Northwest **Power** and **Conservation** Council

August Council Meeting
Portland, Oregon
August 15 and 16, 2017

Minutes

Council Chair Henry Lorenzen brought the meeting to order at 1:32 p.m. All members were in attendance.

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

Fish and Wildlife Committee
Committee Chair and Council Member Jennifer Anders reported on the following items:

1. There was a multimedia presentation from Nancy Leonard, fish, wildlife and ecosystem M&E report manager, and John Harrison, information officer, on a prototype website about the Fish and Wildlife Program. It will introduce nontechnical stakeholders to the program and the work funded to implement its strategies.

2. There was a discussion of Program Implementation Summaries, specifically on the adaptive management strategy. Progress has been made on the other seven parts of the strategy, but adaptive management is still a challenge for us, Member Anders said.

3. The ISRP has completed a review of the wildlife projects. Last month they received an update from them. This time, there was a discussion of key policy issues, including monitoring and evaluation of habitat for wildlife, completing the mitigation agreements for the remaining construction for the inundation losses at 2-1, and the completion of operational loss assessments. The final recommendations come to the committee next month and the full Council in October.

4. The committee received a summary from the Cost Savings Subcommittee, chaired by Council Member Bill Booth. It looked at which projects need attention in FY 18, and

asked for $150,000 for screens and $324,000 for hatcheries (funded from cost savings). Committee gave head nod.

5. There was a presentation on the effects of toxic contaminants on fish. NOAA discussed major threats to salmon, ongoing efforts to improve water quality and likely benefits for endangered populations. Toxics could undermine recovery goals of conventional habitat restoration efforts, which is what we do.

6. Staff will develop a toxic contaminants story map. The group wants to raise awareness of issue of Polycyclic Aromatic Hydrocarbons (PAHs) and their impacts on native fish and wildlife. It would be funded with the Council's approval. The majority of the committee members are in favor, with one in opposition.

7. They are in the process of preparing for the next fish and wildlife amendment process, and discussed the timing and potential topics. Both efforts should inform the amendment process. The committee agreed it should kick off the process for ISAB review next month by sending a letter to ISAB requesting their review of the existing Fish and Wildlife Program.

8. There was an update from the Cost Savings Workgroup. They discussed leveraging the work of the Pacific Lamprey Conservation Initiative Regional Planning Process to identify potential use of cost savings for Pacific lamprey projects. They would be using some cost savings to fill some gaps.

9. The committee received an update from states on fish returns and heat-related closures. Although air temperatures have been high in the last several weeks, water temperatures aren't at record high, but they are on the high end of where fish managers would like to see them. Steelhead and sockeye returns are well below forecast, and some actions have been taken.

Power Committee

Committee Chair and Council Member Tom Karier reported on five items:

1. There was a presentation by Fred Ziari, of IRZ Consulting, on advancements in irrigation technologies as they relate to both water and energy efficiency. The region has made incredible progress on improving water and energy across the four states. The presentation looked at some of the newer technologies, such as variable-rate irrigation, where every nozzle can be controlled separately. Drones are being used and high-tech communications are involved. There is more potential for energy efficiency. "Ziari left us thinking about potential for load balancing, demand response and integrated pump storage operations," Member Karier said. "There seems to be a lot of

untapped potential and the Council could do more work in this area in the future."

2. There was a presentation on efforts to develop a program to assess and capture distribution efficiency savings. It is when a power line, going from substation to feeders, has a wide variation in voltage. By optimizing the voltage in the required band, you could save significant amounts of energy overall. It requires sophisticated programming and engineering. Staff estimates 200 aMW in savings, but it has only saved 7 aMW in the last five years. They're trying to figure out the shortfall working with Bonneville and other utilities.

3. Staff made a presentation on a marginal carbon paper. The Council estimates for every hour of the year, they've determined how much carbon is emitted by identifying which resources are on the margin that could be displaced with energy efficiency. The technical paper generated a lot of comments and good ideas that need to be incorporated, and then they'll send it out again.

4. There was a discussion on the value of conservation and the disconnect between Council's analysis of its significant value to the region, and trying to convert that value to individual utilities. Still grappling with how to connect those two. The next step is to work on a white paper and an outline to look at it systematically.

5. There was a proposal from the RTF to spend $14k for a website upgrade, which received unanimous support.

Member Lorenzen announced that the Public Affairs Committee meets after the Council meeting, and that the Executive Committee meets tomorrow at 8 a.m.

Public Affairs
Committee Chair and Council Member Jim Yost said the committee met last month. He said the Congressional staff trip is on the same day of eclipse, so they might be in the dark. The other issue was value of the FCRPS paper. It was a good effort. They have received comments since then. Member Yost provided an update on social media. They have 5,000 followers, and have $5,000 from the budget. The goal is to increase it to $10,000 by the end of the year.

1. Presentation on emerging changes in the electric utility system

Phil Jones, Phil Jones Consulting and former Washington Utilities and Transportation Commissioner, spoke before the Council to provide insights into the electric utility industry. Member Lorenzen said this type of presentation provides Members with a long-range view of where the industry is heading.

In talking about "the utility of the future and the regulatory paradigm," Jones broke it down into three areas:

1. Overall trends in the electric power industry,
2. A tour around the country and international jurisdictions, and
3. The regulatory toolbox – what the four state commissions have in their regulatory toolbox today, and do we need to blow it up and start over?

Jones first praised the Council's Seventh Power Plan, which he called a great document that he refers to when he speaks around the country.

Overall trends in the electric power industry are:

1. Flat load growth – less than 1 percent.
2. Renewable portfolio standards and energy-efficiency mandates – which force utilities to produce less and get lower revenues. How do they recover their costs under these mandates?
3. Greater political involvement in our process – state commissioners are supposed to be independent, but governors and legislators are increasingly stepping into the detailed processes that we have. Most have state statutes have a balance of Republicans and Democrats, and require commissioners to make independent decisions based on the record.
4. Technology (existing and new) – Most rely on big data, software, and it is rapidly changing how innovators can come into grid.
5. Cybersecurity and resilience – When Jones was president of NARUC, he made it his theme. If it faces the internet, you can be hacked. SCADA and IT systems are increasingly at risk. Regarding resiliency, we saw it with Hurricane Sandy in the East, and it's a huge issue in the Northwest to restore electric power in the event of a Cascadia Subduction Zone earthquake.
6. Electrification of transportation and DER are huge issues – It's mainly storage and putting together the electric sector with the transportation sector, and building out the infrastructure to help zero-emission vehicles operate efficiency in our service areas. It also affects regulatory practices and it helps build load too.
7. Consumer Choice – people want choice. Not just renewables and green. They want to control their own destiny.
8. Natural gas fracking – This has changed the power industry and will continue to do so for a long time.

