of the colony from 14,900 to 5,600.
2. Culling and egg oiling — culling up to 11,000 adults and oiling eggs in up to 26,000 nests.

3. Reduce nesting habitat — convert it to intertidal wetland.
4. Conduct monitoring to measure effectiveness.

The tern plan for the Columbia Plateau seeks to:

1. Reduce the size of the colony.
2. Create an alternative habitat.
3. Conduct monitoring to measure effectiveness.
4. Adaptive management — manage if the terns relocate to other colonies in the area.

The tern plan results:

- Colony size was reduced to 3,800.
- Alternative habitat – the terns relocated but the sites are under-used.
- Predation impacts – 50% reduction on impacts on steelhead and smolt survival. While it's good, it's less than hoped.
- High fidelity of terns to estuary. There are persistent nesting attempts by terns elsewhere in the estuary.

The cormorant plan results:

- Over 5,000 adults were culled and eggs from 7,000 were oiled. Forced to stop when they abandoned the area.
- Habitat modifications — available nesting habitat was reduced.
- Colony mostly abandoned. Problem because they've moved to the Astoria-Megler Bridge, which is where they eat the smolt. It's a big problem for fisheries managers and ODOT.

The terns on Columbia Plateau plan results:

- Tern colonies were eliminated.
- There's a decline in tern population regionwide: 44%. They're hoping to get it down to 200 breeding pairs. They're still above that.
- The terns have high fidelity to region. There are persistent nesting attempts at Goose Island and relocation to the Blalock Islands.
- Predation impacts have been reduced. This benefit is offset by increased predation at Blalocks.

Roby said that critical uncertainties remain:

- There's a strong fidelity to the region.
- The smolt impact remains significant.
- Adaptive management is needed to reach management objectives.

Finally, Roby acknowledged the funding partners: BPA, Grant PUD, PRCC, Oregon Department of Fish and Wildlife, U.S. Fish and Wildlife Service, U.S. Army Corps of Engineers and Bureau of Reclamation.

Member Norman thanked the presenters. The conclusion is that the Caspian tern population isn't down to the goal. Is it due to nesting in the fringe areas? Roby said managers have to reduce the habitat available. The Corps is reluctant to continue as it is expensive.

Columbia Plateau results are down because the alternative nesting habitat is off-limits because it is a part of a national wildlife refuge.

Member Norman followed with a question about cormorants: The target was reached, but now they've moved. Is monitoring in place? How are we assessing that difference?

Roby said monitoring is focused on the island. Impacts from the bridge are unknown. But we know the further upriver, the greater the impact.

Member Yost asked what the researchers were surprised about. Roby said that when Caspian terns nested on Rice Island, he assumed that salmonids would be part of the diet, but not at that high percentage. With cormorants, the diet isn't as much salmonids. But there were so many of them (30,000), even with a small percentages, the numbers came out large.

Allen Evans explained that fish populations don't have to navigate past one colony, they have to navigate past 14 colonies. More fish are dying from birds than dams and predatory fish.

Member Devlin recessed the meeting at 4:53 p.m.

Wednesday, September 18

Member Devlin brought the meeting to order 9:02 a.m.

5. Briefing on 2018 Regional Conservation Progress Report

Jennifer Light, Regional Technical Forum manager, shared the annual Regional Conservation Progress (RCP) survey with Council Members. It tallies total market savings, program savings, momentum savings, and codes and standards savings from BPA (on behalf of their public utilities), the region's investor-owned utilities, Energy Trust of Oregon, and the Northwest Energy Efficiency Alliance.

Not all savings are equal. They have to avoid double counting and rely on the total market savings to true up what's happening in the market. About 40% of the savings is coming from total market savings. This includes lighting, refrigerators, heat pump water heaters, washers

and HVAC. Staff calculated a market adjustment for any market where they have total market savings. Without this, we'd be overstating savings, Light said.

