Council Meeting
Portland, Oregon
March 8 and 9, 2016

March 8, 2016

Council Chair Henry Lorenzen called the meeting to order at 2:00 p.m. All members were in attendance. Following the meeting, there will be an executive committee meeting and a public affairs committee meeting.

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

Fish and Wildlife Committee

Council Member Jennifer Anders, Fish and Wildlife Committee Chair, reported that the Chris Wheaton, StreamNet program manager, discussed the history of StreamNet and the coordinated assessment project. He shared the progress in sharing steelhead and salmon population indicators data, and fish trend data, which is maintained by StreamNet and its partners. The committee heard about the planned display of population data and how it will connect to the Council's natural origin tool that Nancy Leonard has been working on. The committee considered support for the habitat reach assessment proposal from the Spokane Tribe. The committee recommended implementation of the proposal with the following conditions: a) ISRP qualifications will be addressed during contracting. ISRP qualifications are associated with expectation of future stability of the habitat and additional detail about the modeling approach. b) The budget will not exceed $200,000. c) The sponsor will provide a report on findings to the Council by the end of 2017. It was noted that even though phase one is approved, Council has not voted on the reintroduction above Grand Coulee yet.

There was a report from cost savings workgroup. It identified $566,915 in cost savings available for the 2017 start-of-year budget.

The committee received Bonneville's update on the Columbia Habitat Monitoring Program (CHaMP), the Integrated Status and Effectiveness Monitoring Program (ISEMP), and

Action Effectiveness Monitoring (AEM). It was a briefing on the status of tributary habitat research, monitoring and evaluation (RME), and the anticipated schedule for deliverables that will support evaluating and managing this RME in the future. The goal is to use RME to improve the effectiveness of habitat actions over time. The original idea was that these projects could help develop tools in sub-basins, which could be used throughout the basin, and evaluate the connections between them. Upcoming check-ins will inform if this is working

Laura Robinson provided information about passage studies at high-head dams. So far, she has collected 75 reports on project-specific studies. There are many factors to consider when discussion passage options. She's going to focus her report on fish passage options and the use of high head dam passage.

Last, there was an update on emerging priorities. There are six in the Council's program. It will be an ongoing item every month.

Power Committee

Council Member Tom Karier, Power Committee Chair, reported that Council staff will update the GENESYS model, one of the Council's main planning tools. A proposal will be seen in June. There's work being done on system adequacy in the Northwest, five years out. Related to that, California is developing its own adequacy standards. Anyone participating in it will have to adhere to those standards.

There's an open position in the Power Division. A process is underway to define the scope for that job.

Massoud gave an update on the economics in the region: a broad look at how the economy is going and how that relates to the energy markets. It's a good slide show that will be posted on our website. Our region's economy is growing faster than our nation, on average. Unemployment has returned to levels before the recession. Load levels continue to remain flat, going back to 2005. Utility revenues are increasing 2.5 percent per year after inflation. The average rates are increasing as well.

The committee heard from Pat Reiten, president and CEO of PacifiCorp Transmission. That company is at the forefront of a lot of changes. They were the first to participate in California Independent System Operator (CAISO) and the Energy Imbalance Market (EIM), and they have been very successful in it. Reiten said they cover their operating costs and covered their capital investment in the first year. Now they're looking to join CAISO in a complete market. All the wind projects outside California can become part of the California renewables requirement. As that market expands, so does that footprint for new renewables. PacifiCorp has a way to provide cheap renewables for California. They can turn down their high-cost thermal projects and make quite a bit of money doing that. It's probably good for the West as a whole that non-carbon-emitting resources are coming out of California, that allow carbon-emitting resources in Wyoming and Nevada to be turned down.

Public Affairs Committee

Council Member Jim Yost, Public Affairs Committee Chair, talked about two issues: Washington Congressional Tour set for this summer, and a contract issue for the website for the Council and Regional Technical Forum. Going to have the same discussion this afternoon and we will hold a vote on the website contract tomorrow afternoon.

1. **Presentation by the Reardan Washington Future Farmers of America Agricultural Issues Team on the reintroduction of salmon above Chief Joseph and Grand Coulee Dams.**

Advisor Rick Perleberg introduced the six students and explained that the nature of the contest. Students select a contentious topic and make a presentation. They won't provide a solution, but rather creatively and equitably present both sides of the argument. They will compete at the state level in May. At the time they presented to the Council, the Reardan students were in first place in their district, and hoped to end up competing for the national title in October at the **Future Farmers of America** convention in Indianapolis.

The well-rehearsed, tag-team narrative argued the pros and cons of the reintroduction of salmon above Chief Joseph and Grand Coulee dams. Following the quarter-hour presentation, Council members offered content suggestions in terms of clarifying that reintroduction itself has not been decided upon by the Council.

Member Karier asked where the students acquired their sources because some of the information isn't easy to find. The students replied that they began in September 2015, working with local tribes, the Bureau of Reclamation, National Park Service and the Council office in Spokane.

2. **Briefing on electrical cooperative regional issues: Jim Robbins, ICUA.**

Robbins sits on the board of Kootenai Electric Coop (KEC) in North Idaho. He's also on the board of Idaho Consumer Owned Utilities Association (ICUA), which represents 22 co-ops and municipalities. He said that they purchase 96 percent of their power from BPA, so they have a vital interest in costs.

On the Seventh Power Plan, he said that people don't give the Council enough credit. We're the envy of the nation to have a forum to talk about issues on this system, and to work out solutions to the problems we have. Overall, ICUA is supportive of the Seventh Plan. "We like the conservation elements of it," he said. "It's the cheapest power we can get. There are some BUTs."

