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

Council Meeting
April 11 and 12, 2016
Missoula, Montana

Tuesday, April 11

Council Chair Henry Lorenzen called the meeting to order at 1:32 p.m. All members were in attendance, except for Council Member Tom Karier, who joined by phone.

Council Member Jim Yost recognized former Montana Council Member John Etchart, who passed away April 5, 2017 at age 71. Member Yost said that Etchart left a personal and professional mark on the Council, and pulled the Council back to a position of relevance in the region. He said that Executive Director Steve Crow represented the Council at the memorial.

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

Fish and Wildlife Committee

Committee Chair and Council Member Jennifer Anders reported on seven items:

1. There was a presentation from Michael Young from the U.S. Forest Service on EDNA sampling. It continues to get perfected in detecting invasive species, and rare native species, including bull trout. It will help show where bull trout will be in the future, and will show a range-wide map of bull trout habitat. They developed a repository, called the Aquatic DNA Atlas, which will serve fish and wildlife managers in the region.
2. Chris Wheaton reported on the progress of StreamNet and the coordinated assessment effort. The assessment started in 2010 with a goal of improving timeliness, reliability and transparency of data needed for regional assessments and management decisions. 100 percent of the states are reporting. The tribes are behind a little, Member Anders said, but additional funding is needed. The next step for StreamNet is focusing on hatchery indicators and preliminary bull trout data.
3. The committee discussed the research plan, which is out for public comment. The comments were reviewed. Some issues came up was how to better define “research,” adjusting priorities, and implementing reporting and synthesis of research results. Staff will continue to work on the plan and will present a red line version to the committee in May.
4. The committee is starting up another round of project reviews. Staff will bring

recommendations on six umbrella projects next month. The ISRP's review of the wildlife lands projects began last week. Staff discussed examining prior project reviews and alternatives for future reviews to include science and policy decisions in how money should be spent.

5. There was an update from the cost savings workgroup. It received a cost-savings, budget-tracking worksheet from BPA. Lynn Palensky, staff program development manager, discussed next steps for the sturgeon RFI.
6. There was a presentation on cold-water habitat from Leslie Bach, staff senior program manager, on how to map them and how fish use them. She identified gaps in existing knowledge. The committee will look at what to do next and how to integrate it into program objectives.
7. Looking at emerging priorities, there was one update on the northern pike suppression effort. To date, 700 pike have been caught this year, compared to 100 last year, so it's a growing problem. Member Anders said the committee would try to help out with the public relations effort on that issue.

Power Committee

Council Member Tim Baker reported on four items:

1. The committee received an update from the BPA on enhancements to its resource program planning process. They walked us through the process of how to use it, how it was created and its goals. They're trying to accomplish things the Council asked them to do in the Seventh Plan. There is some emphasis on energy efficiency, demand response and demand side management.
2. John Fazio, staff senior power systems analyst, explained on how the Council coordinates hydro unit outages for adequacy modeling and determining loss of load probability. Fazio walked the committee through how those pieces fit together both for forced outages and maintenance, and how they make adjustments for addressing incremental and decremental reserves.
3. There was a panel on Montana transmission and resources, including a representative from Northern Tier Transmission Group, BPA and a private consultant representing developers. Northern Tier discussed the process they go through to forecast 8-10 years out, looking at constraints and modeling projects that fit those needs, and which do not. BPA talked about some Montana upgrades. The consultant talked about projects they're trying to get off the ground, including a pumped hydro project and wind.
4. There was a discussion on the Resource Portfolio Model — how the Council takes load forecasts and shapes them into futures.

Member Lorenzen announced that the Executive Committee would meet at the close of business.

Public Affairs Committee

Committee Chair and Council Member Jim Yost said there would be no public affairs meeting today. Last month, the committee discussed the web redesign and approved a scoping bid for $12,000 to review how they'll proceed. The Congressional tour will be in northern Idaho and western Montana.

1. Panel of Montana BPA preference customers

A panel of representatives from Missoula Electric Cooperative, Ravalli Electric Cooperative, Vigilante Electric Cooperative, Lincoln Electric Cooperative, Flathead Electric Cooperative and Mission Valley Power appeared before the Council. Mission Valley is a federal utility.

Mark Hayden, Missoula Electric Cooperative, began the panel discussion by congratulating Member Anders for her reappointment to the Council, and to Member Baker for his appointment. Missoula Electric serves 15,000 meters and has 2,000 miles of line. The community is historically timber-driven, but it is transitioning to non-timber. There has been some new industry, such as data, but Missoula hasn't been the beneficiary, he said. Loads are flat. Its 2016 loads are nearly identical to 2013, with 2016 only one percent higher than the load in 2011. In that time, power costs have increased 13 percent since 2013, and have increased 40 percent for us since 2011. Those are real increases for our members, he said. They are looking everywhere they can to manage costs. They have 41 employees, down from 51 in 2008. With little or no growth, this is not a sustainable business model if costs continue to increase at this pace without increasing rates. In the meantime, BPA secondary revenue suffers. The region's historically cost-effective competitive advantage is in danger. In January, he spoke as a proponent at Member Baker's confirmation hearing and spoke of the need for balance. He said that a focus on affordability and reliability is key. Over $16 billion has been spent on fish and wildlife — that's ratepayer funds and lost generation, he said. Looking at hydro, the spill will further reduce that capacity. In Montana, hydro will get tagged with some aquatic invasive species funding. Hayden said it's a death by a thousand cuts. He said they understand the importance of energy conservation. But a letter the Council wrote in 2014 questioned $1 billion in funding through Bonneville. "That's our members' money," he said. "We want to bring that money home, but we're having trouble finding the programs to get that done." He said he's happy they have Pyramid Mountain Lumber in Sealy Lake as a customer. They just completed a project, but they don't know what else is out there. He said they fall back on projects such as LEDs. He said he understands the different pressures that the Council is under, but asked them to be mindful of the impacts on rural Montana.

