Council Meeting
February 14 and 15, 2016
Portland, Oregon

Council Chair Henry Lorenzen called the meeting to order at 1:32 p.m. Members Jennifer Anders, Tim Baker, Tom Karier, Bill Booth, Guy Norman and Henry Lorenzen were in attendance, and Jim Yost joined by phone.

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. The committee heard an update on the natural origin salmon and steelhead adult objectives mapping tool by Nancy Leonard, staff fish, wildlife and ecosystem M&E report manager. The tool facilitates viewing existing objectives by sub-basin major population group. The hope is that it will help inform regional discussions on objectives. The tool is scheduled to go online today.

2. There was an update on the cost savings workgroup. It reported on the continued discussions on relative reproduction success projects. Abernathy Creek is scheduled to ramp down in three years, which will generate $500,000 in savings. A decision on Deschutes is slated for next month. Cost savings are committed to emerging priorities, but there are concerns about BPA's budget with impending court decisions. A request for information (RFI) went out about sturgeon. The group discussed future RFIs about cold-water habitat and lamprey.

3. O&M strategic plan update. Member Booth and Mark Fritsch, staff project implementation manager, updated the committee on the O&M subcommittee's work on mission critical elements found from recent visits to Kalispell, Sherman and Spokane hatcheries. They found $60,000 in needs. All remaining mission-critical items found from this effort ($115,000) can be funded through the $200,000 allocated through cost savings.

4. There was an update on an ocean forum meeting from Patty O'Toole, staff program implementation manager. A meeting was held in January on the coupling between estuary and early ocean survival of salmonids. There may be more going on in estuaries than previously thought, Member Anders said. Member Norman was named the chair of the forum. He called it an outstanding example of science informing management decisions.

5. There was a report on the NOAA regional partnership meeting. Its Columbia Basin Partnership Task Force met for the first time on January 24 and 25. The goal of the CBP Task Force is to make recommendations on common goals and to help define a shared path to long-term salmon recovery. There's a need to further define the group's scope and mission.

6. The committee reviewed a draft request with the ISAB regarding Upper Columbia Spring Chinook recovery. Fish were listed as endangered in 1999 and remain at a high risk of extinction. There are other Spring Chinook efforts having more success than these efforts, and the letter would ask the ISAB to look at limiting factors, habitat actions, research monitoring evaluation and lifecycle, and habitat monitoring efforts related to this effort.

7. There was an update on emerging priorities implementation. The only update that is not covered in other items was invasive mussels. The Corps letter report and environmental assessment has been sent to headquarters. They were updated to include authorizations in recent legislation. The Corps has $1.7 million remaining in its cost-share effort.

Power Committee

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

1. There was a report from staff on calculating the marginal carbon emissions from the Northwest power system. It's not only important to know the amount, but the pattern of when it's released, from time of day or time of year. A lot of policies might change the level of generation at different times, which could change the carbon emissions. Member Karier said it's important for a number of different policies and for a lot of what the Council does when it looks at different scenarios and the optimum power strategy for the Northwest. Staff is working hard on that, he said. There is relevance on evaluating carbon savings for electric vehicles, for changing fish operations and other important roles. A lot of people in the region can use the data.

2. Member Karier said the committee heard a deep dive into where the Sixth Plan conservation savings came from — what was successful and less successful. Over a six-year period, there was a 1,400 MW target. The region hit 1,700 MW. Member Karier said we know it was successful, but it's still important to determine where we were successful. There were some measures we exceeded and some we fell below, he said. Staff wants to know why. One of the big winners in the residential category is lighting because of the development of

LEDs, which has gone from nonexistent to ubiquitous. There's a savings of 37 percent in consumption for lighting over a five- or six-year period. There was a significant decrease in the number of light bulbs sold. Plus, they last longer. The industry itself is experiencing a 40-percent decrease in sales.

Measures that did not live up to forecasts include heat pump water heaters, some HVACs and conservation voltage reduction.

3. There was a review of emerging technologies. Forty percent of the energy technologies in the Seventh Plan did not exist in the Sixth Plan. An expert from NEEA, Mark Rowley, talked to us about some of the things the Northwest Energy Efficiency Alliance is doing, such as using carbon dioxide (CO_2) in heat pumps. CO_2 is an efficient coolant that can raise the efficiency of heat pump water heaters and heaters. There's an effort to combine heat pump water heaters and space heating. It could take months or years. Also, there is some interesting technology that could move in the opposite direction: Super HDTVs that will use three times the amount of electricity as a regular television.