He is in strong opposition to spending BPA ratepayer dollars for studies on fish passage over Grand Coulee and Chief Joseph dams. "We find it plain unjust that a bunch of public utility ratepayers would be saddled with paying for a 75-year-old agreement," Robbins said.

He said that U.S. and Canadian taxpayers should pay for fish mitigation, and not the ratepayers. If you start paying ahead of time, you complicate the negotiating process.

Further, he said that BPA Tier-1 power rates are above market. KEC market purchases for AHWM power requirements are lower than Tier-1 rates for 2016-2019. Increasing power costs impacts ratepayers, he remarked. Idaho 2014 median household income was $47,572. There has been a decline in household income in 15 of the 44 counties in Idaho between 2012 and 13. There was only marginal improvement between 2013 and 2014.

Robbins told a story about Bill and Judy, who sold blood to pay their bill, and a 91-year-old women living on social security who has to set her thermostat at 63 degrees to afford her heat bill.

He added that a number of people remarked that we should get rid of the dams on the Snake River. That's insane, he said. It is the best, nonpolluting natural resource — the cheapest power we can get.

Member Karier said that there's a concern that BPA rates in 12 years could be higher than market rates and it's serious concern. But it's a tradeoff between today's rates and future rates. The more debt accumulated or not paid today, ends up contributing to higher rates in the future. So best strategy might be to pay off some of that debt today.

Robbins replied that they push BPA to do the right thing in terms of rates and costs, and debt repayment is a critical issue. I don't know where rates are going to be. But BPA is sufficiently concerned or they wouldn't go through this Focus 2028 program. "Is 1,400 MW going to walk off BPA's system in 2028?" he asked. "My engineering background says it probably isn't going to happen. But 10-15 percent does, you could have a significant revenue problem for these programs."

"Another thing that bothered me is that BPA talked this morning about $567,000 they found in savings," Robbins said. "Nobody suggested that we lower the rates. It was all about using the money in other programs. I'm not sure the Bill's and Judy's, and the 91-year-old woman would agree with them."

3. Update on NOAA Fisheries regional partnership on establishing salmon and steelhead objectives

Council Members Jennifer Anders, Bill Bradbury and Jim Yost attended the first session of the Columbia Basin Partnership. Member Anders shared her summary of the conference. She said it struck her that there is a lot of diversity in the basin. It was expressed in a mature, cooperative fashion. It was constructive of the National Oceanic and Atmospheric Administration (NOAA) to bring the stakeholders together to focus on what we *can* do, not what we can't do. The Council is playing a good role in the process and appreciates the facilitation of Tony Grover, director, Fish and Wildlife division; and Nancy Leonard,

manager of Fish, Wildlife and Ecosystem Monitoring. It would be great to know all the critical uncertainties to help set objectives. But these objectives will be dynamic and may only work a short time. Climate change and other policies might impact them. We need to remain flexible, but at least now we're looking at a baseline.

Member Yost said that at the stakeholders meeting with the sovereigns in attendance, there was some unintentional and intentional misinformation presented. A couple of workshops have been arranged to reach some agreement on the science and status reports. We have to be further along than where we are today to reach agreement on certain issues.

Grover said that they will continue to support process until he's told not to. In the new Fish and Wildlife program, there are objectives for adult steelhead and salmon. The deadlines will be suspended pending the regional partnership outcome.

Member Karier said that the Council looked at this issue and wrote it in the program to evaluate quantitative objectives. Eighty percent of the fish in the region are hatchery fish. Every hatchery has a production goal, and have juvenile and adult objectives. Those are goals that exist. Seems to me, major part of the work is getting that information from them before making judgments. It's a test of the process. We can't set goals for the wild fish without it. Focus on the easiest part.

Tony Grover, Fish and Wildlife Division director, said that what Dr. Karier said is correct. There is a hatchery workgroup that's been meeting. Presumably, they'll roll out their observations in the May 4 or June 7 workshops. We're anxious to see what those agreements result in.

Member Yost said, but the issue is, how do you operate a river system based on two different objectives: Protecting ESA listed species and at the same time, harvesting hatchery stocks. That's the dilemma, to find a compromise and middle ground. Doesn't matter how many fish come back, how do you manage the river system under those conditions? There are advocates on both sides, law on both sides and a treaty on both sides. Counting isn't the issue.

Grover said that NOAA wants to take on ecosystem and habitat goals as well, which just complicates the picture.

Member Karier said numbers are important on the hatchery and wild side. A key parameter for NOAA is abundance. They have to be comfortable with the numbers before they can delist and move on. Harvesters are concerned about the numbers they harvest. It's an obsession with numbers. Fact that we don't know them doesn't seem to help. To make any progress, Jim's right, we have to figure how to accommodate both purposes.

Member Lorenzen said he's been following news articles on the research at Oregon State University on the genetic shift of hatchery fish. It would be interesting to get a briefing by the scientists who have been doing that work. It could have some implications with regard to our programs in the future. Grover replied that we have world-class genetics experts and we'd be happy to provide a panel.