Mark Grottbo, from Ravalli Electric Cooperative, said they have just under 11,000 meters. They are getting a couple hundred consumers a year. Since 1980, it has grown from 4,300 members to 11,000. Infrastructure hasn't kept up, he said. Looking at the Power Act and the Seventh Plan, he noted the mission statement, "a reliable and affordable electric service while enhancing fish and wildlife." There's a lot of detail in the modeling and studying, but there are a ton of assumptions. "Take a step back: does it make sense in reality?" he asked. "It's all based on the model." This used to be a logging community and now it's a poor community. There are cost pressures. On energy efficiency, he said they pay 5 percent through thier costs. "We don't need that," he said. "In February, 91 percent of my sales were to residential customers, many are lower income rentals. It's a shift of wealth from Montana to the more industrial areas. When you ask BPA to use 42 percent of conservation, even in the Power Act, it says it should be cost effective for the region and economically feasible for the consumers. That doesn't apply to our membership." He said they changed to all LED lighting. There's no easy fix. When they're not growing, they reduce their sales. They still have the same revenue requirement, which means rate increases.

Doug Grob, of Flathead Electric, said he witnessed an incremental war on coal and now he thinks we're seeing a war on hydro. "Public opinion wants to embrace anything that's clean,

renewable and carbon free, and yet these same people are speaking out against the dams in our region," he said. "Not only is hydro solar, it's stored solar. And it firms wind. Our system used to be 13,000 MW and now it's down to 7,000. We've got court opinions and we have this Council. All of this is making BPA noncompetitive in our region. I am a trustee, a beneficiary and recipient of BPA power. I now have to look at other sources." He said his members' average bill is $87 a month. Ten dollars go to fish and wildlife, $14 is cost of hydro production and $8.78 is operations. "We have as about as low a profile as anyone here as far as being able to use energy efficiency," he said. "Evon Musk won't make a battery as good as our federal hydro system. Washington and Oregon has the lowest carbon footprint. I have more hydro in my state percentagewise than your state, yet we're over the 50 percentile with our carbon footprint." He said the region's governors should recognize solar/hydro. "Stop talking renewables and start talking carbon-free energy," he said. "It brought electricity to rural areas. It has powered our Northwest economy more than anything else. We need to champion this system. It's what makes the other stuff work."

Mark Johnson, general manager at Flathead Electric, said, "Ditto what Doug Grob said. It's time to celebrate the hydro system." He said the problem is not what's been done with hydro, it's what's going to be done. He sees threats to baseload generation. "I don't think people understand what baseload does for them," he said. "To have economic development, we can't do it without hydro. We need to rally around it." He described his operation as a small utility, but a large co-op in Montana. They're trying to mitigate cost drivers. At their peak, they had 162 employees and are down to 155. That's despite growing at 1,000 meters a year. He said people want to live in the Flathead Valley, so they do have growth. "We've spent millions on energy efficiency, we're doing biomass and have a community solar project," he said. "But without hydro, we're in big trouble. I think the Council gets removed from the people who pay the bills. Every other year, we've seen 8–9 percent rate increases. We can't control certain aspects of the business. We have nowhere else to go than to raise rates." He said they used to have Plumcreek Lumber, who was into energy efficiency. Weyerhauser bought them out and the new company isn't the same. The co-op's customer base used to be one third residential, commercial and industrial. Now it's 55 percent residential, 35 commercial and the rest industrial. He said it's important to have human interaction about what's going on. He said lots of people are considering alternatives to Bonneville. "If we go somewhere else, that money won't be there," he said.

Rollie Miller, Vigilante Cooperative in Dillon serves about 10,000 meters from Idaho to the Seaburn Ranch north of Helena. He talked about energy efficiency and conservation, and how those funds are administered. "If the intent is to get the funds to low-income people, it's not happening," he said. He processed a check for energy-efficiency measures to an irrigation upgrade outfit that had three global express jets. As managers, we have to relay to our membership the value we get for the money spent.

Ray Ellis, of Lincoln Electric, said his is the smallest utility on the panel, with 4,500 members and 5,800 meters. It is located in the extreme northwest corner of Montana. Because of the terrain, they have a $50 million system. Operating it is $10 million. "Your costs are different than ours," he said. "We're a preference customer." He said they've lost almost all their industrial load. It's 6 percent, comprised of two fans on the Burlington Northern tunnel. The rest is residential. Ellis said they have some of the highest unemployment in the state. We have 24 percent of members earning less than $25,000, and 57 percent earn less than $49,000. "They can't afford energy efficiency," he said. "We have, for our size, a robust

program to try to help our low-income people. We have a 10 percent discount for elderly and disabled low-income members. It still doesn't make enough of a difference for us. While energy efficiency is important for growing utilities, we're losing load. We're going downhill, and energy efficiency is helping that. Right now, energy efficiency is costing us $250,000 in foregone revenue. Then we have to raise rates to everyone to make that up."

Ellis said they want their money spent locally. Unfortunately, they're taking it from the pocketbooks of people who can't afford it. "We're the poster child for all the things that can go wrong with energy efficiency," he said. "Since 2011, we will have seen a 45 percent increase in our wholesale power bill. We have cut everywhere we can, including positions. Our total budget for labor has only gone up less than 2 percent. So those cost increases get passed along to members." He said they introduced a new rate design to their membership, and they're being pushed into a COSA rate design. That means the basic charges goes up to whatever your fixed costs are for the system. Some say it's unfair to lower income customers, he said. There are trailer homes using a lot of energy. He said they spend a lot of money to upgrade those homes, and that money doesn't go far. "What the answer is, I'm not sure. BPA is a good partner, but our biggest risk is having all our eggs in BPA's basket," he said. "It's not their fault. It's the regulatory and political pressures put on them. But I'd be remiss not to look somewhere else." He said looking at 2028, they're looking to diversify our portfolio. He sees BPA's trajectory as too steep. "I'd suggest that when you look at BPA's energy-efficiency dollars required to be spent to hit targets, instead use that money to build their reserve of $180 million." Otherwise we'll be seeing rates increase.