Trends of commissions around the country:
Jones listed numerous efforts in the U.S. to transform the grid: The Rocky Mountain Institute has done good work, and New York and California are leading. DOE and Lawrence Berkeley Lab (led by Lisa Schwartz) are doing good work. So is MIT, which tends to be more conservative on the engineering side, as well as great work on nuclear and storage. In the

Northwest, PNNL in Richland has been a leader on the future of the grid and transactive energy.

The New York REV (Governor Cuomo's comprehensive energy strategy for New York) is positive, on the whole, but they have tried to bite off a lot. Elected officials play a big role, especially Governor Cuomo and Richard Kauffman have played a big role in shaping the REV. It doesn't relate to the Pacific Northwest as much since we're still vertically integrated. We don't have an ISO like New York and California.

California has the Integrated Distributed Energy Resource Plan (IDER), and is trying to figure out how a utility makes money stead of just rate basing. Pilots are being submitted by the state's three, large IOUs. They used to have an IRP process. They got rid of it 15-20 years ago and now they're trying to reinstitute it. But it will be based on GHG reductions rather than a least-cost, least-risk approach. They're doing a lot with electric vehicles (EVs) and EV infrastructure. Aggregators are picking up steam in California. They've already taken 40 percent of PG&E's load, some of 20-30 of percent of Edison's load, and CPUC President Michael Picker said it could go above 50 percent of IOU load being transferred to aggregators.

In Hawaii, the retail range of electricity is 20-30 cents per kWh. So they had to reinstitute net energy metering so it didn't explode and put pressures on feeders. They have two different rate designs and put a cap on traditional net energy metering. They have a goal of 100 percent renewable by 2050, which was imposed upon them by the governor. The commission is grappling with the procurement strategy with HICO. Many state commissions have grid modernization efforts underway.

So what does the utility of the future look like? The overall debate is characterized by two extremes:

1. The regulated monopoly is here to stay. It's a servant of the state and the toolbox is pretty flexible.

2. The other side is the "blow it up" faction: Those who want transactive energy, retail choice, direct access and to bring in the innovators. They argue it's like the telecomm industry, the breaking up of the Bells, and electricity wouldn't be that much different.

Community choice is about more aggregation and it's about getting more local. Corporate choice is another growing trend where large corporates should procure their own energy.

For energy executives, one of the biggest issues in Washington, D.C., is what is the administration going to do about tax policy? It has huge implications for IOUs and PUDs.

Since 2008, we've had extremely cheap capital and low interest rates, artificially low in the view of many. It's allowed utilities to raise large sums of equity and debt in capital markets, and to finance capital expansion plans.

The ROEs set by state commissions haven't come down as much as interest rates. Jones said he dissented on several cases where he felt they were taking risk out of the utility equation, but utilities have concerns about regulatory lag. That recovery process is usually 8–11 months. Utilities spend capital and don't receive a return.

Member Lorenzen asked about the increasing penetration of renewables. "What impact do those have on Balancing Authorities' ability to integrate that kind of generation?" he asked. Jones replied that it depends if you're in an ISO market or not. CAISO has 5,000–6,000 MW of rooftop solar. CAISO has little situational awareness of where those are. When they deploy these resources, they put in dumb inverters, not smart inverters, which are the intelligence between the source of generation and control center at CAISO. Why didn't we get the standard right and put in smart inverters? We've been doing this for five years to come up with a standard. It has commercial implications. CAISO grid operators lack the necessary awareness. Without smart inverters and two-way communications, you won't know if you can call on those resources if you have a forced outage. So that will be an ongoing problem for reliability.

Smart inverters have a microprocessor and the ability to communicate with the control room.

Council Member Ted Baker said Jones referred to two camps: whether you're still a monopoly or not depends upon who you are. A lot of people are leaving the system, but a lot are left — stranded customers. Will you talk about that? Jones said, yes. There's a lot of jurisprudence on the way commissions have ruled. So, if you blow it up and start over, there's tremendous litigation over the utilities' ability to earn on the domestic capital they have. But rates have to be just and reasonable.

The regulatory toolbox

Jones next talked about what state commissions do. One example Jones cited is deciding what is "used and useful" for electric consumers. He said it has been modified over the years, specifically in Washington and Oregon, which have been more aggressive on the renewable side. Commissions have issued policy statements to waive the used and useful test. For example, in 2011, the WUTC said that because I-937 passed (which set up a 15 percent renewable goal by 2020), if a utility purchased wind or renewable energy ahead of need, the commission would not rule that to be imprudent. Washington also modified used and useful on EV infrastructure investments. Capital investments should provide tangible benefits to ratepayers, but because of these state mandates, things can change.

Jones discussed affordability and reliability, and then spoke at length about decoupling – a concept to remove the throughput incentive to sell more, be it therms or kWh. It allows utility to

recover costs. He said if we think it's in our interest to decarbonize, will decoupling survive? If not, then utilities need incentives to make those investments.

Jones said if more customers defect from the grid with DERs, the utility has less revenue. If Walmart and Microsoft leave, utility is still obligated to pay for fixed costs. It raises a lot of rate design and equity issues.

Most states have power cost adjustments (PCAs), which was a big issue in 2001 and 2002. Some utilities almost went bankrupt. Without emergency support from commissions, we could have faced major restructuring in the Northwest. PCAs aren't always easy to get through for utilities. It's been a big issue for Montana. Their commission rejected Northwestern's attempt to recover costs. When Colstrip went down and they had to go to market, the commission said they couldn't recover those costs.

Instead of going through rate case — a long, laborious process that costs $2-$3 million and can go on for nine months — many states are providing mechanisms for abbreviated rate filings that deal with more narrow issues. Jones also talked about future test years versus historical test years.

Jones discussed deferral accounting. Some have criticized commissions for doing this and not having it undergo a prudency test. Northwestern, Puget, Portland General, all have a substantial amount of assets. There's a lot of money sitting on the books. Generally, the commissions will approve those as prudent investments. I'm not aware of any regulatory asset that we said no too in a future rate case, he said. In my view, it's a flexible tool.

Jones discussed Revenues Incentives Innovation and Outputs (RIIO). The Brits redid their industry years ago and use price caps. If you look at the goals, they're similar to ours in terms of decarbonization, security and supply, aging assets and affordability. They try to set rates for eight years and look at outputs. They try to measure customer satisfaction. It's being tried in the U.K. and has been generally successful. Utilities complain that it's too stakeholder driven and it takes a lot of time to get consensus. Perhaps regulators are too harsh on the cost of capital. Regulation in the U.S. may go the way of RIIO, especially for utilities that want more innovation in the grid and want to decarbonize.