4. Update on Columbia River fish run forecast for 2016

Lynn Palensky, Fish and Wildlife Division program and development manager, introduced the panel, remarking that March is the month we hear fish forecasts from state fish managers. The speakers were:

- Tom Rien, Oregon Department of Fish and Wildlife (ODFW), spoke on eulachon and Lower Columbia River white sturgeon;
- Brian McIlraith, Columbia River Inter-Tribal Fish Commission (CRITFC), addressed pacific lamprey;
- Bill Tweit, Washington Department of Fish and Wildlife (WDFW), talked about 2016 adult Chinook, coho, sockeye, and chum salmon and steelhead run forecasts for the Columbia and Snake rivers;
- Paul Kline, Idaho Department of Fish and Wildlife (IDFW), talked about the historic returns of salmon and steelhead to the Snake River Basin; and
- Brian Burke, research fishery biologist with NOAA, presented an outlook for Chinook and Coho returns based on oceanic conditions.

Rien began by explaining that white sturgeon is our banner fish. In recent years, we've seen declines in populations, and they have taken some management actions. The recent update is that the legal-sized population has increased in recent years due to closed fisheries.

At the same time, we're seeing reduced abundance of juvenile and sub-legal sized fish over time, which indicates productivity issues. Adult abundance is below Oregon Conservation Plan conservation status. The 2016 forecast below Bonneville Dam is 147,000.

Productivity in the Lower Columbia River has declined. In 2009, we had a banner year, but since it's been low production with an all-time low in 2015. There's also been an alarming increase in sea lion abundance.

He reviewed Bonneville Reservoir numbers. No juvenile fish were detected. Legal-sized and over legal-sized abundance declined. The harvest guideline declined from 2,000 fish to 650 fish.

In The Dalles Reservoir, there was no detectible recruitment. Abundance is pretty stable. There was a heat stress-related die-off of 31 adult fish in July 2015. The harvest guideline

is down from 1,300 fish to 425. Member Lorenzen asked about sea lion predation in The Dalles. Rien said it is not a big issue in The Dalles or Bonneville Reservoirs.

In the John Day Reservoir, recruitment is always a problem, with 11 of 19 years having no measurable recruitment. 2015 continues that characteristic. Legal-sized abundance has increased since, from 1,600 fish to 9,600 fish.

Council Member Bill Booth remarked that it doesn't seem like a very good picture for sturgeon. Isn't there a gill net fishery underway for sturgeon in the Columbia River? He said he wants more details about why the CRITFC tribes support a gill-net fishery for sturgeon if there is one.

Rien said there's a hook-and-line fishery and the tribal commercial fishery is a gill net fishery. The harvest numbers are set and shared in balance with the sport fisheries and the tribes. It's all part of management.

Member Booth said he noticed the fishery is closed below Bonneville, but it's still open for gill netting above.

Bill Tweit said there are different considerations. Each pool is managed on stock assessments. Each assessment indicated has reduced the level of harvest by half or more. Productivity in each pool is poor, but there is productivity there. Below Bonneville, the steep decline worries us. In the use of gill nets, the mesh size allows a great deal of selectivity. It's targeted on the harvested size of sturgeon population. The undersized fish can go right through it. Tribes also use set lines. But they don't have the harvest power a gill net has.

Member Booth said every year we're told it declines but that it's still okay.

Tweit commented that a 50-75 reduction in harvest isn't reflective of good news, but if you close harvest at the fist sign of decline ... you have to incorporate some risk or uncertainties in your choices otherwise your choice would be to never exploit.

Rein continued to discuss white sturgeon abundance and harvest declines. John Day Reservoir is doing an updated stock assessment.

McNary Reservoir performed a full stock assessment in 1995. Overall, there's not much change in abundance. Over half are comprised of hatchery fish. There was a heat-related die-off of 49 in 2015.

In the Lower Snake Reservoirs, there have been substantial population declines between the initial assessment in 1996-97 and follow-ups in 2012-14, likely from poor spawning and rearing conditions.

In summary, sturgeon abundance is lower the higher upstream. Predation for sturgeon is a big issue below Bonneville Dam, but not an impact in other areas.

Rein next discussed eulachon, also known as Columbia River smelt. Population trends are tracked through experimental fisheries and larval samplings. A 2016 evaluation is still ongoing, but they anticipate this is a low-production year for eulachon, mostly due to ocean indicators.

Brian McIlraith, CRITFC, discussed the current and historical distribution of Pacific lamprey. The Snake and Columbia Rivers have the highest risks. Lamprey have a difficult migration in the Columbia River Basin. It wasn't a priority to count lamprey in the 1970s and 80s. Looking at the last 10-15 years of passage data, there was a small peak of lamprey in the early 2000s, to a historic low in 2010. There has been an increase in the last three years. There is a decline in lamprey from Bonneville Dam to The Dalles Dam. There is a 50-percent reduction from one dam to the next as they move up through the system.

In the upper end of the Snake River, were seeing less than 100 fish counted entering that portion of the basin. Sometimes less than 10.

Willamette Falls harvest – The Warm Springs tribe sees returns similar to Bonneville. The total abundance at the falls was 200,000 in 2010, to 300,000 to 2014. Passage is half that. Member Booth asked what happens to the other half.

It's a great question, McIlraith replied. We see this at Bonneville too. We don't know the answer to it. We don't see them going into other tributaries. It's not a death sentence if they don't make it over the falls. These are tagged fish, so we can monitor them to some degree. Either they're perishing, spawning below, go into unmonitored tributaries or are lost to predation. The trends seem to mirror Bonneville.

Adult passage rates are:

- Mainstem Columbia: 45-60 percent at Bonneville, The Dalles and John Day
- Willamette River: 22-34 percent
- Clackamas: 90 percent on River Mill Dam
- Mid-Columbia: 70 percent in most years at Priest, Wanapum and Rocky Reach

These are passage efficiency rates at the individual projects.

Bill Tweit covered Columbia River salmon and steelhead returns and forecasts.