John Matt, of Mission Valley, is on the Flathead Indian Reservation. It serves 19,500 customers, and only a quarter of those are tribal. "I've been here three years, and this is the second rate case this year," Matt said. "I don't know what it was like 5-10 years ago. BPA reaches out as best they can, but without a choice, as a nonprofit, federally owned utility, there's no opportunity to borrow money. Our opportunity to save money to meet unexpected costs isn't there." He said their members have some of the cheapest rates in Montana, and 85 percent of their load is residential. Talking at their annual meeting, the first year, he told them what they could do to save energy and help themselves. The second year, he talked about what they're doing as a utility to cut costs, such as not rehiring positions. This year they're in a rate case, and he explains they're going up. He said they were the first tribe to own a dam, but it hasn't been a good investment, but the rates from that are lower than the BPA prices. "I hope that message presented is loud and clear."

Member Lorenzen said he appreciates the quandary they face. As a former counsel to co-ops, he's sat through 600 board meetings. "From my perspective, if you look back to 1970, the region has saved 5,000 aMW of power," he said. "If that had not been accomplished, can you imagine the impact on having to build transmission, generation and the impact on present-day rates? The problem is that is an amorphous thing as each coop saves a little, but collectively it saves a lot. The savings does filter down. But it's hard to see and quantify because what you build into your rates next year. Yet the benefits of flow are hard to pinpoint." He said that's the quandary he finds himself in: Recognizing that from a regional standpoint, the benefits of flow from conservation, but recognizing the impact on budgets — particularly for low-income customers who can't enjoy the benefits of conservation because, as your sales go down due to conservation (that is enjoyed by those who can afford it), the rates and total bills for low-income people go up because their usage doesn't go down. "But I'm stuck in this position looking at what you face in flat and diminishing loads," he said.

Member Yost said, “I understand you, Mr. Chairman, but I don’t agree with you. It’s difficult to sit here in Montana, where you have, for example, 2,000 MW of load and 4,000 MW of generation. It doesn't make sense that you should be doing conservation. You should have a sale on electricity. That’s the issue is trying to deal with Montana and Idaho, and the West Coast. It’s two different places and things. What BPA is doing here doesn't make any sense for this location, where you have co-ops. You can get more bang for the buck on the West Coast. Why push it out here? We have to find a different way to do it. You need to talk to me about how you’re doing on the market price of energy from BPA. I need to see if it’s the same as we understand it in Idaho. I think we need to make some changes, and I think we need to do it sooner than later.”

Member Anders said she agrees with Member Yost. “We’ve heard this before and I’m very concerned about it. I wonder what we can do,” she said. “My commitment is to pursue that. In the last year, we’re turning the corner with Bonneville and the way things are going.”

Member Baker said he’s worked with Montana’s Governor the last four years. “These types of issues are things the governor cares about it,” he said. “It’s a complicated picture.” He said he enjoyed going to Dillon to meet Rollie’s crew. “But I do think we have to think about the balance of being part of a region, and we receive benefits from the region. But “one size fits all” might not be working here.”

Ellis added, “I do appreciate what you have to look at: this is a regional approach. But as Members Anders, Yost and Baker said, we need to customize the program so it doesn’t harm those of us who don’t have the same pressures as those on the I-5 corridor. We only get back 50 cents of every dollar we send to Bonneville. We need to be partners in this and not adversaries. The areas in the Northwest are markedly different and need to be treated differently.”

Member Karier said he strongly agrees about the value of hydropower, and that we could do a better job promoting it. In terms of fish and wildlife projects, the Council sees these projects up close. We know which ones are good and which aren’t. We could use help from managers getting rid of projects that are not productive. He said there is some momentum for this. There are a couple of monitoring projects administered by NOAA that they’re spending $9 million a year on. They have been unsuccessful in what they’re trying to do. He said they need to get BPA’s attention and support the good programs.

He said that BPA is getting ready for a needs assessment on energy efficiency, and part of that is to do a conservation assessment for BPA’s region. They are not doing it utility by utility, but why not? Is BPA missing an opportunity to document and demonstrate that to make reasonable adjustments for the future?

2. Report on Electrification of Transport Systems in the Northwest

Massoud Jourabchi, staff manager of economic analysis, began by stating that there’s a connection between electrification and needs of small communities. It’s a way to increase sales. Montana doesn’t have a lot of electric vehicles (EVs). One of the advantages of EVs over gasoline-powered vehicles is that the money stays in the states.

Jourabchi said staff has been updating the Council since 2010. There was an expectation that a lot of EVs and stations would come, but hasn't materialized. There is an expectation that there will be an increase of 10,000 of EVs in the next 20 years.

"In 2010, I could only talk about three models of EVs," Jourabchi said. "But as the numbers of makes and models have expanded, people have responded." In 2016, the options grew to 32 vehicles. The region had about 2,000 EVs in 2010, while today there are about 34,000 EVs — accounting for 6 percent of the nation.

Montana has 439 EVs, Idaho has 680, Oregon has 11,000 and there are 21,250 in Washington. The load estimate is eight aMW. These loads are added to the residential sector, and most of the load is at night. Range anxiety remains a barrier, but now some models go over 200 miles. These vehicles also reduce the carbon footprint by 95,000 metric tons, so that's another positive attribute. Plus, there are now 3,442 charging stations across the four-state region.

Growing number of electric charging stations remains an issue. Jourabchi discussed the growth in charging stations, including the use of solar at some charging facilities.

Member Booth asked how long charging takes at a station. Jourabchi said that with a fast charger, it's 10-15 minutes for an 80 percent charge. What's interesting is the technology is evolving. Charging stations are increasing, but they are not standardized. He said currently, he can't drive his Chevy Volt to a Tesla charging station.