There are timing issues. BPA uses a fiscal year and utilities are on a calendar year. Over a three-year period it smooths out. For self-funders, they can't get all the data from some utilities.

Light charted regional progress from 2016 to 2018. Cumulatively, the region is ahead of the goal with 637 aMW of savings compared to a target of 600. However, significant progress will be needed to meet the six-year goal. The region would need to achieve another 763 aMW to achieve the six-year goal of 1,400 aMW.

For example, program savings are declining, and the forecast shows the trend continuing over the plan period. Light said they don't have a lot of information on momentum savings.

NEEA Alliance savings increased in 2018, but they are forecasted to decrease in 2020. Sixty percent of the savings comes from residential lighting. It's been an important contributor, she said. Many of the savings are from general service lamps. Starting in 2020, these lamps can't be claimed in the target.

Significant potential remains in the residential sector. The region is ahead in commercial and is on track with agricultural, industrial and utility efficiency.

Shifting the emphasis toward HVAC and water heating will help in meeting potential. Lighting is what's driving the commercial side. In residential, HVAC and water heating is where savings can be found.

Light said that Bonneville is currently achieving less than 42% of the regional target — 123 aMW versus 155 aMW. They determine BPA's savings by taking total BPA program savings, plus 42% of other region accomplishments. BPA does have different milestones, she said. BPA's program savings account for 30% of regional savings, and 35% of its savings are through self-funding.

Only 25% of BPA utilities self-fund. Ninety percent of self-fund savings come from six utilities. If something changes in those utilities, it has a significant impact on total savings.

Member Downen asked what percentage of BPA's load do those six utilities total. Light didn't have the figure, but can get that for him.

Light said energy efficiency continues to contribute significant capacity savings for the region. Most of the savings are from lighting, but HVAC, while not reaching potential, still contributes a lot. On the summer side, it's still lighting and HVAC, but irrigation pops up.

Energy efficiency has provided 6,900 aMW of savings since 1978. They have been getting a lot through program savings. Codes and standards are growing a lot in savings.

6,900 aMW represents:

- The annual energy consumption of around 5.5 million homes
- Roughly 2.5 times the generation of Grand Coulee
- Approximately three times the region's wind capability
- Avoided more than 21.9 million metric tons of CO₂
- The CO₂ equivalent of driving a Prius between the Portlands over 15,000 times

Light summarized that energy efficiency continues to be a valuable resource. We need to watch the decline in program savings. NEEA and momentum savings to contribute, but they're unreliable. Keep an eye on residential savings and BPA's progress toward 42%.

Member Devlin referred to a slide called BPA's perspective. In 2016-2017, BPA had exceeded its goals. If they could keep their savings for 2018 and 2019, they could reduce programmatic savings in the last two years: 2020–2021. It seems they might have to reverse course. Light said the slide on BPA's progress isn't just program savings, it's all of the mechanisms. Their energy efficiency plan is getting a lot through programs. BPA should be the ones to speak to their progress.

Member Devlin said in the Fifth and Sixth Plans, BPA met that expectation and others exceeded it. What we're seeing now is because we're close to 100%, we see some exceeding and BPA falling short. Is that accurate? Light replied that BPA's programs would have to be at 42% to be on track, or the region as a whole would have to be overachieving. I recall the region did overachieve the Sixth Plan goals, she said. The amount coming from IOUs was significant.

Member Devlin said we're in the planning process for the 2021 Plan and have to count on energy efficiency savings. I don't know if we can count on others overachieving or if we have to take a closer look at what we count on for energy efficiency and look more closely into Bonneville's programs, and others' programs. It seems like we were in the best of worlds before. It would seem odd for Bonneville to reduce its expectations in 2020–2021.

Light said that tracking progress in this way is hard. We're looking at 2018 now, almost halfway through 2019. It's hard to change direction because we're halfway through.