The Technical Advisory Committee (TAC) consists of staff from federal, tribal and state entities. TAC "reconstructs" Columbia River salmon and steelhead returns post season and develops preseason forecasts. It reviews salmon and steelhead stock status as the runs progress, and provides in-season run size updates.

Upriver spring Chinook: the 2015 forecast is 232,500, and the actual is 289,000. The 2016 forecast is 188,800.

Member Booth said that from 2000 on, we had a good ocean cycle. Earlier, it was terrible. With all the habitat work and passage work that's been done, how much of these improvements is a result of the money we spend on investments in habitat? Will it go back to the 1970s or 80s? Tweit replied that the mid 1990s were worse, and he's hopeful we won't see that again. In terms of ocean conditions, they were worse than bad. Even with our improvements to habitat and hatcheries, the poor ocean conditions wouldn't let it work. It was eating up our dividends.

All the work in the fresh water environment has coincided with some good ocean years. It's not probable that we'll drop as far as we have. Or if we do, it won't be as long. There is more resilience in these runs now.

Upper Columbia spring Chinook: 2015 forecast was 27,500, with a return of 37,500. The 2016 forecast is 27,600 / 5,000w.

Upper Columbia summer Chinook: 2015 forecast was 7,300, with a return of 126,900. The 2016 forecast is 93,300.

Columbia River sockeye are an interesting and a more depressing story, Tweit said. Returns in the Okanagan River have taken off in recent years. The 2015 returns were outstanding, but we had 95 percent mortality. Maybe there were 12,000 that reached the spawning grounds.

The 2015 forecast was 394,000/1,800, with a return of 512,500/1,700. The 2016 forecast is 101,600/2,100, and will be largely impacted by the warm water. Tweit remarked that there isn't a lot of cold water refugia. If we could open up some of those lakes in the Okanagan, it could help. But it's going to take awhile.

Upriver summer steelhead populations have been reasonably steady. Snake River production has contributed to that. The 2015 forecast was 312,200, with a return of 261,400. The 2016 forecast is 265,400.

Winter steelhead below Bonneville: The 2015 forecast was 16,100 with a return of 20,100. The 2016 forecast is for 16,900. An average year is predicted.

Fall Chinook: 2015 forecast 925,200 with a return of total, 1,305,400. The 2016 forecast is 951,200 with 756,300 upriver. These are some eye-popping numbers, Tweit said. The more than a million return in 2015 was felt all the way up into Alaska, where they saw tremendous numbers of Chinook.

Columbia River coho had variable numbers, which reflected ocean condition more than any other species. They give us the clearest sense of our ocean environment. It's been a tough story the last couple of years. The 2015 forecast of 539,600 was way off with returns of 171,400. Puget Coho returns told the same story.

Columbia River chum: We do a better job of estimating than we used to, due to a shift in counting methodology. Chum have a roller coaster, cyclical variation, with some good years followed by poor.

The total return of salmonids in the Columbia River were driven by fall Chinook. The 2015 return was 2.9 million fish – the third-highest return in recent history. In 2016, returns are projected to be 2.1 million fish.

Next, Tweit reviewed 2015 non-Indian sport fisheries. The states were able to schedule a diverse array of recreational fishing opportunities. He said that the Hanford Reach stands out, it has the largest number of Chinook. They have to it shut down when they hit the preseason number. Buoy 10 had one of the better years in quite awhile. The local economy rises and falls around how well the Buoy 10 fisher operates. Tweit said is it could be another good Chinook year, but they'll have a hard time navigating around the shortage of Coho.

Tweit reviewed 2015 non-Indian commercial fisheries. In the mainstem, there was significant harvest. Looking at 2015 Treaty Indian fisheries, there were good numbers, except for the scarcity of coho. The tribes were able to meet all their ceremonial and subsistence needs.

Paul Kline, IDFG, provided a Snake River update on recent trends since 2000, and gave a 2016 forecast.

Fall Chinook for Lower Granite Dam: just under 16,000 last year, which was well above forecast. The Forecast for 2016 is 12,200.

The 2015 return of hatchery-origin for fall Chinook was 42,000. The forecast was 26,000. The forecast for 2016 is 20,000.

Sockeye at Lower Granite Dam are halfway home. In 2015, returns were under 440, which is 10 percent of what was estimated. Historically, there's a low conversion from Bonneville to Lower Granite. The forecast for 2016 is 1,400. Kline said they trapped 50 sockeye salmon, which is a very low conversion back to the basin.

Summer steelhead – there were fall and spring counts. The natural origin return for 2015-16 was 33,000. Still counting through April, so we might have more added. The forecast for wild steelhead 2015-16 was 55,000. For this year, 49,000 are forecast.

Adding hatchery fish, 96,800 steelhead returned in 2015-16 compared to 100,000 forecast. About 83,000 are forecasted for 2016.

Spring summer Chinook natural origin return was 21,400 in 2015. The forecast was 34,000. In 2016, the forecast is for 18,600 fish. Adding the hatchery fish, there was a 96,000 returned to Lower Granite. The forecast was 55,000, which is well above forecast. This year's forecast is for 66,000. Overall, it was a respectable year.

Brian Burke, NOAA fisheries, discussed recent ocean conditions and outlooks for salmon.

There are a lot of models for salmon. One of the reasons is because there are multiple user groups with different goals. That influences what you're looking for. These include harvest management, scientific exploration and life-cycle model development.

The ocean conditions over the past few years have been impacted by a warm ocean blob. It has evolved into having a more coastal phenomenon impact on coastal ecosystems. We're in this warm period, we're breaking records, and we're in the middle of an El Niño as well.