Jourabchi discussed the costs of vehicle operation for EVs versus internal combustion engines. Adding the incremental costs, we think customers would have to pay $3 billion additional for EVs and $2 billion in charging stations, he said, but they'd get a $10 billion savings in fuel. There would be a $2.5 billion reduction in operating costs and $10 billion in incremental costs.

Jourabchi discussed charging buses for urban transportation and schools.

He said 22 percent of the stock will be electric in 2025. The impact on load will be 400 MW by 2035.

Steve Simmons, staff senior economic analyst, said that during the development of the Eighth Plan, the Council will monitor trends and incorporate them in its long-term model forecast. A challenge is that it's new to the Council model, so there is not a lot of historical data.

Simmons said that one of the key findings is that the demand for electricity to power EVs is expected to grow significantly — but it's coming from almost nothing. Transportation is getting more efficient as stock turns over. There are improvements in MPG efficiency, but EVs have significantly better efficiency.

Member Baker said thinking back to being invested in MPG efficiency and air quality, as vehicle mileage improved, the number of miles traveled took off. "Here, you're showing overall energy demand, is it due to moving from gasoline to electric?" he asked. Simmons replied that the miles traveled might be the same. It's a factor that might not be caught.

Simmons summarized the findings:

- It is economically and environmentally beneficial to electrify the transportation system for passenger, light duty truck, public and school buses.

- Consumers can lower their transportation bill over $11 billion dollars over next 20 years as the transportation system is electrified.

3. Update from Northwest Energy Efficiency Alliance on demand response

Jeff Harris, chief transformation officer for Northwest Energy Efficiency Alliance **(**NEEA), said NEEA's board asked the staff to look at market transformation opportunities in demand response. At the time, there wasn't a demand response target for the region because the Seventh Plan wasn't yet published.

Then, in December, the board asked staff to develop a prospectus document to determine what NEEA would do with demand response. Harris cautioned that their board is grappling with demand response since the organization's mission is energy efficiency, but it could be argued that demand response contributes to that. Member Karier is on NEEA's board. Member Karier added that the feeling is to proceed with caution. He said some members were a little uncomfortable with it, but the feeling is to take it step by step.

NEEA is looking to find some champions in terms of funding and support. NEEA is embarking on strategic planning for 2021-24 and demand response is on the list.

Harris shared his preliminary thoughts on what a "coalition of the willing" might work on. NEEA is focused on working with manufacturers as opposed to end users. It is interested in the dynamic of how things are produced and sold. Demand response is no different, he said. The idea is to focus on products and services that have demand response built in. His hypothesis is that it could be done for "not much money" providing they can get changes made at the manufacturing stage. He mentioned Amazon Echo as taking leadership in voice-activated products that could command appliances. This is happening whether utilities are involved or not. Therefore, if utilities don't get involved in this, someone else will take ownership of energy management in the home.

The preliminary target is water heating, he said. It is the single-largest use of electricity in the Northwest, so it's a big deal. According to the Seventh Plan, 1,350 aMW of the region's power system goes to supply hot water heating. It's about a 1,500 MW peak load for the region. It's two to three large power plants. We have a new technology that's a game changer: the heat pump water heater. Been working with manufacturers for 10 years on this product. Since it was brand new, started from scratch.

The aim is to get water heating off the grid in the morning and evening. It's an energy storage unit and offers flexibility. Harris said to think of a water heater as a large battery, providing flexibility and grid benefits. The potential grid operational programs include:

- Direct load control
- Time of use pricing
- Critical peak pricing

- Grid emergency

It can provide renewable energy storage. Instead of wind curtailment, why not use water heaters as storage units?

Harris said to make this happen, scale is required. They need lots of orders. The states need to represent to the water heater industry that they want to make this happen. Manufacturers are tired of doing 100 demonstration units. If we got the whole market, at 250 watts per water heater, each year, we'd build 40 MW of peak demand resource. He added that getting to scale might be less expensive than people might think.

The Rheem heat pump water heater is Wi-Fi enabled. It can be integrated with the Nest thermostat. Conventional electric resistance water heaters have it as an optional accessory.

To make it happen, a coalition has to engage with manufacturers. Currently, BPA and PGE are doing a 600-unit demand response test program.

Next, they need to get agreement on the specifications of what we want the water heater to do. That's been a huge challenge, Harris said. Each utility seems to want its own channel, while manufacturers want it standardized.

Negotiate with national manufacturers to incorporate this capability into their devices.

Next steps include:

- Look for a few champions of demand response, such as BPA and PGE
- Convene a coalition of the willing
- Agree on specifications
- Secure funding
- Negotiate with manufacturers
- Implement upstream programs
- Evaluate and report resources
- Coordinate tests and integration with grid operations

Member Anders said, "It looks to me like you'll have to change your acronym. Pursuing the water heater option is interesting because I'm a fan of instant water heating as an energy-saving device, but you're suggesting the opposite to use it for DR."

Chair Lorenzen adjourned the meeting at 4:30 p.m.

Wednesday, April 12

Chair Lorenzen called the meeting called to order at 8:31 a.m.

4. Demonstration of the draft web page for Fish and Wildlife Program Tools

Nancy Leonard, staff fish, wildlife and ecosystem monitoring and evaluation manager, shared the new, draft web page with the Council. When launched, it will familiarize users with the

Council's program. The aim is to emphasize the visual and keep text to a minimum. The site will introduce tools used in fish mitigation. The fish objective tool displays program numerical objectives, and objectives used by the partners. They are still working on partner tools.

Member Bradbury said the site is good looking and involving. Member Booth remarked that the site has taken a lot of work. "When people get used to it, they can zero in on any of our sites," he said. Member Booth asked about scrolling on the site. Leonard said that could be automated if desired. They've done a lot of work on this over the past two-to-three years. Member Anders seconded that. "You hear about the programs here and there," she said. "This highlights the good work we're doing."