Member Devlin said he understands BPA is looking at the numbers and there might be a further adjustment. Do you believe the adjustment they're seeking would bring them anywhere close to 100% of the standard? Light said she knows they're still looking at the

market adjustment, but doesn't know the specifics of their concerns. If you take it out, they would be on track but there would be significant double counting of savings.

Member Yost said, I'm pleased you're looking at the glass being half-empty. This presentation shows me is that we were over-aggressive in setting a target last year — it's not that we achieved less, it's that we projected to save more. It's like finding a \$10 bill and being disappointed it's not a \$20. We're looking into the future six years to determine what the energy efficiency savings will be, and we're guessing. Our Council and staff were very aggressive setting targets in the Seventh Plan. A lot of us didn't agree with it and thought it was too high, but we accepted it because we figured having a high goal was good. It's a target. We all knew that lighting was going to be in a downturn after the CFL boost. All of the low fruit had been plucked early on, and all the energy efficiency savings would cost a little bit more in the future. Just like we know the energy efficiency units in the future are going to cost us more. We have the price of energy efficiency going up, we have utilities setting budgets to achieve the energy efficiency they're able to, and 42% was a guess we came up with for BPA. It might be changing every few years. Rather than looking at missing our target, we should say we got pretty close and that was a success. We'll be close to that target number. We should be happy with where we are and we should be cautious with the numbers we set for the future.

Member Devlin said I respect that viewpoint and agree with much of it, but if we fall a couple hundred megawatts less, that might start affecting whether we meet our adequacy standards.

Member Yost said if you keep building wind and solar without fossil fuels, the LOLP will be higher. Let's look at all the issues on the table, not just energy efficiency. Let's look at the foolishness of going all renewables, energy efficiency and demand response, and going away from anything that will give you reliability, stability and keeping the lights on. That increases the LOLP a lot more than missing 200 MW of energy efficiency over a six-year period. Member Devlin replied we can agree to disagree.

Member Ferrioli asked for a compilation of incentive programs for HVAC. Light said they are working on that.

Member Ferrioli said he's glad that Light pointed out the difference in lighting. It was a lighting revolution. There are some areas where markets can be penetrated. The next great opportunity is how to incent the HVAC retrofit more towards the heat pump. They are expensive. There needs to be an incentive for owners to install to get those savings. If we miss those targets, we'll have to meet capacity elsewhere.

6. Presentation on 2024 Resource Adequacy Report:

John Fazio, senior power system analyst; and John Ollis, power system analyst, gave the annual report on the adequacy of the power supply over the next five years. The Council has produced this report for the last 20 years.

The areas assessed are generation, transmission and distribution.

We focus on whether we have adequate generation, Fazio said. To measure that, we look at generating resources, energy efficiency savings and import markets. In looking at adequacy, we measure the frequency, duration and magnitude of potential shortfalls. The Council uses a simulation method using GENESYS. Fazio said they run thousands of simulations for an operating year with different manifestations of future uncertainties.

Fazio described the Council's adequacy standard: The Council deems the regional power supply to be adequate if the likelihood of having one or more shortfalls in a future operating year is less than or equal to 5% (i.e., an annual loss of load probability $\leq 5\%$). It's the tolerance level the Council chose. It translates into one bad event in 10 years.

Fazio discussed the announced coal retirements (3,357 MW) from 2018 to 2032. The region will lose 1,619 MW by 2021, and 1,853 MW between 2022 and 2032. We don't need a computer model to show we might have a resource shortfall, Fazio said.

In 2021, the LOLP will be 7.5% — the first year the region becomes inadequate. Fazio said it would take 800 MW of gas generation to get the LOLP back to 5%.

In 2022, the region loses North Valmy, increasing the LOLP to 8%. In 2024, the LOLP increases to 8.2%. If all the projects retire, the LOLP goes to 33%.

Future uncertainties that were not modeled explicitly include the out-of-region market supply and economic load growth.

Fazio discussed the sensitivity to markets and load growth. He said utilities are making plans to address energy needs in their integrated resource plans.