Burke said that on the biological side, we've seen strange things in the ocean. The jellyfish community is completely different than we're used to seeing. We've seen red crabs that we haven't seen since the El Nino in 1983. There has been a coast-wide die-off of bird species in the tens of thousands. Almost all of these are things we rarely see. There have been large numbers of sea lion pups that have been on beaches. The primary reason is female sea lions can't feed enough to feed their pups. The abundance of anchovy and sardines is down. Market squid and rockfish are up. So there's a lack of energy-dense food available.

Since I've been on this project, I've never seen coho so emaciated, Burke said.

Along with the warm water, are competitor species, such as tuna and sharks. These are breaking records, and it's not looking good in the oceans in terms of the physical and biological conditions.

What it means for salmon: Burke discussed the qualitative indicator summary. For a lot of the salmon gone to sea in 2014, the conditions weren't good. 2015 was even worse. This is pertinent to the coho that go out to the ocean for one year, and the Chinook that spend two years.

His predictions for returns are:

- Spring Chinook at Bonneville Dam: The outlook for 2016 is 142,000.
- Fall Chinook at Bonneville Dam: The outlook for 2016 is 660,000 and 427,000 for 2017.
- Oregon Production Index Hatchery (OPIH) for coho survival in 2016 is 1.5%.

We typically have not done models on steelhead, Burke said. But we have refocused our May sampling, which has allowed us to better characterize ocean dynamics for steelhead. We caught quite a few and we can glean a lot more information from the fish we catch. We broke them into four population groups and identified the differences between them. We hope to provide more information on them in the future.

Member Anders said these are interesting numbers, with can be used for harvest planning. "I'm interested in a different capacity," she said. "What do these numbers tell us how our habitat is performing? What do they mean in terms of habitat and diversity issues?" Since we're meeting at the regional coordination in May, managers might consider using these numbers to look at broader questions that impact our Council's work.

The meeting adjourned at 4:50 p.m.

Wednesday, March 7, 2016

Council Chair Henry Lorenzen called the meeting to order at 2:00 p.m. All members were in attendance.

Update on Bonneville Power Administration Focus 2028 Process

The Council heard from Peter Cogswell, BPA's intergovernmental affairs director, and Kim Thompson, BPA's coordinator of Focus 2028 for the Bonneville Power Administration.

Cogswell opened by stating that there are are two different issues at play: BPA's financial health and its competitiveness going forward. While they're clearly related, they are different. There's an education component to make sure that people understand the different cost drivers. He said there's a tendency to look at BPA through either a transmission, energy efficiency, fish and wildlife or power contracts filter. The goal, he said, is trying to have people understand the collective. "We're more coordinated than what people understand," he said.

Also, there's a continuing conversation over what can BPA do internally to be more efficient, and how BPA compares to the market, he said.

Thompson said the first phase of Focus 2028 is engagement, which started in the fall. BPA Administrator Elliott Mainzer started talking about the need to begin a regional conversation about the changes we're facing and the latitude BPA has to maneuver in the face of that change. We've been trying to overcome the single-topic meetings, she said.

In a November kickoff meeting, they heard from industry experts outside of Bonneville and regional stakeholders. The panel was an opportunity for senior leadership to talk about what they see going forward. Then they took comments from stakeholders on the areas to

address in Focus 2028. They received 50 documents with suggestions addressing singular issues and broad swathe of analysis that would bury their analysts for years if adopted.

BPA brought in a speaker from Fitch Ratings to discuss what they weigh when they give them a bond rating. Thompson said BPA's long-term power sales contracts with preference customers is a core foundation to the healthy ratings and financial position that external parties see when they look at BPA.

Thompson said that her biggest takeaway from their recent Focus 2028 forums is that it's not possible to only have a long-term conversation. "Customers and stakeholders are looking at what we're doing right now, and measuring us in the short-term," she said. She explained that it can be difficult to navigate through the Agency's short-term cost drivers while setting the agency up to be successful in the long term, particularly in 2028 when the long-term contracts expire. She added that long-term competitiveness is important, but BPA's customers are weighing affordability. Their customers' ability to plan and run their businesses depends on BPA's actions, and how affordability is managed from period to period, she said.

They are building tools to help demonstrate the cost and rate impacts of their actions, which is a gap they've had until recently. Their customers' experience has been to looking at rates every two years, they have no sense of endgame or whether that trajectory will change over time. It has caused them to raise concerns about long-term competitiveness

Thompson reported that BPA is publishing a reference case: a 15-year projection of rates with different contexts. It will have spending assumptions, context assumptions and market assumptions. "We're using this tool as we go through our next round of short-term financial planning: the integrated program review and capital investment review in the spring/summer timeframe," she said.

They discussed their Asset Investment Excellence initiative, which addresses how BPA can optimize the investments it's making in the hydrosystem. She said they are moving from a world where dam operators just tell us what they need, to an asset management-focused world where we understand what the renewal cycle needs to be. They want to coordinate and cluster work to take advantage of efficiencies.

Had a fish and wildlife session about bringing performance-management focus to their work. They talked about survivorship success stories. The primary feedback was around being more efficient with resource monitoring and evaluation.

There was a session on energy efficiency and how to optimize the delivery of their program. "We rely so heavily on utility customers to implement big swaths of that program," she said. "If we have friction in that relationship and protocols, we have friction in our efficiency delivery."

The session on transmission focused on we can better anticipate how the system will be transforming, and how we think about sustaining investments for existing infrastructure.