Member Anders asked who administers RIIO. Office of Gas and Electricity Markets, replied Jones.

Member Baker asked if this has this been tried in U.S. Jones said four or five states are trying a similar approach: New York REV, Minnesota, California and Hawaii.

Performance-based regulation has been discussed a lot. It's like RIIO, but a more traditional, conventional way to provide incentives to utilities. Senate Bill 978 from Oregon Legislature will be centered on performance-based regulation.

Rate design is getting more important, Jones said. While at NARUC, they talked about value of it, and tried to get people to agree on the metrics. But it has gotten political on how to set the value of solar, for example. We have so much going on at commissions and in the states, I am concerned that nobody is looking at the big picture of how the grid fits into one another, Jones said.

Jones said it's not something we can trust the federal government to do. We in the Northwest need to figure that out. Commissions can have a general rate case, but that's not the best way. Rule makings are good if you can get there, but that takes about a year. Policy statements aren't binding on utilities, but provide a useful tool to give utilities guidance on what they should look at.

Electricity is an essential service, Jones said. Elected officials will intervene. I don't see it going to telecom or third-party model any time soon.

Member Karier said, "We ran into problem where incentives seem misaligned. If a utility needed to expand capacity, the utility gets a return on a gas plant, but not for demand response or energy efficiency."

There are ways commissions can deal with that, Jones said. Federal tax policies provide good advantages in terms of expensing capital investments. He cited an AVISTA wind plant as an example of a project put into the rate base. There's a proposal for a cloud service. Utilities are going increasingly to the cloud. When utility buys software, it has a five-year life. Is it an operational expense. But some say it's a capital expense. You should look at the value proposition, the output, of what you're trying to accomplish. Edison has three projects they're trying to put in the rate base. I always argued that energy efficiency, which is classified by Council as supply side, should go to the commission and test it.

Member Lorenzen shared a concern that as we promote emerging technology such as renewable resources, it will have an impact on how it will be integrated in the future. This includes EVs. If there are a high number of stations, it could require substantial infrastructure investment. It seems like PUCs are more reactive to what utilities bring to them. How do we plan for the systems and structures in 10 to 15 years to integrate these coming changes in a smart way?

Jones said, "I think the Washington Commission got it right when we issued a policy statement in June on EVSE for EV infrastructure." It set up a collaborative process. The Commission got signals from the governor and the legislature passed the bill that said utilities that invest in EV can get a 2 percent adder on their ROE. It crosses a lot of agencies and you're integrating two different sectors.

Member Yost asked about security: The federal administration and DOE are using terms like public health and safety, national security and a few things we haven't monetized. They've talked about fossil fuel storage for several months. Is that where the new DOE is headed? Secondly, when talking about network and grid security, and smart meters, it's like a chicken or egg thing. People might want to allow more use of the smart grid if they were had more confidence in the security. Where is that headed?

Jones replied that the DOE will come out with report soon where they will discuss baseload generation versus variable generation. And distributed versus central. In that report we'll see security of supply, such as coal and natural gas. I'd argue that natural gas storage at Jackson Prairie and Mist is equal to electric storage, he said. We'll know more in a few weeks. It's probably not going to be a dramatic departure from the past. When the electric grid has a cascading outage, it's a national security problem. DOE threw out the question that if this is a national security problem, we will help with technical assistance and grants. I wouldn't be surprised if Secretary Perry offers a similar position.

Regarding security, phones, online banking and NEST thermostat can be hacked into. It's about standards and how rigorous they are. It's about getting federal and state authorities to agree on standards and incident response planning. On AMI, I've gone back and forth. I've looked at security measures, and there are some rigorous measure that are in there, but it's not perfect.

2. Briefing on regional issues of customer concern to consumer-owned utilities.

A panel from the Public Power Council (PPC), which represents large and small consumer-owned utilities in the region, made an informational presentation and expressed its concern about BPA's rate trajectory.

PPC's Executive Director Scott Corwin said the PPC's mission is to preserve the benefits of FCRPS for consumer-owned utilities. It is regionally focused to ensure benefits accrue locally, rather than sell off transmission for federal budget purposes, which was recently proposed in the President's budget. Other areas commanding PPC attention include the treaty renegotiation and ongoing litigation over environmental policy.

Corwin introduced PPC's staff and its geographic area. It also works collaboratively with IOUs, he said. PPC is the umbrella, trying to represent the smallest to largest public utilities. It looks at key issues around contracts, budgets, technical and legal policies that might impact us.

PPC's capabilities include expertise in:

- BPA rate cases
- Production cost, rate design, resource planning, and financial modeling

- Fish biology
- Dam and reservoir operations technical team participation
- Transmission policy, operations, and planning
- BPA-related litigation
- Federal and regional government affairs

Now PPC is focused on the costs. The right to preference power is important, but so is the cost of that preference power, Corwin said.

“BPA just concluded its BP-18 rate case, which is a 5.4 percent increase to Tier 1 power rates,” said Michael Deen, PPC’s senior policy analyst. “That may not seem like much over two years, but we’ve had a 34 percent increase in less than 10 years, at a time when inflation has been 14 percent. That’s an unsettling trend for customers.”

Deen said they recognize that BPA has made a lot of deep cuts to its internal costs, and there may not be a lot left to trim, so the PPC will continue looking to ensure that the agency’s fish and wildlife, and energy-efficiency dollars are being spent wisely.

In particular, the effects of higher rates are felt by low-income and large industrial customers, he added. Preference customers are under contracts through 2028. When they all come off, is BPA going to be the best choice as a power supplier?

Member Lorenzen asked, “What is the cumulative total of Tier 1 obligation? “It’s about 7,000 MW,” Deen replied. Member Lorenzen asked how deep is the market at the lower cost? Deen said he expects it to go up quite a bit. “But what will BPA do with that power? Member Lorenzen asked. “Will they have to dump it into same market?” Member Lorenzen observed that there will be a lot of factors at play. Not only is there the financial viability, if people do abandon BPA, the dams and generating resources won’t go away. It will be an uncertain future.

Deen agreed. If a huge load left BPA, or even just 500 MW left, it would be a huge amount to spread over other ratepayers, he said. But it’s not a doomsday scenario that would be problematic; it’s these intermediate impacts that also could be burdensome to customers.

Corwin said these scenarios are what we worry out and they’re what we faced in the mid-90s. You don’t know what you can remarket that power for. They don’t escape their preference obligations. They have to go through an order of offering public and regional preference. There are products you can try to put together, but you still have transmission constraints and a flood of other resources. In the end, it’s a federal entity, and the U.S. Treasury wants its debt payments every year.