4. The last presentation was on the health of the power system. It got into frequency and voltage support, and synthetic inertia. "Normally, I urge council members to look at the presentations," Member Karier said. "This time, it's probably better to call John Ollis (staff power system analyst) to explain it." He said it's important, because the system is becoming more complex with the addition of renewables, and the inertia of the system is changing. These issues are becoming more important for ensuring a reliable power system.

Public Affairs Committee

Committee Chair and Council Member Jim Yost reported that the committee didn't have a meeting, and that there would be a meeting after the Council meeting this afternoon.

1. Briefing on recent cold-weather events and their impact on load and power prices.

Massoud Jourabchi, staff economic analysis manager, discussed the impact of weather on loads, prices and supply between December 1, 2016, and January 1, 2017.

Regional peak loads for December and January have been declining, he said. Some of the region's highest peaks in December and January have been as high as 35,000 MW of peak load (2009). In 1996, there was another peak period. The overall trend is declining loads. The highest peak occurred February 2006 with 35,000 MW. What's important about our peaks is it happens subsequent to a three-day temperature event, he said.

In the past 20 years, the average winter peak has been about 29,400 MW.

The winter of 2016–2017 started warmer than usual and then got much colder. The

region as a whole had an average temp of 37 degrees. For January, it was 35 degrees. This year, it was almost 20 degrees below normal for January 3-5. For a peak load event to happen, it has to be three days during a weekday.

Peak load for winter 2017 is estimated at 32,500-34,800 MW. Regional peak occurred on January 5.

Energy usage is lower this year than during historic peaks. Staff reviewed six utilities that represent about 63 percent of regional winter peaks for this period. Using that information and data, peak load is about 33,400 MW.

Steve Simmons, staff senior economic analyst, summarized regional market prices. Mid C peaked in January and in mid-December in the $50-60 range. Natural gas prices at Sumas peaked in same time frame in the mid $5 range per mmbtu. Historically, these are not large price spikes, he said, and are much lower than the recent price spikes in February 2014.

Simmons said those spikes had to do with spikes in natural gas prices. February 2014 was a case where a cold snap in Colorado was 42 degrees below normal. It took natural gas production off line. We saw natural gas prices jump up to $25, he said.

Member Bradbury asked if Simmons knew what's changed so we didn't have huge price spikes such as some winters in the past. Simmons said that the February 2014 spike was due to the cold that took supplies offline.

2. Briefing on wind generation during recent cold-weather events

Wind turbine performance as a mechanical device isn't affected by temperature, said Mike Starrett, staff energy policy analyst. They can stand extreme weather.

Looking at BPA's Balancing Authority, they looked at the average wind performance of three wind farms. At the end of December, there was a stretch where there was no wind. Not hitting nameplate in our region can make sense since the Columbia River Gorge isn't a winter-peaking area.

At Montana's Judith Gap wind farm, it hit the maximum outputs several times during several days, blowing 100 percent the entire day.

Member Booth asked about a line graph that showed that, during that same day, there was both maximum and zero output. Jon Ollis, power system analyst, said it is a graphic style reflecting the variation of wind on a given day. One graph shows BPA's fleet and another shows one wind farm.

Member Booth said another factor is that on the other side of the mountains, winter comes down from Saskatchewan, whereas in the Gorge, it comes from the coast.

Member Karier asked if they calculated an average capacity factor for Judith Gap. Starrett said there's an average seasonal one calculated for each plant, but it's not on these graphs. He said he'd follow up with Member Karier on that.

Starrett discussed Spion Kop wind farm [in Montana] data.

Ollis said looking back at BPA data, there's a lot of diversity in Gorge wind, depending on where you are.

Member Booth asked, when you say BPA's Balancing Authority, does that include Judith Gap? If not, where does that power go to be balanced? Starrett reviewed a Balancing Authority map of the region and discussed where the region's 4,800 MW of power are sent.

Member Lorenzen said that with larger amounts of variable generation coming online, it's said that if you could balance wind in BPA coming from Montana, it could provide a better capacity factor. How likely will it be that wind doesn't blow in either the Gorge or Montana?