Member Karier said it was hard to find this information on the Council's website in the past. Sometimes people want to go straight to something. Some users want to explore. Most people will be looking for something. Looking at the new site, he said he wants to know how many people use the dashboards. "We're now focused on ESAs and populations, and a lot of the dashboards on the program aren't very current," he said. On the site on goals and objectives, it's hard to tell whose goals and objectives they were. Having indexes with the pages would be helpful. He asked if there would be statistics collected on usage. Leonard replied that they can do that.

5. Briefing on recent developments in FCRPS Biological Opinion litigation

General Counsel John Shurts told Council members that there was no decision in U.S. District Judge Michael Simon's March 27 ruling. But Shurts reviewed what injunctive relief was granted by the judge and outlined the implications for the Council.

The plaintiffs in the FCRPS litigation, the National Wildlife Federation, asked for spring spill 24 hours a day, seven days a week beginning in 2017. They also wanted to operate the PIT-tag detection systems beginning March 1, 2017, which is earlier than normal.

The other injunction relief request from the NWF plaintiffs morphed through the process. By the time Judge Simon ruled, he ruled on prohibiting the Corps from expending any additional funds on two planned capital improvement projects at Ice Harbor Dam; and any new capital improvement projects or expansion of existing projects at any of four Lower Snake River dams costing more than one million dollars. The original motion identified 11 capital improvement projects as part of the injunction request.

During the briefing on it, two projects were being completed when the Corps responded. Four more were in the works and would be completed soon. Regarding the three others, it wasn't fully clear, so the focus ended up on these two projects.

What was granted?

Shurts said the Judge increased spring spill at lower Snake and Columbia projects, but it would start in 2018 instead of 2017. This allows "sufficient time to consider an appropriate protocol and methodology for spill at each dam, incorporating the most beneficial spill patterns." The parties could use 2017 "to conduct short-term tests to consider at the least the immediate effects of increased spill." Anyone who's looked at the river this year can see

they're getting way over involuntary spill, Shurts said. The judge also ruled on PIT-tag monitoring, but to begin it in March 2018.

A lot of the briefing was over the process of how the parties would implement the increased spill. The court declined to order a new process for planning, implementing, monitoring and adaptive management of increased spill. The judge said the parties shall confer on appropriate adaptive management system. He ruled that the FPAC/TMT/RIOG system remains in place for now. But the parties need to confer on the system, Shurts said. Judge Simon will sit on it closely, asking for periodic status conferences "regarding increased spill that must take place in 2017 and related planning before then." The parties have to come back to the judge with a structure in 28 days on how this is going to work Shurts said it will be interesting because the Federal defendants were concerned about what has been called an "Oregon veto," not wanting a required consensus process because it allows one state or party to hang it up. But if you don't have that, how do you arrive at an agreement? "I'm guessing they may have to spend time in front of the judge on the process," Shurts said.

How much more spill is needed? The injunction request was spring spill to gas caps. Court ordered an increase in spill in 2018, but the judge doesn't say 24/7. He says it without saying precisely how much of an increase and, while recognizing dam-by-dam considerations, it seems to allow for something other than a "one size fits all" order. It's left hanging. The judge might expect that all the parties will reach a consensus on that. However, the odds are fairly good that we might be back before the judge. Some people think he ordered spring spill to the gas caps 24/7, others think he ordered a dam-by-dam assessment. "I'm glad I'm not the Corps of Engineers trying to figure out how to implement this one," Shurts said.

What injunctive relief was granted regarding improvements at the Lower Snake projects? The Court "finds that spending …millions of dollars on the four lower Snake River dams … is likely to cause irreparable harm by creating a significant risk of bias in NEPA process." But the court did not enjoin any investments. There were 11 projects in the original motion. But those projects have a primary benefit of increasing fish survival through the projects. He couldn't enjoin the future projects because he doesn't know what they'll do, Shurts said.

The Feds are required to disclose sufficient information regarding planned projects at each dam ... at appropriate and regular intervals.

Shurts said that plaintiffs may file a new motion, if a project is not needed for safe operation of the dams and "substantially may bias the NEPA process." The Feds have 14 days to submit details of information sharing.

What it comes down to, Shurts said, is that there's no immediate impact and no injunctive relief ordered, but the judge provided a skeletal framework of what he would consider.

Shurts explained the implications for the Council:

- We have provisions on spill and spill experiments. When we wrote the program, the spill provisions in the BiOp are a baseline, but we encouraged all the federal government and agencies, state agencies and tribes to keep working on the idea that if you can find increased life cycle survival through different passage and water measures, you should continue to study them and implement them.

- The BiOp provisions are driven by the needs of unlisted species too. There are unlisted species that are important to the river. There are things we'd like to see in a spill experiment. Our program has something to say about what will happen in the next year. There are things we have to say that ought to be taken into consideration.

- There probably will be an independent science review of a study design for spill.

- There are financial impacts of increased spill, with possible impacts to the fish and wildlife budget and program priorities.

Member Bradbury agreed with Shurts' statement that it would be important for the Council to provide information about the debates we've gone through, and the approaches the Council has supported to come to a scientifically sound conclusion about spill. Shurts agreed there should be opportunities to do that.

Tony Grover, staff Fish and Wildlife director, said it makes sense to explain components of the program and how we got there. "There seems to be broad agreement that around November, the region should request to ISAB about what the spill experiments are," he said. "We'll be working closely with state of Washington. Member Norman has been involved in this. I'm not ready to say we should be involved in the design of the spill operations."

Member Booth said the Council to date has been careful about getting involving in the Ninth Circuit BiOp litigation, and we have not, despite requests from members from time to time. We have to be careful before we jump into that given our mandate under the Northwest Power Act, he said. We have an obligation to do the mitigation, the court decisions impact us, but there's a difference of opinion among the four state members. It would take a Council decision to be more involved the court, especially in developing a spill plan. I don't think that's our role. That's primary NOAA's under the law. "I'd be very cautious and probably not supportive of involving ourselves, our resources or our science panel as a lever to involve ourselves in the BiOp."