Thompson said they are evaluating the inputs received and are identifying what actions and strategies BPA can take to position themselves for long-term success.

Cogswell said it's not a decision process. It's a priority-making process. Decisions will take place in the implementation phase, which will include engagement, workshops and policy formation before decisions are rendered.

Member Bradbury said he could recall when gas prices went through the roof in 1973. "How do you see the price competitiveness as you get out to 2028?" he asked.

Thompson replied that their long-term rate projection tool (called a reference case) has two comparative markers: a broad spread for what the market might be. The low-end spread is frightening. That says it continues. The high-end spread's jaws are debatable.

Member Lorenzen said, "But that's apples to oranges. The marker ought to be long-term contracts, not the spot market." He added that he doubts many utilities would want a variable interest rate type loan.

"One of the things I looked forward to was a sharp look at what you thought the competitive markets would be in 2028," Lorenzen. "I saw a projection based on 50 percent of what a gas plant would cost. But that seems like a pretty poor market. You're doing a good job of identifying cost drivers. But haven't seen the same rigor on what you see the true market being and what the needs might be from different customer classes."

He said if Nike were trying to determine competitiveness, it wouldn't be the cost of tennis shoes. It would be looking at what others were manufacturing and charging. Does BPA plan a closer look at where the market will be and what people will be signing up for?

Defining competitiveness is the core of what we're grappling with, Thompson said. We agree that Mid-C isn't a good indicator, she said. It's not the product we're selling. We have work ahead to fix a value on all the ancillary services. She then discussed some possible approaches.

Lorenzen said Thompson mentioned looking at the cost of investments and benefits received. People still look at energy efficiency as a cost center rather than the long-term benefits of it. He said he hasn't heard what impact on revenue requirements that investments in various levels of energy efficiency could have on that factor. An analogy is times when a city council grapples with budgets, and sees savings by deferring road maintenance. But it costs. When building the Grand Coulee Dam, some said we'd never need all that power. It might be that energy efficiency is a piecemeal purchase of another Grand Coulee Dam. In the long haul in 2028, you see that you've avoided the need for

transmission and generation expenses. And these are the things I'm not seeing in the presentation to customers.

Cogswell replied that this process evolves. "We're not here to solve a specific issue," he said. "There's no alarm bell going off right now. We're trying to assess what people are interested in." Regarding Member Bradbury's question, natural gas is just one of those variables we need to think about. It doesn't take much to change current conditions. How do you take near-gas prices affecting the market and build in some adaptability? One assumption is that BPA is sitting pretty in a carbon-regulated world. But we don't want to take that at face value. Things can change.

Member Karier said that two topics needing more attention are uncertainty and "the problem."

Member Karier said that regarding uncertainty, as you look 12 years out, future natural gas prices will be affected by fracking and exports of liquefied natural gas. California policies on West Coast power markets change by the day and have profound impacts. Other factors include the import potential from the Southwest, the outcome of the Columbia River Treaty, the BiOp litigation, how much distributed generation there is, climate change, the residential exchange, future loads from aluminum plants, cannabis farms, natural gas vehicles … etc. There's lots of uncertainty. What do you want to do? Do you want high or low loads? We decided low loads paid off better in a world of uncertainties.

Member Karier said BPA narrowly defined "the problem" as electricity prices will be too low in 2028 and BPA won't be as low as that. The question is more that the market for dispatchable, carbon-free power too low. Because that's what Bonneville mostly sells. There's not a lot of competition there. If the price is in the tank, then maybe you're in trouble. Capacity is a highly valued commodity. I'd worry about that as a problem that there's no price on carbon 12 years from now. That would be a problem for you. The problem related to that is your capital burden. Not what you're paying now, not what F&W burden is, or energy efficiency. It's the capital problem that you can't cut your prices below 2028. I remember you said you'd pay off the WHPPS debt and the rates would plummet. But that was refinanced, things happened and that kind of disappeared off into the future. If you want to be competitive, you need to minimize that debt burden. I never heard that even mentioned, he said.

Thompson replied that in a roundabout way, it was touched on. One of the assumptions in the reference case that got a lot of scrutiny was that BPA would take actions to retain $750 million in borrowing authority at all times. That's a liquidity model we have and we will not create a model to draw down below that amount.

Given the capital demand forecasted through that process, we were putting pressure on that. It made us take payment actions to maintain that level. The reference case showed us changing our rate of paying off. But it wasn't to draw down the overall debt load. It was to

afford the capital program BPA projected. It's a different driver, because we have limited borrowing authority. Internally there have been conversations about the issue.

Member Karier said, it's a simple tradeoff: You either pay higher rates today or in the future. If you want lower rates in 2028, you need higher rates today. Is that one of the possibilities? It comes down to that.

Thompson replied, I can't answer that. Looking at the revenue requirements for today vs. 2030, that analysis is that power is a net debt repayer. The debt load is projected to decrease, according to the last integrated program review. Transmission by contrast is a net borrower for 10 of the next 15 years. The proportion of transmission revenue requirements tied to debt service was growing over that horizon.

Member Yost said he looks at the capital debt like a mortgage payment on a house. There's no reason why anyone wouldn't pay off their house. You make a decision to pay off your debt or you have a lifestyle and do other things with their money. This Council provided a list of things they want BPA to do instead of paying off their debt. We're part of the problem, because we continue to ask them to do more in fish and energy efficiency. We ask them to spend money that's causing part of the problem. When you look at what the Council did in determining gas prices, they're doing the same thing we did. BPA has to take a best guess. You have to hold down expenses and don't do as many things. Quit doing some of the programs. With everyone in the region asking BPA for more money and things to do, you'll have more expenses and they won't be able to cut their rates. We're asking them for 7-8 percent more things than there is growth. That means rates have to go up.