Starrett discussed a slide showing regional wind shapes. Gorge wind is a summer-peaking resource. Eastern Montana is a winter-peaking resource, so they're somewhat complementary. Ollis added that even if we calculated, and accounted for the volume difference, it's hard to do an apples-to-apples comparison.

Member Lorenzen said sometimes the argument is made that Montana could provide more reliability and smoothing. But then what is the probability that the wind won't blow in either place? Then you need other resources to back that up.

Starrett said that John Fazio, staff senior power systems analyst, did some work looking at if you could take that wind blowing and store it in the hydropower system, what benefit could we derive?

What about solar? Starrett said that unless they're covered in snow, panels work in any weather. But cloudy skies and shorter days limit generation during the winter.

Member Karier referred to the slide with the wind capacity factors: if you put the two together, and they were equal in size, it would be more equal. But if you want the power in the winter, you might want a lot more from Montana. Have we tested that to see which combination of patterns would be idea for the Northwest power system.

Ollis said that after looking at PGEs, a lot of the load is on the west side. It's probably okay to say that Montana aligns with a lot of the regional load, but it's hard to establish that as a rule of thumb.

Member Karier asked, don't we have the models to do that kind of study? Ollis replied that it's tricky because it would be hard to know what transmission build out there would be, and we're unsure of where to site the plants. We could get part of the way there, but I'm open to suggestions, he said.

Charlie Grist, staff conservation resources manager, remarked that our library of historical wind data isn't very big. We don't have 80 years of records like we do of the water system, he said. It will take a while to build that. Diversity helps, but there are hours in those charts where wind wasn't blowing anywhere.

Member Baker commented on the idea that the diversity of wind in Montana allows you to do some different things with hydro. Is that something you're spending time on in terms of additional storage? Ollis replied that there is work being done by John Fazio, staff senior power systems analyst, on all resources' effects on the hydrosystem. He also said that NREL has big sets of wind that are synthetic to extrapolate what might happen. But the transmission is the more complex part of putting that model together. "I'm happy to try and come up with it, but I'm just unsure of where the transmission data would come from," Ollis said.

Member Karier said they had a presentation about using Colstrip transmission from Plants 1 and 2. I don't know how much they could put on that line. Anything beyond that, you'd have to increase transmission. Ollis said we could get that study. But the difference is between 8,000 to 2,000 MW. It's probably close to 1,500 MW.

Simmons said they did some limited work in the Seventh Plan on expanding transmission for Montana wind. They looked at expansion on BPA's system and Colstrip retirement. The big benefit to Montana wind is overall capacity factors and how that might fit in with storage. The capacity factors are much larger.

Member Karier said, so Montana Wind is better in two respects: the capacity factor and it matches our profile. "I thought that when we did Seventh Plan, we didn't have Montana data," he said. Simmons replied that the profiles were synthetic, but in the next plan, there will be much more data available. The issue is transmission and how to estimate those costs. What we did in the Seventh Plan was based on some WECC estimates, Simmons said.

Member Booth said it might make sense to do some what-ifs. During the three-day period we had, how was the load balanced? "I suspect you had coal, hydro and gas ramping up," he said. "I want to request that the power staff take a look at those three days, to see what happened to the hydro, gas and coal at projects and how we fill those gaps. Then, take away the coal and see how that would have done. I usually end up talking about adequacy — keeping the lights on. Obviously the lights didn't go out, so we did it."

Grist said that is doable.

Member Karier said it would probably show that we need more energy efficiency, demand response and gas plants. He said they actually did scenarios like that where you take out coal plants. When you do hit a system peak, you have everything on that you have. If you take anything of large amounts out, such as when you take out coal in the Seventh Plan, you need something.

Member Booth said he want to see what actually happened, not scenarios. What were the different dams doing? What were the different gas plants doing? What were

the different plants doing to fill that gap those three days? It's not a scenario, it's real life.

Grist said the work they're doing in adequacy does those tests.

Member Lorenzen said, looking at what occurred, you have a resource stack, if you knock out resources in that stack, such as coal, you move on to the next resource.

Ollis said that when we talk about everything being on, he suspects that we weren't even close to the top of our stack. It's important to look at the whole portfolio response to a peak event. You'd probably go to more-inefficient gas if you pulled out the coal plants. The biggest peak was about 36,000 MW, and at that point, the operators might get a little sweaty. We hit 32,400 MW.