Shurts said, "I'd definitely not recommend us getting involved in the litigation. We are an amicus party, but only to protect Northwest Power Act interests. Yes, the states are spilt, but you're all agreed on certain provisions relating to passage and spill. We'll do things that are beneficial and consistent with the program."

Grover speculated about two possible avenues by which the Council might be involved: 1. With ISAB review, which is cause for everyone to take a reasoned pause from rushing forward with something; and 2. Under NW Power Act, if there's an event requiring the expenditure of fish and wildlife funds, we have an obligation to review those through the ISRP. "I haven't heard anything specific like that," he said.

Member Guy Norman, commenting on Council involvement in this process, said, "I agree it shouldn't get involved directly in the litigation in terms of designing spill. But what the judge ordered is the existing process, which is a regional implementation oversight group and the respective technical arms of those sovereigns. Shurts replied, "He did that, but he told them to consider any tweaks he might want make to adaptive management. Norman said, "But that's a starting point. The 28 days is early May, for the first progress report. So it will be interesting to

see the representation of a potential process.

“In terms of science review, there’s some history of the Council as an independent scientific body that has some trust, in terms of being independent and evaluating a spill experiment. The door should be left open for a science review.”

Member Bradbury said he wants to be clear: He agrees with a lot of what Member Booth said. “I’m not advocating we become huge advocates in the litigation. There’s some work we have done that we could share. That may be of some value in getting this solved.”

Member Lorenzen recalled a saying of a federal judge he once clerked for: “We’ll jump off that bridge when we get to it.”

Member Karier said, “I don’t think there’s a role for our staff, but there is a role for ISAB. The judge did not give a prescription of what this experiment should look like. But they could take the opportunity to try some things. The court reviews and decides whether it works or not. To be a real experiment, we need a hypothesis: what are we testing? Be specific about the results. What are the metrics? To be a real experiment, it has to have variations. We have to turn the spill dial up and down, and compare the results over similar-type years. The federal agencies don’t have a lot of time, but they need to think about he element of an experiment that can pay off with useful information for the long term.”

6. Council decision on release for public comment of paper on Marginal Carbon Production

According to John Ollis, staff power system analyst, the study of marginal carbon dioxide production rates of the Northwest power system evaluates what resources are marginal in every hour of four years (2016, 2021, 2026 and 2031), and the implications for conservation replacing the need for that production.

Ollis said the annual average marginal CO2 rate is in the range of peaker gas plants’ emissions. Less coal is available to be on margin and one of the big reasons that peakers are on the margin is because they’re providing reserves.

Staff used AURORAxmp to determine the marginal unit of production in the region. Ollis said they tested four different years. 2021 didn’t need a lot of explanation. 2026 is when additional coal plant retirements will be announced. The retirements of Colstrip 1 and 2 are reflected in that analysis. 2031 was run because Ollis wanted to take a look further out.

In 2021, they ran two demand response scenarios to be consistent with the Seventh Plan. They found it didn’t have much effect on the carbon.

Why are almost all gas plants on the margin? There is not as much coal today with coal retirements. You might be moving through your stack and, with less of that resource available, it’s less likely you’ll hit it.

Reserve requirements are not a trivial factor. It’s about 1,600 MW of reserve requirements being held, served by mostly thermal flexible units.

Also, instead of looking at average hydro (one hydro year), if you're looking at all 80 hydro years, you're looking at a vast array of hydro conditions. While it may not have had an impact on the actual carbon results, it had an impact on the range of results.

Member Lorenzen asked, "In the reserve requirements of 1,600 MW, served mostly by thermal, is there a carbon implication when you hold a thermal plant in reserve than what would exist if it were in an efficient production mode?" Ollis replied, yes, it depends on the unit and what reserve you're holding and what part of your range.

Renewables have low cost, so they are on the bottom of the stack, which raises the whole stack up. We're basically just looking at resource stacks, he said, and explained different graphs.

Member Karier asked if these are different scenarios in different years? Ollis said yes, they are the 10 different scenarios they ran.
Member Karier asked how the reserves make much of a difference in emissions? And what about contingency reserves? Ollis said contingency reserves are mostly held by hydro units.

Member Karier followed, "Are the operations running at the time or at a very low level?" Ollis said it's indicative of an emissions rate, not emissions. It's flagging the rate of emissions coming out of a particular unity. They didn't do an emissions study, it's an emissions rate study. If you had a unit decking, it would produce more emissions.

Ben Kujala, power division director, said the important thing to understand about reserves is it's an estimate. Ollis said it's improved methodology from the balancing and flexibility study. AURORA is co-optimizing the energy and reserves. The tricky thing about reserve requirements is because we don't share them, sometimes you see behavior you didn't expect.

Ollis described a graph showing on an annual level, the percentage of time was gas and coal is on the margin. After 2021, coal isn't on the margin because it's not there. It's replaced by gas. Next, he described the emissions rates of peaking and non-peaking units.

Member Booth asked why this study was done. Kujala said they had requests from stakeholders. When people want to the estimate impact of carbon measure that won't be a huge mover in the stack (less than 5-10 MW) they can use this study. It could be used by power docket.

Member Booth asked, "Do you ever look at the overall impact of carbon to the region by a marginal amount of carbon?" Ollis said if you add automobiles and what impact to region, we definitely look at that. This is a study has been very technical. We want to count the cost of carbon for a specific measure that will reduce the use of electricity and use this calculation. We've looked at it in terms of energy efficiency. It's not meant to do a comprehensive carbon study. It's been useful for analysts working on IRPs, etc.

Northwest Power and Conservation Council motion to release the draft of the Marginal Carbon Emissions Study for public comment for a period of 30 days.

Member Booth moved that the Council release the draft Marginal Carbon Emissions Study for public comment for a period of 30 days.

Member Baker second. Motion carries without objection.

7. Briefing on hydro and market conditions and recent oversupply curtailment actions by Bonneville Power Administration:

Kujala told the Council that BPA is continuing to evaluate methods for reducing or mitigation regional generation oversupply conditions. It was something we anticipated could be an issue and it has come about, he said.