The opportunities and risks for BPA and public power include:

Energy policy – such as the treaty renegotiation
Budget policy – such as addressing the PMA transmission sale proposal. Deen said they're making progress in not having the President's budget proposal go through. But whether it goes through or not, it adds volatility and uncertainty.
Environmental policy – this is where litigation is ensuing and ongoing.

Deen said that BPA is unique among DOE marketing administrations. We look at how others are operating. Each region is different. Others are marketing by groups of projects rather than by region.

Bo Downen, PPC senior policy analyst, discussed the numerous ways they work with NWPCC through various workgroups. He praised the efforts to scrutinize and reduce costs such as the ISEMP and CHaMP programs.

Member Lorenzen said the energy efficiency payback for individual utilities is spread over a four-to-six year period, and the costs come out the next year. It's a stress on rates. People look at savings immediately. He's hoping that everyone can look at the long haul to assure a least-cost system.

Corwin said he appreciates the importance of a long-term view, but in short term, you need to survive. "We have some utilities who have done energy efficiency since it was invented," Corwin said. "We have other utilities in smaller, constrained service territories without load growth. Then, with a 5-9 percent rate increase, that's not a winning business proposition."

Downen observed that the Council is working to parse out values to different utilities, and hopes it will help with decision-making. Corwin said that a value to their members is just having good data and analysis. That's where the Council can play an independent and strong role. Sometimes it goes into advocacy, he said, but the need for independent, analytical role is critical for the region.

Member Karier said that diversity on the PPC is significant. You don't get that feeling until you sit in the room with lots of members. You do a good job coordinating on a number of issues, he told the panel. He appreciates PPC's support of the treaty process and the regional recommendations, as well as getting control over the sea lions. We have broad regional interests in that, including the leadership in addressing the administration's proposal to sell off transmission resources.

3. Presentation by Lower Columbia Fish Recovery Board

Steve Manlow, executive director of the Lower Columbia Fish Recovery Board, provided an overview of the organization. The board was established by state statute in 1998. It has a:

- 15-member board
- 12-member technical advisory committee
- 5-member clean water review committee
- 3 multi-WRIA watershed planning units

The board's region covers:

- 5,700 sq. miles
- 7 percent of Washington State
- 17 subbasins and the estuary, including:
    - 2,882 tributary miles
    - 268 Columbia/estuary shoreline miles
- 74 distinct populations of ESA-listed chinook, chum, coho, steelhead and bull trout.
- 8 tributary dams, 4 hydroelectric operators
- Bonneville Dam in Columbia Gorge

Manlow said it's not about getting to recovery, it's about getting to healthy, harvestable levels. It's not all centered around getting to minimum viable populations. The goal also is to enhance and sustain those fish and wildlife species.

He discussed their recovery plans, most notably the Conservation and Sustainable Fisheries Plan (2017). It's an important item, Manlow said, dealing with hatchery and harvest actions, and how those are implemented over time. They want to make sure that their work is scientifically sound.

The Lower Columbia Fish Recovery Board develops its plans through an open process. Manlow estimates they held about 200 meetings over a seven-year period. He said when you can show that people are all doing their fair share, it helps get buy-off on the various plans.

The board takes an "All-H" approach. Doing population modeling and identifying impacts across all Hs. The Lower Columbia Salmon Recovery scenario was discussed. He included the framework that identifies target status by population.

The habitat program seeks to develop and maintain a habitat strategy that:

- Identifies restoration and protection opportunities at a reach-scale;
- Assesses the relative value habitat work will have on key populations and life history stages;
- Provides guidance for developing restoration and mitigation proposals, and evaluating land use changes;
- Supports evaluation and ranking of proposals for their technical merits, certainty of success and cost; and
- Tracks projects from conception to completion.

Manlow provided an overview of their funding ($86.3 million), with most coming from NOAA ($63,128,375). Hydropower companies are key players in helping with recovery. He discussed the importance of adequately funding a research, monitoring and evaluation program. He touched on:

- Biological status and trends
- Habitat status and trends
- Intensively monitored watershed
- Project implementation and performance
- Program evaluation
- Action effectiveness
- Uncertainty and validation research

There's an online system to monitor program implementation. All the recovery partners can use it. It identifies actions, what they cost and the timetable for the project.

Member Guy Norman thanked Manlow for a good snapshot of the process. He said Manlow took over a year ago and it's going well.

Member Yost appreciates getting the slide presentations beforehand.

4. Presentation on Bonneville Fiscal Year 2017 fish and wildlife spending and the forecast for Fiscal Year 2018

Bryan Mercier, executive manager of the fish and wildlife program at the Bonneville Power Administration, told Council Members that the agency has a very large fish and wildlife program, considered the largest in the U.S. and probably in the world. There are more than 600 contract actions annually across 400 projects. It has the ability to over contract for the available budget we collect in a given rate period in the 10-15 percent range. Over 20 years, the program has had steady growth in both expense and capital expenditures.

The agency has been trying to hold spending flat. Many forecasted secondary revenues did not materialize, and they needed to find cost reductions to offset that. Mercier said BPA is an at-cost, nonprofit agency, so they're actively balancing the budget in FY17. If the trend continues, and if they spend $258 million, they should be able to avoid initiating a cost recover adjustment clause (CRAC).

Mercier reviewed the fiscal year 2018 rate case: The record of decision published recently has the FW program at $277M in FY18 and FY19. But there's significant uncertainty with ongoing litigation in spill, CRSO EIS, CB Fish Accords, and the dynamic power market, which has BPA's power $13 out of market.

He said they have prepared themselves to make some trade offs and tough decisions – such as a significant reduction of 50 percent of the Integrated Status and Effectiveness Monitoring Program (ISEMP) and the Columbia Habitat Monitoring Program (CHaMP). It's more based on performance and utility of the projects than it is the cost drivers. However, it's indicative of the approach Mercier said they will be taking to ensure that expenditures are performing closer to their goals and objectives.

Member Bill Bradbury asked for information about fish accords. Mercier replied that the accords expire next year. There are a lot of conversations going on about that. With all uncertainty, it's difficult to know what the future holds.

Collaboration and priority setting are keys to success, he said. They don't pretend to have all the right answers. They need to make decisions and set priorities, and they have to balance their budget too. Right now, it's out of balance.

In conclusion:

- BPA will continue to actively manage the budget and it will be adjusted more in the coming months.
- BPA's focus will be:
    - Existing priorities, such as the Fish and Wildlife Program, BiOps, Accords, etc.
    - On-the-ground work with direct fish and wildlife benefits before research and monitoring.
    - Contracting for essential work elements.
    - Limiting travel, training and conference attendance.
    - Focus on demonstrating results and project performance.

Member Karier liked the emphasis on the groundwork. "I think the on-the-ground work is underfunded," he said. "The research and monitoring has been expanded and the reporting hasn't been very good." He said fund more on-the-ground work to save more fish, and that BPA should push harder on the reporting process.