Council Member Pat Smith said on transmission cost management, you have to be prudent in screening those projects you're going to fund. You had a presentation yesterday from PacifiCorp in terms of the changing circumstances. They mentioned that they did very well by engaging on the California EIM, recouped their costs pretty quick and are moving toward full integration. I'm wondering how are you looking at that as far as opportunities to take advantage of what's happening there? There are cost savings to be made by cost management and broadening your footprint? Instead of spending more on transmission, you could get better outcomes through cooperation. Coming from the hinterlands, the steel curtain, it's a keen interest to see how to get more cooperation and generation out of Montana in the future.

Cogswell replied that a component of this is looking at transmission opportunities. They don't have specifics and are trying to figure out next steps. It's not a status quo conversation about where we need to go and the value we bring to the region.

Member Booth remarked that this is the right time to approach this effort. You're in a quandary in the short-term, he said. Who knows what will happen? I spent my career in commodity business, in Gold and Silver, but in terms of building new property, you have to decide your cost structure now. So you do your best at estimating.

I would submit the problem is that you're not competitive, Member Booth added. That's a certainty. If you're uneconomic, you need to make changes. At the ICUA conference, I recall when your rate was announced that day. It was an average 7 percent increase for everyone. It ranged between 4 and 11 percent. Right now, and another year from now, you'll be announcing another rate. In the shorter term, since you're uncompetitive, do you intend to use some of this in next rate case?

Thompson replied that they always seek to keep their rates as low as they can be for the people in the Northwest. We don't enter into ratemaking with excess, she said. "We have an awareness of how our costs impact our rates in the region.

This is a difficult time to talk about the long-term, because there is so much focus on what we're going to do in the next rate period, she said. We've heard from our customers that the trajectory we created over the last three rate increases is unsustainable and we have to change it.

But then we have a lot of demands to grow our programs and spend more money. And we have a rigid cost structure with a fair amount of debt. I'm shifting my perspective if it's a good or bad thing that we have this pressure now. if we were very securely positioned, and market prices were well above our PF rate, they wouldn't take our conversations seriously. Given the market, we have the attention of stakeholders.

Council Member Phil Rockefeller asked if BPA is using this opportunity to engage in a conversation about its strengths and vulnerabilities? You not only have clean energy, it's renewable. Even though there are environmental impacts on the production of that power, you are a unique entity that is internalizing the costs of environmental stewardship. Whereas many competitors have been able to externalize those costs, such as in the fossil fuel industry. In the long-term, those pressures are pushing all of us towards a realization that internalizing those costs is a responsible course of action. In that regard, BPA is years ahead of its competitors. You should take credit for that.

Member Rockefeller added, "When you take into account energy-efficiency and fish and wildlife program costs, you think of them as cost centers. Under the federal law, under which we are chartered, we have a responsibility to protect and enhance the resources that have been impacted, as well as providing a reliable power supply. The value system you were given is unique. It's a value recognition made 30 years ago by Congress, that this is the way we want you to do business. I doubt that you or we want to abandon that framework of values. As you think about cost and cost management, think about the competitive advantage you have by doing what you do so well … that you're delivering on a dual mandate. It's not an easy thing to do. But from a long-term perspective, history is on your side. The spot market may look threatening. But how many customers could get blocks of power, long-term that only you can deliver in this region? There are inherent limits in relying on the spot market."

Cogswell said it's sticking to the core values, and what BPA has been in the region. It's interesting to be in this effort to depth I am. Many have different ideas about what BPA should do with all its programs. We're not talking about dramatic change from what BPA traditionally has been.

Presentation on Bonneville Power Administration Transmission Planning and Asset Management.

Jeff Cook, vice president, planning and asset management, Bonneville Power Administration, briefed the Council, explaining that while he's been in his position for two months, he has served in the agency's planning group for 12 years. He also worked in private industry and PacifiCorp.

Cook discussed the transmission lifecycle. They are evaluating what products they wish to continue and work with the commercial side. It's becoming more of regional planning exercise. The footprint is growing and they are working that into their integrated planning process. There always are compliance issues to consider, so there are risks and balances. They are working with their engineering group, working on safety by design and targeted, upfront scoping projects. It allows them to get the three legs on a stool: Cost, scope and schedule to get those identified correctly.

They are moving their engineering group upfront to the planning stage to improve their overall assets and information quality.

Cook discussed some key challenges, notably the California "duck curve" and its potential impact. With the large amount of solar installations in California, the flows may move from south to north, instead of north to south, he said. BPA is working with CAISO to address congestion management and planning.

Other challenges include the potential of battery storage and the continued growth of energy efficiency, distributed generation, demand response and the potential for new wind.

"Generation is no longer just a power plant," he said. "It's going to come from lots of different places and it's all driving our business. When we build a line now, it's under different circumstances."

Cook said that some of the key business drivers are:

- Forecasted demand
- Impacts of energy markets
- Generation choices
- National, regional and local policies

Cook noted that the infrastructure is aging. More than 50 percent of the facilities were constructed prior to 1962. It impacts reliability, safety, compliance and other factors. He said BPA's challenge is to balance capital, which drives rates. He said that the top priority is keeping the lights on in the Northwest, and outlined the challenge of where to spend money to address the aging infrastructure. "This will be a 5-to-10-year effort," he said. "We see a huge wave of assets that will have to be replaced."