Staff looked at the January–July forecast of runoff. This year, it really has ramped up. Bradbury asked about a green line going off the chart. Kujala replied it's the January-July 30-year average. We're well above that. January–July runoff in The Dalles in 2011 was the most recent year with a lot of water. It has not been exceeded at this point. But if our rate goes up, maybe we will. Right now, we're in the Top 10. 2017 is projected to be ahead of 2012. We're seeing a lot of water going through the system."

Bradbury said we depend on snowpack melting in the summer. Are we in danger of losing snowpack earlier? Kujala replied that, in this particular metric, we're looking at getting rid of most of your snowpack in July. The important thing is this metric takes into account what's on the ground.

Kujala then described a graph. BPA has balancing reserves they hold, he said. Here you see the DEC reserves for the last few days. Overall, there is a reduction in DEC reserves.

We're looking carefully at how much we're going to see, Kujala said. Right now, the amount of reserves being held has been reduced. In 2011, the cumulative curtailment of wind was 100,000 MW hours. In 2012, it was around 50,000. As of April 11, we've already exceeded 2012 with 73,492 MW. We're seeing it way earlier this year than in other years. Will it exceed 2011? But it's driven by more than just the amount of water in the river. It might be that conditions change even if you don't see as much water. We'll watch this carefully. The larger the number, the bigger the event, and the more expensive it is for BPA.

The graph shows the duck curve. There's a lot more supply during the day, and less in the evening hours. We saw curtailment in California, as well as BPA. We're worried about spring, but California has had curtailment during the whole year. How much of this is driven by conditions in California that makes them curtail as well as us. Solar generation in California varies from day-to-day. They're seeing a lot of curtailment of their resource.

Pricing is one thing we get more information about, Kujala said. He discussed spring in 2010–2017. 2010 and 2011 were high water runoff events. Then there were negative spot prices. Now that we're getting close to that, it might cross the zero line by the end of the month. In the forward market, prices are going lower. When we see negative markets, people will just believe we're going to have constant oversupply. This event has been driving prices down.

Kujala said BPA has a lot of information in front of them. There are things happening in different service territories that we just don't know. The early indication is we've been talking about California oversupply and now it's happening. We'll hear from people this spring about how it went, and we'll brief you on what we're hearing.

Member Lorenzen asked what obligations does BPA face when curtailment does occur? Kujala replied that BPA went back and forth with FERC on this. When they do curtail, the wind parties have to put before an independent third party what their costs are, and BPA has to reimburse that cost of curtailment.

Member Lorenzen asked why BPA has to pay to curtail when it's optimizing the system. Shurts said he'd explain offline.

Member Yost asked Kujala if he saw the belly of the duck happening in Eastern Washington/Idaho/Montana? Are wind and solar impacting daylight hour production? Kujala, I don't think we have that much solar generation here to make a difference. But we a lot of visibility into what BPA has in its Balancing Authority, and a lot of visibility into the California market. We don't see individual utilities here, but utilities with a lot of solar such as in Idaho may see it in their individual generation. Throw in rooftops, you might get to see some combined dynamics. In California it's a mass of generation.

Member Yost observed that in the spring, in average or above average water years, we've always seen lower prices, and an inability to sell hydro outside the region. With more wind, we've compounded that. "So those utilities with a lot of hydro in their resource stack are hard-pressed to maintain revenue streams they've had in the past," he said. "I see that continuing and compounded by the requirement to add more renewables."

Kujala said the spring is challenging time and is getting more so. With renewables in this region, when we can set up the oversupply management protocol, there's an alternative to see if you can still meet other constraints on the river. I don't know if you have that for California generation, he said. What might be harder is if you start to see other California generation displacing a lot of load, is there another option? That's something I think needs to be sorted out. You could imagine a world where California is pushing out as much generation as they can and that could cause curtailment on generation up here, as well as not leaving places for hydro to go to.

Member Yost said, "So we're getting to a situation in above-average hydro years where we're paying for the energy twice. We're paying for the energy we get, plus we're paying for curtailment." Kujala said who purchased that power is not necessarily BPA. BPA is holding that for who purchased it.

8. Update on Bonneville Power Administration Energy Efficiency Plan

Allie Mace, BPA's manager of Energy Efficiency Planning and Evaluation, shared an updated version of BPA's Energy Efficiency Plan. The Council saw a draft in November. Mace began with a quick background on how BPA operates its energy efficiency program.

BPA partners with its customer utilities to support energy efficiency programs across all sectors. It offers a broad portfolio of measures for reimbursement, regional programs and

technical support. Since 1980, public power has acquired more than 1,700 aMW of savings. Specifically, it achieved over 600 aMW in the Sixth Plan.

There are different kinds of saving: programmatic, momentum and market transformation savings. She reviewed the achievements under the Fourth through Sixth Plans, and anticipated savings under the Seventh Plan. She also thanked the Council for its review of the plan. The complete plan is available online. BPA's Danielle Walker is the lead for the project.

Mace described the Power Plan is the agency's energy-efficiency compass, looking at new technologies, expiring technologies, existing and new initiatives, and cost effectiveness.

The plan will be a living document, and will be updated every two years or so. The purpose of the plan is to start with savings potential. They explore opportunities and assess budget needs. Then they develop a road map in the action plan.

The work on the plan started in winter 2015. They developed their savings and cost estimates, got public feedback, made updates and released it publicly. They received some projections from NEEA on cost savings as well.

EE Action Plan sections are:

- Savings and Cost
- Sector Strategies
- Emerging Technologies
- Momentum Savings
- Evaluation
- Demand Response

The key strategic themes:

- Focus on delivery and making programs accessible and useful for BPA's customers
- Identify & prioritize new technologies
- Leverage existing regional efforts

The total forecasted savings in the plan is 580.7 aMW. Broken down, it is:

- 256 MW programmatic savings
- 95.6 MW customer self-funded savings
- 29 MW market transformation savings
- 200 MW momentum savings

In later years, there will be quite a bit of growth in momentum savings, Mace said. In 2018, self-funding also will jump, which is the upcoming increase from 25 percent to 30 percent.