Member Booth said, "I imagine you'd run the hydro to the max first. That's what I'm interested in seeing. Because the coal is going away."

3. Briefing and discussion on ISEMP, CHaMP and Action Effectiveness Monitoring

Mark Fritsch told Council Members that this is a follow-up item stemming from the Council's 2011 RME categorical review, which requested a programmatic approach for habitat project effectiveness. In 2012-2013 a game plan was devised. In June of 2013, the expectations were supposed to be annual updates and a comprehensive submittal in 2015 as to whether it would be acceptable for the region. That did not occur. Fritsch said they had a presentation in 2016 of the anticipated approach for effectiveness monitoring. They met with the Fish and Wildlife Committee last month. The Council staff proposed a series of questions to BPA and the ISRP, and told them what was needed. Based on that presentation, Members expressed a desire to reach out to fish and wildlife managers. That has started. They are meeting tomorrow and they hope to get an idea of the investments that have been made over 15 years. What can they salvage, what can they use, what is beneficial, and what can they direct the region and BPA to create for the future?

Nancy Leonard said, "The Council guided us to work with the managers to better understand their needs and the value of these projects. We'll ask what they produce, what has been used, what has not worked so well and what we might want to modify in the future. Based on these answers, we'll come up with questions and share those with the Council in a month or so, depending on how the discussions go with the managers." We'll keep the Members up to date.

Tomorrow's meeting will include BPA, NOAA, project managers, project sponsors for ISEMP and CHaMP, Council Members and staff to gain an understanding of these projects. It will be held at the Council.

Member Lorenzen asked, "What Council action do you anticipate facing us over the next few months with regard to these matters?"

Leonard said they would be coming back to the committee with revised questions that will provide guidance for an ISRP review, which will help inform policy decisions. There will be a letter with questions to BPA asking them to submit information that we've requested before. When we come back, they get to provide input on the questions and the Council then reviews those questions. When we get the information back from ISRP and BPA, the Council creates recommendations to BPA on how those projects should move forward.

Member Lorenzen asked if there is a relationship between the monitoring projects and the Accords.

Fritch replied they are not Accord projects, but some of the implementers might be Accord partners. The principles are BiOp-centric, he said.

Member Karier said, "We have had science reviews of this. I don't have any questions for the science panel. They think the quality of the science is okay. I think it's all about policy, rather than about science. What the science panel hasn't seen yet, I don't know. They've looked at this a lot before. I thought we asked BPA this in December. I'm not sure there's more to learn from that. We're used to falling back on science review and more questions, and attempts to drag it out. These are expensive projects: $75 million on three projects. That's about $25,000 per day, $9 million per year. What could we do with $25,000 per day? Is there a fish manager that could do some things for fish that we're not doing today? I think there are."

I have heard from managers that there are some things that are useful, and they can make a good case for, and those should continue, Member Karier said. But there are other things they are not defending, even from NOAA. Going through this long process is not very helpful and could take us in the wrong direction. We could ask the region to tell us what's valuable, what to continue, what's essential, what's critical, and then give us the evidence on why that should continue. If there aren't good reasons, then there are savings could be acquired to improve habitat for fish. Maybe there's a research project that identifies the benefits of habitat for fish and wildlife. That's still lacking because ISEMP and CHaMP didn't do that job. There are other science questions in our research plan we could spend less money and still get answers to questions. At some point, we'll have to call the question and make a recommendation.

Leonard replied, "I agree with that, which is the reason we're engaging the managers. When we say science review, we're taking the time to refine those questions that we will be reviewing what needs to be reviewed going forward. We'll do our best not to do what's been done in the past, where it's a free-for-all by the ISRP. We have the AEM project that has to go through science review – that has never been reviewed."

She added that ISEMP and CHaMP will have a science review and they'll try to contain that to be most informative for the policy decision going forward. But we don't want a huge science review of the projects that have been reviewed in the same way.

Member Karier said, “It seems like there’s a consensus that CHaMP work doesn’t have to be done every year. We’re measuring habitat conditions every year that don’t change very much. Until someone makes a decision about that, we’ll keep doing that, because that’s in the budget and in the plan.”