Member Bradbury referred to a chart of program costs. "Given the budget challenge, are you going to have pressure to make that line go down?" he asked.

Mercier said, "I think you're right. Over the last 35 years, it's been going in one direction. That growth may have been more feasible when Bonneville was the least-cost alternative. But where we're sitting now in our current competitiveness, that's not the case. So we're looking at efficiencies and opportunities to put more work on the ground. RME is one area to reduce. We're spending $80 million a year on research and monitoring — that's about 30 percent of the program. Most natural resource projects in the country have a benchmark of 10 percent for monitoring."

Member Booth said he agrees with approach Bonneville is taking taking. If you're making decisions on 2018, you're looking at those in next couple of months, he observed. Are you signaling a different target for 2018?

Mercier replied that's a good observation. "The challenge for us with a program of this size to make significant changes in a short amount of time," he said. "Part of reason for my communication a month ago that decisions will be made at a contracting level, not budgeting level. We have collected in rates, $277 million for fish and wildlife expenditures. We know there are some uncertainties that will affect revenues, so we'll be adjusting. We hope the region will work with us to do this in a surgical manner. We're now looking at eliminating various work elements — contracts, travel, etc. — to help us get to a number. We don't have a firm number yet. We don't know how much we'll be affected by litigation and other things, but we know it's coming." He said they are working to find those opportunities for savings before they're faced with more drastic reductions.

Member Anders commented that she understands the dynamics they're working with. In the last few years, they've shown strengths in working with the Council in the O&M workgroup and in the cost-savings workgroup, to bring them together rather than fighting behind the scenes. She urged him to continue that level of cooperation and that good working relationship.

Adjourned at 4:36 pm

Wednesday, August 16, 2017

Chair Henry Lorenzen called the meeting to order at 9:30 a.m.

5. Presentation on low-carbon pathways at NW Natural

Kim Heiting, NW Natural's vice president of communications, briefed Council members on the utility's low-carbon efforts. She said the company believes there is a carbon imperative and that NW Natural has a role to play in an effective climate strategy. Also, voluntary actions can help achieve reductions and that long-term decarbonization is necessary.

Heiting described NW Natural's gas distribution system as one of the newest, tightest and most modern systems in the nation. She said they were one of the first to champion decoupling as it allows them to pursue conservation and fund biogas projects.

Ryan Bracken, NW Natural principal economist, talked about the benefits of using natural gas directly. He reviewed the current greenhouse gas emissions profile of the Pacific Northwest, which varies by state. Colder places have different energy use profiles. The direct use of natural gas is roughly 11 percent of the region's emissions. Half of that direct gas use is for

space heating and it is a very “peaky” resource. He detailed the seasonal nature of residential natural gas usage.

Member Bradbury asked, what assumptions are being made about where the electricity is coming from? Bracken said it just shows emissions. There aren’t assumptions about where the electricity is coming from. The pie chart on the left is current emissions, while the one on the right is about what the load is.

Member Lorenzen referred to a chart showing the contribution of greenhouse gas from various sectors, and expressed surprise at how large the contribution of greenhouse gases from the electric generation sector are — especially given the amount of hydro generation. Bracken said the numbers come from the Department of Environmental Quality. Member Lorenzen asked if that is looking at the source of greenhouse gases no matter where the generator is located? Yes, Bracken replied, the only import/exports included are generating assets, but it does include imported power.

Bracken said NW Natural’s system is a highly efficient way to serve winter peak energy needs. It heats 74 percent of the residential square footage in the areas it serves and provides 90 percent of peak-day energy needs for our residential space and water heat customers. To serve the current gas peak load with electricity, the Northwest’s winter peak electric load would roughly double (increase by about 25 GW).

Member Karier said he hasn’t seen this information before about the peak value of gas. You combine space and water heating, but it’s more about space heating. Bracken said water heating doesn’t do that much. There are ways to get at water heating with demand response, but it doesn’t contribute to peak at all.

Bill Edmonds, NW Natural’s director of environmental management and sustainability, said there’s a narrative out there suggesting we should address our climate imperative with the “electric two-step,” which is to electrify everything and clean up the grid. But NW Natural wants to drive home that using natural gas directly is critically important for meeting peak load, and that it has a role to play in reducing greenhouse gas (GHG) emissions.

Edmonds said NW Natural set a 30-percent carbon savings goal by 2035, based on a 2015 baseline. To meet the goal, he said the utility has to look beyond its business since its operations make up less than one percent of the value chain. He said their opportunities lie in reducing the impact of its product, promoting energy efficiency among its customers, and converting fleet vehicles to natural gas.

Edmonds explained that the natural gas industry can deliver a product with less carbon intensity by looking upstream to reduce methane emissions. In Portland, NW Natural entered into a partnership with the City of Portland to inject renewable natural gas (RNG) from the Columbia Boulevard Wastewater Treatment Plant into the company’s distribution system.

RNG is pipeline-quality gas that can be produced from a variety of biogas feedstocks, including water treatment plant waste, manure and landfill gas. In addition, NW Natural will build and maintain an RNG transportation fueling station at the site for medium and heavy-duty trucks. Will it be a boutique measure or enough to have an impact? Edmonds said in Oregon, there is the potential for 15-17 billion cubic feet (Bcf), which is 25 percent of the company's current sales throughput. "By our calculations, it's enough to matter," he said.

Member Baker asked if there is a greenhouse gas lifecycle analysis. Edmonds replied that lifecycle analysis is the right question. You have to look at the entire emissions of a product. The lifecycle emissions of RNG are very low. When you're talking about lifecycle emissions, you're never talking about zero.

Edmonds said that the transportation opportunity is the largest piece of the climate pie. While the electrification of passenger vehicles is moving along, there's less of an opportunity with heavy-duty vehicles. However, natural gas vehicle fuel is ready to go, and the first adoption will be in fleet vehicles, such as garbage trucks. Natural gas vehicle fuel not only reduces greenhouse gases, there's a reduction in nitrogen oxide emissions and diesel particulate matter. Currently, Oregon is the sixth worst state for diesel emissions, he said. Moving a truck from diesel to natural gas, it's a 30-percent reduction in emissions. If you move a truck to RNG, it's an 80 percent reduction or more.

Member Lorenzen asked about storage power to gas.

Member Karier first wanted to ask if wind and solar emissions are from manufacturing process? Yes, replied Edmonds. So wouldn't landfill or wastewater release that carbon otherwise … why is there a residual still there? Member Karier asked. Edmonds said that California has done a lifecycle analysis and he described the process of evaluating that. Member Karier said we know there are anaerobic digesters out there producing gas. Are any operating? What are the costs?