Mace said that the commercial sector offers the greatest amount of programmatic savings, followed by industrial and residential third. Federal savings come in next, which includes savings in irrigation, and dams and hatcheries. Last are distribution system efficiency and unallocated savings.

Under momentum savings, there are three types: Market momentum (quantified by research), standards momentum (savings not included in baseline of the plan) and NEEA momentum. There are some potential changes in standards that could change some projections.

BPA's program strategies include:

Residential –

- HVAC – Douglas heat pumps and variable speed heat pumps continue to be strong, and BPA is rolling out a smart thermostat measure
- Electronics – advanced power strips
- New Construction – a refresh program design to launch in October 2017
- Lighting (we're seeing fast transformation, but savings will decline over time)
- Water heating – heat pump water heaters and making those accessible to low-income customers

Commercial – BPA is launching a new program to serve a variety of different-sized customers

- Unit energy savings
- Lighting
- Emerging tech work, such as variable refrigerant-flow HVAC systems, Douglass heat pumps and advanced rooftop controls
- Strategic energy management
- Support and coordinate program infrastructure
- Smart thermostats and water heating

Energy Smart Industrial Program is successful and it's looking to expand programs to rural and east-side utilities.

Agriculture – these programs are very popular with customers with a large agricultural base. There is some demand response pilot work and low-elevation spray application as well.

The total budget for the plan is $454.6M. There's a slight decrease in 2018 when the energy efficiency incentive goes from $77M to $72M, which reflects the change in the self-funding from 25 to 30 percent. The average costs stay steady over the plan period.

There also are a number of items in the Seventh Plan that have BPA's name on them. She reviewed a table of specific measures.

Member Lorenzen asked, "You show the cost of conservation is $2,300 per average MW. How does that translate into cents per kWh? Mace said the first year is 22 cents and the levelized cost is 2.5 cents per kWh.

Member Anders said, it looks like you were present for the Montana customers and how energy efficiency is not working from them. Did you receive comments from them while working on this plan? If so, what was their response? Walker replied that they received comments from 10 organizations — only half were utilities. We've followed along with them in developing the plan, she said. They knew where the budgets were headed. I would say generally the comments were supportive.

Member Bradbury complimented the presenters and said he was impressed in seeing it divided up by energy sector. “I appreciate going through the action items from our Power Plan,” he said. “It’s nice to see some response on that. I think it’s a pleasure to have the Seventh Plan represented as a gift package to Bonneville.”

Member Booth, while applauding Bonneville’s thorough work, mentioned the pushback the Council gets from utilities outside the I-5 corridor. “Every time we meet, we hear (the utilities) can’t spend the efficiency dollars they’re allowed. We get it everywhere we go outside the I-5 corridor. It seems there should be a different formula. Can you address that?”

“There are a couple of issues,” Mace said. “One is the basic structure around the funding. We charge the composite rate. The structure of how those energy-efficiency incentives are allocated was set at a high policy level. We talked a lot about that in the 2028 process and it was decided not to reopen that.

“The other element is making sure there are programs that customers can use, even in lower-income areas. We also hear from small rural customers that the programs are tough to run. We’re working with them, trying to pinpoint where are those pain points in implementation so we can address them. It’s a work in progress but there’s a bigger policy element that hasn’t changed.”

Member Lorenzen said, “BPA is responsive to the requests to increase self-funding to 30 percent. How does a utility learn what that dollar amount is for its particular utility?” “It’s a regional 30 percent. We’re in the process of getting them their numbers right now.”

Charlie Grist, staff conservation resources manager, said that compared to previous plans, BPA picked up a whole new life cycle of energy-efficiency initiatives. Prior, almost half was in new technologies and measures. It has stepped up its efforts in emerging technology to figure out how to feed it into its programs. It’s been a big improvement in BPA’s look over time. They also did a good job in looking at the risks of what could go wrong if mitigation doesn’t occur.

9. Council business

Northwest Power and Conservation Council motion to approve the minutes of the March 14-15, 2017, Council Meeting

Member Booth moved that the Council approve for the signature of the Vice-Chair the minutes of the March 14-15, 2017, Council Meeting held in Portland, Oregon.

Member Norman second. Passed without objection.

Northwest Power and Conservation Council decision on vendor for Energy-Efficiency Industrial Research RFP

Staff issued a Request for Proposals (RFP) for energy load and efficiency research on the industrial sector in the Pacific Northwest. The research will be used to improve annual load forecasting and to update baseline data for the Eighth Power Plan energy-efficiency assessment.

Kevin Smit, staff senior energy analyst, said that in 2016, the research was divided into 20 industrial segments. They got a good start, getting through 14 of the 20 segments. Massoud is working that into the load forecast. This RFP was to do the remaining six.

Staff received one proposal using a top-down approach using third-party databases. Staff proposes contracting with Forefront Economics to cover two segments of transportation and miscellaneous. The cost is $44,398 to be completed by Sept. 30.

Member Bradbury asked about the top-down approach. Smit replied they wanted consultants working for utilities that audit buildings in certain segments. They wanted to tap into different experts instead of doing a broad statistical survey. Getting experts is a better way of doing this work, but getting them can be a problem. Kujala added that having them do an RFP might pose another barrier.

Member Booth moved that the Council authorize the staff to enter into a contract not to exceed $45,000 to update information on industrial loads and efficiency assessments for the next Power Plan with Forefront Economics.

Member Yost second. Motion carries without objection.

Public comment.

Member Anders alerted members to a document produced by the Council's Public Affairs Committee: A historical document about Libby and Hungry Horse Dam. She thanked Pat Smith and Jim Litchfield. Copies are available online too.

Member Lorenzen adjourned the meeting at 11:37 a.m.

Approved May ___, 2017

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Vice-Chair