Member Ferrioli remarked that he chose the wiser course to specialize in fish. If you're looking for replacement energy, we have to over-construct to improve adequacy. Our objective is to move into electric transportation. If so, we wouldn't be able to fuel the state's fleets. Fazio said if you want 100 MW of capacity, you build 400 MW of wind. We have done

studies on electrifying the Northwest. We are short and can bring those studies to Fish and Wildlife meetings. Member Ferrioli said we just need to factor this into our discussions.

Member Norman asked about the natural components of hydro, flow, etc. Fazio replied that they have looked at every water condition and flows from 1949 through 2017. In the next Power Plan, we're looking at climate change effects to stream flows.

Member Devlin said that in the Power Committee, they looked at how we're forecasting load, including electrification. Do you under or overestimate it? Another question is about the Bridger plants in Wyoming. PacifiCorp might look at reducing what's produced. Could we factor that into the forecast? Fazio replied yes, if it shows up in their IRP. We take the best information at the time.

Member Yost asked why we're not looking at another five year block. It might make a difference if you throw in another couple of power plants. What would happen in the next Power Plan? Fazio said they do it every year for five years out. We are in the process of putting together the Power Plan, which is 20 years out. The model is a short-term model. As you go further out, the forecast won't be as good. If Council chooses, can do an assessment 10 years out.

Member Yost said he'll visit about it. I agree with 2021. But then not to pick up 2024 when you picked up Bridger ... I'd rather you make a guess on what you already know, in the timeframe of the next Power Plan. Member Fazio asked if he's suggesting we go one year out, to 2025. Member Yost said he'll talk to him later.

Ollis said for the Power Plan, we'll have adequacy information that goes further out.

Member Devlin explained why we narrow the plan. Fazio said they can put in what the Council wants. Member Ferrioli expressed appreciation for Fazio's expertise.

Looking at a chart – 2024 Average Event Duration by Month — most potential problems will occur in the winter months. Winter events last longer and are bigger.

Fazio shared the action items proposed by the Resource Adequacy Assessment Committee (RAAC):

- Base the 2024 Resource Adequacy Assessment on the classic GENESYS model results;
- Complete the new GENESYS model vetting;
- More in-depth analysis of out-of-region market supplies from all interconnected regions;
- More in-depth analysis of transmission transfer capabilities and reliability; and
- Add the ability to limit imports in the new GENESYS.

Member Devlin said the committee was supportive of the recommendations, but didn't want to use it for this adequacy report.

Member Norman asked why event duration is higher in February. It's because of how hydro is operated, Fazio explained.

Member Devlin said people are looking for more information about the duration and magnitude of events. Fazio said NERC wants us to report loss of load hours, expected unserved energy (a measure of magnitude) and loss of load events. We're looking at changing the Council's adequacy standard, but not until GENYSYS is updated.

7. Briefing on methodology for quantifying the environmental costs and benefits of new resources for the 2021 Power Plan

Gillian Charles, energy policy analyst, and John Shurts, general counsel, briefed Members on the ways the Council analyzes and accounts for environmental effects in power planning. Charles said staff is recommending a proposal for quantifying the environmental costs and benefits of new resources for the 2021 Power Plan. Staff hopes to get Council feedback, will incorporate it and will return with a new proposal in October.

Charles said the development, operation and decommissioning of electricity generation has varied effects on the environment, such as on fish and wildlife. There are measures in the Fish and Wildlife Program regarding the mainstem flow, passage and availability that result in a de-rate of the optimal generation capabilities of the hydrosystem. We're incorporating those effects into the Power Plan.

In addition, several states have adopted renewable portfolio standards and clean energy/carbon reduction policies to address emissions and climate change in the electricity sector. We need to manipulate our models to select renewable resources to meet these standards, even if they aren't the most economical choices. Fortunately, they often are, she said.

Member Devlin asked if the penalties for using certain forms of energy past the due date would be incorporated. Charles said they would.