Edmonds said there are 50 projects around the country interconnected to the pipeline. He said NW Natural isn't the first, but they are early adopters. Most have gas flowing into California with strong incentives to put it into transportation. Those incentives drive it onto the pipe. As for cost, the cost of natural gas is $3. RNG is in the $6 to $8 range. Incentives are helping drive RNG. Heiting said that environmental attributes are going to California because of the rich incentives for the vehicle market. Edmonds said Oregon has followed suit with it's own clean fuel standard, which would help keep more RNG in Oregon.

Nationally, 1.4 percent of the methane moving through the pipeline system, including production, is emitted. The local distribution system is very tight. He said NW Natural is the tightest, therefore opportunities to reduce emissions are upstream. About six measures can be taken, but due to low gas prices and high competition, it's not easy to move on those opportunities

Power to gas is the process of taking excess renewables (such as wind in the spring) and making hydrogen through electrolysis. It can be put into the gas infrastructure. Or you can methanate it. A way of taking renewables and making them storable.

Member Karier said these are new ideas for the Council. He said he imagined that the hydrogen is potentially more volatile and asked if that's an issue if not used properly. Edmonds said that's accurate, but it doesn't change the volatility of their product at 15 percent. It's being done on a small scale at UC Irvine as a pilot project.

Member Norman was curious about two RNG options (anaerobic digestion and biomass gasification) and asked if there's a difference in opportunities to implement them. Edmonds said that more is known about anaerobic digestion. He said they have four projects knocking on their door to connect with their system. Those will be first. Gasification is further down the road. It's known, but there are logistical and political concerns.

Member Yost said that Idaho, the third-largest dairy state, has been working with anaerobic digestion. Initially, the problem was getting it into the gas line. But then it was used to heat local facilities, which was a reduction in natural gas use. Has that been looked at? Edmonds said the simplest method is to burn it in a boiler onsite. With a little cleanup it can be put through a wastewater plant. Now that it can be cleaned to pipeline level, they're now moving to pipeline injection.

Member Bradbury said he was impressed with NW Natural's commitment to climate and speaking clearly about it. Initially, he wondered what they meant by RNG, but it's exciting to see the effort they're making.

6. Panel presentation on the resiliency of the power system

Massoud Jourabchi, the Council's economic analysis manager, assembled a panel to discuss what Northwest utilities are planning in response to cyberattacks, a Cascadia subduction zone earthquake or other disaster. The panel members were Adam Schultz, Oregon Department of Energy; Will Price, Eugene Water and Electric Board; Stephan Capps, Bonneville Power Administration; Chris Dieterle, Portland General Electric; and engineer Dan Bihn, who spoke about how Japan is using grid-connected electric vehicles as part of their disaster response.

Jourabchi said resiliency is the ability to prepare and plan for, absorb and recover from a disaster more successfully, and to adapt to actual or potential adverse events. He said the public perception of recovery of electricity is very optimistic, and that might not be what reality is. He reviewed the growing trend in natural and man-made disasters, and the cost of these disasters has grown.

He cited two examples of new construction with resiliency built in: Spaulding Rehabilitation Hospital in Boston and 181 Fremont Tower in San Francisco.

Jourabchi said mitigation strategies include:

- Be REDi (resilience-based design)
- New structures (that exceed code)
- Existing structures (performing seismic retrofits)
- Have an integrated plan that brings together resiliency plans for transportation, communications, water delivery, electric utilities and community.

Adam Schultz, Oregon Department of Energy senior policy analyst, discussed current utility resiliency efforts. This includes:

- Relocating critical operations out of liquefaction and tsunami zones;
- Seismically retrofitting critical substations and transmission assets;
- Prioritizing plans to restore power to customers;
- Focusing on investments in large-scale assets; and
- Investing in smart-grid and microgrid technologies that could be leveraged for local energy resiliency.

Schultz also discussed Oregon legislative actions, including the Oregon Seismic Safety Policy Advisory Committee, which provides a report to the governor every two years, and the Oregon Resilience Plan. Authorized in 2011, it looks at a 50-year horizon. Its key recommendations are to develop a regulatory oversight mechanism to ensure cost recovery. The state should provide immunity of liability for vulnerabilities, and diversify liquid fuel storage locations and identify new liquid fuel delivery corridors. More recently, the Governor Kate Brown appointed Oregon's first State Resilience Officer in May 2016.

Schultz said the Oregon State Energy Assurance Plan determined that nearly 100 percent of liquid fuels are imported into Oregon via barge or pipeline. Plans are in place to prioritize fuel deliveries for critical public services. He noted that electricity is dependent on transmission system delivery, sometimes over long distances, and a Cascadia earthquake is expected to result in major disruptions or an electric transmission system failure that could take upwards of two months to restore — even longer for state's most remote areas. There are plans in place to curtail electric demand in response to a major crisis, and the OPUC is the lead agency for coordinating electricity resiliency.

Currently, ODOE is:

- Supplementing existing efforts on enhancing the resiliency of fuels infrastructure and the electric transmission network;

- Developing a framework for local energy resiliency investments (worked with Central Lincoln PUD on developing a stakeholder process that would be replicated statewide); and
- Developing a web-based toolkit to assess current state of energy resiliency, options for improvement, analysis of costs and benefits, and best practices.

Will Price, Eugene Water & Electric Board energy management engineer, discussed his utility's backup systems, should their system be isolated from the grid. This includes microgrid and solar-plus battery activities in the event of a major earthquake.

Price noted that his area is dependent upon a single water source, the McKenzie River. He also and talked about the challenges of reducing and restoring load in a major event, and the need to use local schools as emergency centers.

Price said that with a microgrid, you have a connection to the electrical system, batteries, diesel backup and photovoltaic, and you're serving loads. The brain is the microgrid controller. Member Lorenzen asked how they balance the load to the generation within the grid. Price said with a microgrid, you can write scripts. You can think about avoiding some BPA costs. "We look at how to use that battery, exercise it, and obtain some avoided costs to help defray the cost of investment," he said. "The microgrid controller is the focus. Going one step further, we want to aggregate them."

Member Lorenzen said that sounds like there's a larger system in play. "I'm thinking of an emergency situation where you isolate a small area away from the main grid. How do you do your balancing?"

Price replied that when you're pushing energy from battery to your local system, the immediate loads suck up that power. You just bring less power through transformers.

"What if your load is greater than generation?" Member Lorenzen asked.

"It's not a problem now with the way we designed it," Price replied. "The facility is about 500 kW, for example. The battery size is 250 kW. So we're less than the load."

"So if you're less than load, what will supply the load?" Member Lorenzen asked.

"We have to disconnect load," Price answered.