He said that BPA currently has a $700M+ backlog. This is just the substation. It doesn't count transmission system, fiber optics and other things that keep the lights on. This is just the sustained side, not taking care of load growth. It's just replacing gear that's out there today. It requires $200-$250 million in spending just to keep up with this.

Member Karier asked that with the current spending rate, will BPA always be behind or fall further behind?

Cook replied that they don't have the capital or resources to upgrade everything at once. So we're spending at a gradual increase and will be leveling off. But we're keeping up with the backlog. It is gradually going up over the next five years. After that, the plan is to level that out. The backlog will be taken care of and we'll be able to sustain. But as you push that capital up, you impact rates. And that doesn't account for any expansion projects that come along.

The impact of energy efficiency and demand response is impacting the evaluation of new projects, specifically the 80-mile, I-5 Corridor Reinforcement project just north of Portland.

"After completing the EIS, we are re-examining that project and factoring in what other alternatives might be — including a redispatch from new technology, from storage capabilities and from other entities," he said. "We're analyzing those key transmission projects to see if there's a way to solve those problems without spending hundreds of millions of dollars to build that line."

Cook said he understands that there's a problem in the Portland area under certain conditions, where they exceed operating limits, so it needs to be addressed. But he said they are hoping that there's a portfolio that can help solve that problem without a full build – or at least to defer that build.

"The last thing we want to do is spend that kind of money and have stranded assets," Cook explained. "How the market changes and where the generation sources come may shift how the power flows on those lines."

Member Karier asked about the role that energy efficiency and demand response could play Is there an area or region where it would be best to implement that?

Cook said yes, both would be a solution. Demand response has challenges and energy

efficiency also requires a degree of participation to change that flow. However, they're long-term solutions. They are specific locations you have to target. I-5 is a target for the Portland corridor. Placing generation in a certain spot could offset some of that load.

Asked how the planned retirements of Centralia and Boardman coal plants will enter into planning for system reliability, Cook replied that their closure will have an impact, but it's less of a capacity issue and more about how that will impact the system when new bottlenecks come up. Those are being modeled.

Member Anders asked if they're doing the same for Colstrip.

Cook confirmed that they are looking at how it changes the flow for utilities there. They don't have an answer yet, but we are working on those. It will impact all of us when those are turned off, he said.

Member Bradbury asked a question about replacing a 115 kV system versus a 500 kV system. Cook said the 115 kV was installed earlier, so its end-of-life cycle is sooner than the 500 kV. To replace the transformer on a 500 kV also is much more expensive.

Member Karier asked if BPA does a lot of transmission planning, and if they coordinate with ColumbiaGrid? Cook replied they are part of ColumbiaGrid. It is responsible for one aspect and BPA is responsible for another. They have a similar arrangement with NTTG and BPA's planner work closely with them as well.

Member Smith asked a question about EIM and expansion. Cook replied they are working closely with PacifiCorp and Portland Gas and Electric, and are trying to see if it will help or hurt. They know they have to plan the system to accommodate it. He said they formed a group working on the ISO framework to decide how they want to interface with those. It's not just focused on EIM. But if those utilities move over in 2018, we need to determine how those will impact the Northwest as well.

NORTHWEST POWER AND CONSERVATION COUNCIL MOTION TO APPROVE THE MINUTES OF THE FEBRUARY 8-10, 2016 COUNCIL MEETING

Member Booth moved that the Council approve for the signature of the Vice-Chair the minutes of the February 8-10, 2016, Council Meeting held in Portland, Oregon. Member Anders second.
The motion was unanimously approved.

NORTHWEST POWER AND CONSERVATION COUNCIL MOTION TO AUTHORIZE THE STAFF TO NEGOTIATE A CONTRACT WITH NORTH HIGHLAND FOR PROJECT

MANAGEMENT OF THE REGIONAL TECHNICAL FORUM WEBSITE REDEVELOPMENT PROJECT

Ben Kujala, Power Division system analysis manager, explained they had a false start on the Council's website redevelopment project. They will first look at the RTF portion to test what works best. They have had good success with North Highland in the past.

Member Lorenzen asked if a contract has been negotiated. A statement of work has been agreed upon for $55,000.

Member Booth moved that the Council authorize the staff to negotiate a contract with North Highland for project management of the Regional Technical Forum Website Redevelopment Project for an amount not to exceed $56,000, as presented by. Member Rockefeller second.
The motion carried without objection.

NORTHWEST POWER AND CONSERVATION COUNCIL MOTION THAT THE COUNCIL AUTHORIZE STAFF TO WORK WITH THE COLUMBIA RIVER INTER-TRIBAL FISH COMMMISSION AND OTHERS TO PREPARE FOR A SCIENCE POLICY TEHCNICAL WORKSHOP AT A COST TO THE COUNCIL NOT TO EXCEED $16,800

Grover explained that it's important to implement the Council's priorities listed on page 116 of the Fish and Wildlife program. At the Regional Coordination Forum last October, they discussed a long list of topics. When we mentioned working with CRITFC on a science policy workshop, attendees were very interested. They propose a one-to-three-day conference to discuss improving floodplain habitats and a technical session prior to CRITFC's Future of our Salmon event.

Booth moved that the Council authorize the staff to work with the Columbia River Inter-Tribal Fish Commission and others to prepare for and conduct a Science Policy Technical Workshop on floodplain habitat improvements, at a cost to the Council not to exceed $16,800, as recommended by the staff. Rockefeller second.
The motion carried without objection.

There was no public comment.

The meeting adjourned at 10:10 a.m.

Approved April 13, 2016

/s/ Bill Booth

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Vice-Chair