Charles discussed the methodology for quantifying environmental costs and benefits of new resources. She provided an overview of the Northwest Power Act, which requires the Council to develop and apply a methodology for determining the quantifiable environmental costs and benefits of new electric generating and conservation resources. The environmental methodology is to consider costs and benefits to the environment ... and, for

those costs and benefits to be quantifiable, recognizing that not all environmental effects can be reduced to quantified costs and benefits. And, the costs must be directly attributable to the resource, not incidental or indirect.

In its development of a Power Plan, the Act requires that the Council compare the “incremental system cost” of different generating and conservation resources.

There are four components to the methodology:

1. Costs of compliance with existing environmental regulations.
2. Environmental effects beyond regulatory controls
3. Costs of compliance with proposed environmental
4. Quantifiable environmental benefits

Member Downen asked what resources have come online since completion of the Seventh Plan? Charles said the majority have been wind and solar, and PGE’s gas plant. Resources in the pipeline are mostly renewables.

Charles read the staff’s proposal for the 2021 Plan:

1. Continue to account for the financial costs of compliance with existing regulations in the cost of new resources.
2. Continue to recognize that residual and unregulated environmental effects exist and describe them qualitatively in the narrative of the plan, and consider them when determining a resource strategy.
3. Continue to address and consider costs of compliance with proposed regulations on a case-by-case basis.
4. Continue our approach to environmental benefits in the 2021 Plan.

Shurts said there’s a lot they know about the environmental effects in the Power Plan, which is important, but none of it relates to the methodology of how to quantify environmental benefits of new resources. For example, in areas that are not regulated, there will be issues about methane from natural gas production, and how well are we capturing those environmental effects. We’re also getting input from people saying there’s a lot of new information, he said, but does it address our concerns about how to quantify those benefits into numbers for specific resource costs?

Member Devlin said that when we attempt to do this with qualitative versus quantitative, hopefully we’re going to be explicit. Charles agreed, saying this will need to be thoroughly explained in the Power Plan.

Member Downen asked if this will feed into other modeling. Charles this affects new resource costs of generation and efficiency measures. Those costs feed into other analysis.

Member Downen observed that staff will take this into account for all of the modeling. So we have about a month to get good guidance on whether to use this for the whole plan. Charles said we have data we provide for Power Plan and we have time to look at new data. If something changes in the next year or so, we'll look at it again. We just need agreement that this is the approach we should use. Shurts said we'll continue to account for the financial cost of compliance with regulations.

5. Update on the review phase of the staff Draft Columbia Basin Habitat Research, Monitoring and Evaluation Strategy

Leslie Bach, senior program manager, told Council Members that they want to see the three entities get together and do a single RM&E strategy for projects implemented through BPA. It's an opportunity to work collaboratively with NOAA and BPA to meet the needs of the BiOp and Fish and Wildlife Program.

The timeline is:

- Staff draft document release: September 10, 2019
- Webinar: September 12, 2019 (had 50 people on it)
- In-person workshops: October, November 2019 – collaboration phase
- Review and comments: October, 2019 – March, 2020
- Council discussions/approval: March-May, 2020 (also BPA, NOAA internal processes)
- Revised document: June 2020

In-person workshops

- Workshops (in-person attendance encouraged within existing travel budgets)
 - October 1: Spokane, WA 1:30-4:30, Spokane Public Library
 - October 23: Boise, ID. 9:00-12:00
 - October 28: The Dalles, OR. 9:00-12:00
 - November 13: Portland, OR. 1:00-4:00
- Conference line & go-to meeting link will be available for the above workshops
- Additional meetings to be scheduled as needed

Patty O'Toole, acting director, Fish and Wildlife Division, cautioned that Members may get more feedback on this process. Shurts said that this is a complex document. The document might be able to be simplified. Focus on the substance of the document.

Member Norman said he applauds the effort over the last 18 months. The region has been asking for this for quite some time. He's encouraged by having a long period of interaction with managers.