Massoud said the goal is to reduce the load as much as you can, so the batteries and PVs can handle the load for a longer duration.

Bonneville's Stephan Capps addressed preparedness and resiliency investments at hydro facilities and transmission operations. He said in the context of a disaster or incident,

Bonneville's DOE mission is to deliver power to load in 12 hours. That doesn't mean that the lights come on in 12 hours, because distribution companies still have to get the power to the customers, he said. But it's more than investing in resilient infrastructure; you need a resilient, trained workforce as well. You need processes to prioritize the risks, and have training exercises and testing processes. A lot of technical competencies are involved. BPA also maintains an incident command system.

Capps reviewed some of the longer-term investments being made in Bonneville's infrastructure. It is ongoing because codes change. He said their substations represent a two-part problem. There is equipment in the yard and control house building. West of the Cascades they're upgraded to the latest BPA seismic standards. The others are harder to do. He said it's like trying to renovate your kitchen while your spouse is cooking. They need to look at telecommunication sites, which are separate from the substations, sometimes in tough-to-reach locations.

Member Lorenzen asked Capps if BPA has considered an electromagnetic surge due to a solar storm, and what can be done to protect against that? Yes, answered Capps, the control center team has taken it into account. Member Lorenzen said a surge could wipe out transformers and do all sorts of things. Earth was hit with one in the 1800s and it burned down telegraph lines. Things can be done to harden transformers, but it's very expensive. Capps answered that it's part of the whole risk prioritization. You have solar storms (minor and major). We track them, he said.

Member Yost asked if the system is set up so they could isolate and provide service to hospitals and first responders. Do you have specific areas in a high priority to get restored? Capps said that as far as providing power to specific services, that's the responsibility of local distribution utilities.

Portland General Electric's analyst Chris Dieterle described the steps taken to strengthen the resiliency of PGE's system. He said the utility has completed construction of its readiness center in Clackamas. It also has completed upgrades of service centers, has completed Cascadia disaster training and has made seismic upgrades to its hydro facilities.

Engineer Dan Bihn discussed what Japan has learned since recovering from its major earthquake in 2011, and tried to apply those lessons to the Pacific Northwest.

Council Business

Northwest Power and Conservation Council Motion to Approve the Minutes of the July 11-12, 2017, Council Meeting.

Member Booth moved that the Council approve for the signature of the Vice-Chair the minutes of the June 11-12, 2017 Council Meeting held in Vancouver, Washington.

Member Bradbury second.
Approved without objection

Northwest Power and Conservation Council Motion to Support the Allocation of $14,025 of Power Division Funds to Support Further Enhancements to the Regional Technical Forum Website.

Jennifer Light, Regional Technical Forum manager, said these funds are for work to do next fiscal year. It's a small change to the contract and the RTF is looking for full Council approval. The Power Committee approved it.

Member Booth moved that the Council authorize the staff to amend the current contract with OMBU to allocate an additional $14,025 of the Council's contract funds to support further enhancements of the Regional Technical Forum, as presented by staff and recommended by the Power Committee.

Member Karier second.
Approved without objection.

Northwest Power and Conservation Council to Release the Fiscal Year 2016 Report to the Governors on Bonneville's Fish and Wildlife Costs

John Shurts, general counsel, said the Council approved a draft in June. The comment period started on June 15, and ended July 21. There was one comment from BPA, which said that the wholesale power rate wasn't right, it was based on information that did not include $167 million in costs. So it was changed. It's now consistent with what we said last five years. It's about a third of the wholesale rate associated with the Fish and Wildlife program. It's on page five and it's ready to go to send to the governor.

Member Booth moved that the Council approve the Fiscal Year 2016 Report to the Governors on Bonneville's Fish and Wildlife Costs.

Karier second.
Approved without objection.

Northwest Power and Conservation Council Motion to Authorize Expenditure of Funds Not to Exceed $30,000 for the Development of a Pilot Story Map using Polycyclic Aromatic Hydrocarbon (PAH) Data

Tony Grover, Fish and Wildlife Division director, said there was a recommendation from the Fish and Wildlife Committee to approve expenditures not to exceed $30,000. PAH is a contaminant known to have negative affects on salmon and steelhead. The Department of Ecology has 2,000 data points. Working with NOAA, CRITFC, Oregon Department of Environmental Quality and others, there is a recommendation to focus on PAHs. They can't point to any one industry or social sector. They seem to be associated with high-population areas. They want to produce a map of those data points throughout the Columbia River Basin. It would help people planning fish and wildlife projects to consider that in their planning when seeking BPA funding. It would be an education tool. People know toxics create a problem, but they don't know more details about it. It would be a step toward understanding if toxics mapping would be a good approach in helping people develop habitat work in the CRB.

Staff, on behalf of the toxics workgroup, recommends that we develop a pilot map (not to exceed $30,000) with some background information on PAHs.

Member Baker asked what would the map show? Grover said it would show concentrations of this group of contaminants in water and stream sediments. PAHs are deposited though a whole range of different mechanisms. They're not including fish tissue samples. They're more interested in fish habitat affects.

Member Anders said the workgroup compiled all the existing data. That's already been done. So it's not a map with dots; it's a story map so you can have associated pieces that provide education about the issue.

Grover said we don't have a map of these toxics. We know they are affecting the investments in the Fish and Wildlife Program. We make it clear where people should be extra careful or avoid altogether. I know about toxics work and worked for 17 years in the toxics cleanup profession. The intent is not to hook BPA into doing toxics cleanup in the CRB. It's to help people make better decisions.

Member Baker asked if there are examples of projects where this has been an issue? Grover said there are literally thousands of substances, but they are not regulatory triggered. He cited the presence of mercury at the Yankee Port cleanup site. If you know what's going on, you can take appropriate actions and not create liability, he said.

Member Lorenzen said he helped on toxics workgroup. "Is this mapping consistent with what we did with the conclusions reached in the Fish and Wildlife Program?" he asked. Yes, Grover replied, he can hand out copies of the findings.

Member Karier said it's an interesting project, but he's very disappointed there was no write-up in the packet for the Council to look at. I don't know enough to vote on it. I want more examples. They knew the mercury was there without our story map and they check areas before digging and moving dirt around. In Washington State, there are health warnings for fish

… mercury, PCBs, etc. PAHs — I didn't find those in there. I know it's a major problem in estuaries. Sometimes maps don't tell me very much. I don't see whole picture.

Grover said part of what we're trying to answer with the pilot mapping project is to answer those questions. We don't have a map anywhere in the basin. There are so many misconceptions and that's why we need a storyline for it. In many cases, the adverse effects on aquatic life for salmon and steelhead, there are no health advisory for those chemicals. There's only a narrow range of chemicals that get to the range of human consumption. We're interested in the impacts long before they're eaten.