6. Council Business

Northwest Power and Conservation Council Motion to Approve the Minutes of the August 13-14, 2019, Council Meeting

Member Ferrioli moved that the Council approve for the signature of the Vice-Chair the minutes of the August 13-14, 2019, Council Meeting held in Portland, Oregon.

Member Yost second
Motion approved without objection.

ISAB FY 2020 budget

Patty O'Toole said they are not seeking a decision on the Independent Scientific Advisory Board budget, but are seeking a general sense of Council support. Eric Merrill, independent science manager, said the ISAB budget is \$350,000. This budget is a reduction of \$200,000 a year going back to 2006. It is conditioned on the agreement that BPA and Council will review the budget each fiscal year.

Member Norman said the provision to revisit each year makes sense.

O'Toole said they support the proposal, and are comfortable they can manage with this budget. Merrill listed the stakeholders who have reviewed the budget.

Member Devlin asked about a memo describing the use of the funds that are freed up. O'Toole said BPA said the funding can stay available in the Fish and Wildlife Program, and can be used for a project of interest to the Council.

Member Devlin said one of the issues he has is gentlemen's agreements being made behind closed doors. Is there enough on record about revisiting the budget, beyond just the committee?

Merrill one of the purposes of having this meeting and these memos in the public record are to have that understanding.

Member Ferrioli said every time this has been raised, this question was called for and thoroughly vetted and discussed. There's ample record that these funds aren't reversionary. There have been at least three conversations about specific issues.

Northwest Power and Conservation Council Motion to Authorize Staff to enter into a Contract with Lumidyne Consulting, LLC. for Technical Support for the Regional Portfolio Model on an As-Needed Basis, Not to Exceed \$75,000

Ben Kujala explained that this is needed for the regional portfolio model.

Member Ferrioli moved that the Council authorize staff to enter into a contract with Lumidyne Consulting, LLC, for technical support for the Region Portfolio Model on an as-needed basis, not to exceed \$75,000.

Member Yost second.

Motion approved without objection.

Northwest Power and Conservation Council Motion to Approve that the Draft Report to Congress for Fiscal Year 2019 be Released for Public Comment for 90 Days Beginning Friday, September 20, 2019, and Ending Friday, December 20, 2019.

John Harrison explained the timeline toward a finished product. Member Devlin wanted to know if Member Downen would be added to the report. Harrison said he'd include him in it.

Member Ferrioli moved that the Council approve that the Draft Report to Congress for Fiscal Year 2019 be released for public comment for 90 days beginning Friday, September 20, 2019, and ending Friday, December 20, 2019.

Member Norman second

Motion approved without objection.

Public Comment:

Craig Patterson

Craig Patterson is speaking as a grandfather to a 10-year old boy. He has been involved in energy issues for 46 years. Looking at energy conservation today, utility rate structures are all over the map. We need to revisit it. He said 96% of BPA sales in Oregon are not regulated. He listed the different rates he would pay per kilowatt at different utilities. Public

utilities are about a third less. It goes against the spirit and intent of conservation. There are reasons to address this: There are punishing impacts to those who conserve or who are on fixed incomes, and the rate structure ignores excessive consumption.

He said he's been trying to get traction on this issue. A rate structure is needed that rewards conservation and that would identify big users. We can't solve the problem with the same thinking that created it.

Member Devlin said normally questions don't take place during public comment. I think Members have read your report, he said.

Peter Cogswell

Peter Cogswell, BPA's director of intergovernmental affairs and regional relations, told Council Members that the agency exceeded its Sixth Plan goals by 100 MW. He said they have questions about the market adjustment. The bottom line is that it's significant because it reduces their savings by about a third. We haven't seen all the data that went into the market adjustment and I hope we can get alignment on that, he said. We think there's a lot at stake and we're working hard to achieve the objectives set out in the Seventh Power Plan.

Vice-Chair Devlin adjourned the meeting at 12:11 p.m.

Approved October ____, 2019

Vice-Chair