Member Karier asked if they will do a comparison of locations with current projects? Grover said it can be done if we invest in this effort. Can be done or will be done? Member Karier asked. This will produce a GIS layer, Grover explained. There are hundreds of thousands of them. To get the projects on top of the data, we need to do the mapping.

Member Karier said it would be interesting to map the PAH data against our projects. But that's not in the description.

Leslie Bach, senior project manager, said the piece Grover is describing is only one component of understanding the water quality issues in the basin and to protect and mitigate the habitat. There are multiple values.

Member Lorenzen said the group worked very hard on this to make its selections. We identified toxics as being a significant issue in our Fish and Wildlife Program. Trying to get it into this fiscal year. It seemed like a small amount that fit within the existing program. Can bring it up next month and put it into next year's budget. I think it's important to support the work of a group in our Fish and Wildlife Program.

Member Yost said, "When we put that in the program, I was not thrilled about it, but I had assurances we wouldn't spend Council money on it. It would be DEQ. $30k isn't much, but shouldn't come from the Council. DEQ should pay for it. It's coffee money for the DEQ. I was afraid when we did this, the big pitch was that the Council would participate, but wouldn't become financially invested. The Council would coordinate it, but we'd not get financially invested. Now we got on that slippery slope. It's $30,000 this year and next year it could be $300,000. I'm not going there. If they want to pay us to do the mapping, staff can do it. They ought to pay other folks on that big list and have them kick in $4,000–$5,000 apiece. I'm not going to vote for this."

Member Booth said, I think the program was carefully written in that regard as Jim mentioned. Yesterday, staff came to talk to us about PAHs for the first time, and requested $30,000 of ratepayer funds for a pilot story map. There are three reasons why I won't vote for it:
1. Mission creep – The intent of the power act was to mitigate impacts of the hydroelectric dams. We have no statutory authority over toxics. At a time of serious problems going into

2028. Even today, BPA rates not competitive. To venture into a new arena, we should give it a lot of careful thought before next step. EPA can handle the type of project that was been brought to us by staff. EPA has $8 billion. They could find $30k to do some mapping. I don't see a nexus with the hydrosystem.
2. Lack of due diligence on our part — Over the years, we've looked at other toxics, but we've spent zero time looking at PAHs. First time yesterday we had a short presentation, and that focused on other pollutants. There was a tiny amount of data presented about PAHs. I'd like to ask questions.
3. Staff argues this is necessary – I don't want to do work in contaminants. I don't believe what we're doing here is needed the way the system is set up at BPA. They have an environmental department. I don't see that it's needed. I don't know a place where we have PAHs where it slipped through the cracks where it was not identified by the Bonneville environmental department. So I can't support this either.

Member Norman said he can appreciate the connection between the mapping story and looking thoroughly at habitat restoration projects, but I'm interested in the bigger picture of toxic monitoring and cleanup in the Basin. Historically, there hasn't been the linkage to federal dollars though the Water Resource Development Act in areas such as Chesapeake Bay and Puget Sound. But legislation changed last December with the adoption of the Columbia Basin Restoration Act, which opened the door for funding for toxic monitoring and cleanup through EPA grants. He recognizes that appropriations have not been made yet. Big picture, with group: if council moves forward, expectation that there would be resources from the other agencies that could further the interest of the Council in terms of a seed project? When funding occurs, could it be expanded upon by other funders, consistent with the interests of the Council?

Bach said we're looking for something bigger – not necessarily paid for by the Council, but in trying to elevate how contaminants may impact fish and wildlife. The reason for PAHs is it's a pilot and the data is readily available and accessible.

Member Norman said he hopes this effort could generate funding from other sources. Grover said there is no intention to bring another funding request later. He said there are thousands of chemicals that have adverse impacts on fish and wildlife. They are deferring to the experts. They said in order to make the case to others to should bring in their resources, PAHs would be a good example as to why this is important.

Member Karier said his understanding is that EPA doesn't fund things like this because Congress hasn't authorized them to do it. Grover said they haven't appropriated it.
Grover said it could spur other entities to fund making maps of other contaminents if we do a good job on the map.

Member Norman: I would hope it would put CRB on a level playing field with other areas – Chesapeake, and Puget Sound.

Grover talked about an area in Washington where Coho were going belly-up and dying in. It was substances in the storm water run off. It worked against all the habitat investments in Puget Sound.

Member Anders moved that the Council authorize the expenditure of the Council's contract funds not to exceed $30,000 for the development of a pilot toxic contaminants map using polycyclic aromatic hydrocarbon data, as presented by staff and recommended by the Fish and Wildlife Committee.
Bradbury second.

Member Karier suggests an amendment to connect it to the Council's program, to map it and see what the value is to the region. His amendment reads:

> "One of the products will identify the geographic overlap between PAH intensity and current fish and wildlife projects."

Bradbury second.

Member Lorenzen asked if there was discussion on the proposed amendment.

Member Bradbury asked if we can we consider it a friendly amendment.

Member Baker thanked Member Karier for the amendment. He said the history is persuasive, but he shares a concern with his Idaho colleagues concerning mission creep. As the motion stood alone it felt that way and it's better with amendment. He looks forward to seeing the map with this amended product and hearing from staff on the value from it.

Roll call vote:
Karier – aye
Baker – aye
Booth – no
Yost – no
Brad – aye
Anders – aye
Norman – aye
Lorenzen – aye

The motion carried.

Public Comment

Scott Levy, Bluefish.org

Levy said he's an information advocate, hosting bluefish.org. He said the Council is a challenge for him. He thought council would consider a dam-breaching scenario in the Seventh Power Plan. Then it turned into a planned and unplanned loss of a nonGHG-producing resource. He reviewed the history of his meeting attendance and tracking the issue. He discussed his view of charts with power production and fish runs. Mentioned use of fat bags to track toxic contaminants of fish in the water. He wants to revisit what would happen if we breached the Snake River Dams.

Jim Waddell, former civil engineer with U.S. Army Corps of Engineers

Waddell argued that the dams are providing ancillary benefit. They produce 900 MW of power, but they're very expensive, he said. He said we're losing money big time on those dams. He said this isn't being discussed at the leadership level in the region. They do talk about it in D.C. and they see that they're wasting money. He talked about mothballing turbine units. They have no intention of replacing those turbines. Waddell handed out a paper on what the Army Corps of Engineers and BPA could do. Corps has a responsibility to the public to ensure financial benefit. First step is put the project on ice and stop wasting money. Dam breaching is the environmental alternative, and only one to recover salmon.

Member Lorenzen adjourned the meeting at 12:43 p.m.

Approved September ___, 2017

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Vice-Chair