Leonard said she’s hoping that with Council guidance, we’ll make the changes we need to make.

Member Norman said, “There’s certainly regionwide interest in habitat, and the large investment in the fish and wildlife program, and the expectations for a significant improvement in the productivity of listed species. So process and discussions that Member Karier is referring to are extremely critical so that we’re able to have an informed understanding, based on these monitoring projects, that leads us to understand if these habitat projects are producing what they’re expected to produce in terms of characteristics and habitat. They inform us on future projects and how we invest in projects and how it fits in the overall scheme for recovery. Some of the concerns being expressed are recognition that you don’t get those answers on an annual basis or too quickly. There’s a lot of information that needs to be collected, a lot of evaluation of that information and some scientific certainty associated with that. We need to figure out that all this investment in RME projects, whether or not they’re on the right track. Speaking with managers to sharpen the point on what they’ve learned to date is a good first step. So I support talking with the managers to continue this process.”

Member Anders said, “We’ve been talking about this for quite awhile. The focus has been on winding these down. Have there been discussions on what will fill the gap if that comes to fruition and we try to steer this in a different direction?”

Leonard replied that’s how they want to set up the Council/manager discussions. We’ve had a few discussions so far, she said Tomorrow will be to understand more of what’s going on through the NOAA and BPA manager discussions. Then we envision further discussions to have a broader understanding of what we’re funding. If we do modify ISEMP and CHaMP, and understand what AEM is doing, what would be keeping moving forward, and what would still be needed by the managers, to improve their habitat actions on the ground and inform those actions.

Member Karier said, “I think that’s the right question. ISEMP and CHaMP has not provided the information we need. What do we do next? Do we still keep funding ISEMP and CHaMP? What would give us the answers? Do we need a competitive RFP for those simple questions Guy was asking to find out about the effectiveness of habitat and productivity abundance? That’s one way to do that. The sooner that gets started … RFI and RFPs, some kind of process to get at those answers we want to get.”

Tony Grover said, “We need to step back and look at why these projects exist. They’re all in the BiOp, and they’re required by the regulator of the regulated entity. We’ve had an influence on that. When we as a group are talking with managers, NOAA and BPA lead people, there’s nobody who is satisfied with how these have gone, with the possible exception of the principal science researcher with the NOAA

science center. The purpose of having a conversation with the manager is before we throw the baby out with the bathwater – let's figure out what the baby is to preserve what's worth preserving. Even as late as this morning, I'm hearing a positive response from NOAA folks on how to trim what doesn't work. It's important that the Council's needs are met, but we can't do that at the expense of the fish and wildlife managers' needs. They have real needs for real fish in the environment. And we have a regulated entity relationship that has to be functional at the end of this process."

Grover said they're willing to work with all the parties to get the Council to a place by next summer where all four sectors are happy. "We even have this brand new project, AEM, because we were enthusiastic and the Council decided we should have this kind of project," he said. "We don't know if it's any good or not because we haven't had any review of that project. We think we can get to a far more efficient, effective monitoring system that delivers the status of salmon in the anadromous zone. That's our game plan between now and mid-summer/early fall."

Member Karier disagreed with the point about AEM, saying that BPA was supposed to build on studies that already existed. Instead, he said, they're going back and studying things that have already been studied, such as fencing. That's not what the Council asked them to do. There's a lot of duplication and ignoring what's been done, and not building on it at all.

Grover said they hear that same concern, but they haven't seen the project yet. "We don't have access to it. I don't know if we agree or disagree that it's reinventing the wheel. We're going to find out in the very near future."

Member Karier said they gave the Council a presentation on the different categories they're going to study. They've designed a lot of this over the last two or three years. That's where the duplication is. It's on the same topics, measures and selection process. You can look at the design to see that they're asking the same questions.

Leonard said that when they presented was an integration of Washington Salmon Recovery Funding Board categories with the Bonneville categories, and to look at how they wanted to address that work together. They were supposed to pool their sample size and be close to answering those questions. "We want to know if they're done," she said. 'That's why we want to get our hands on the end projects."

Member Booth said he mostly agrees with Member Karier on this. Originally there was a need to come up with a model to convince the court that habitat works. "We were skeptical with how this started off," Booth said. "We went to the court and it didn't work. Now we're a year away from the initial funding to go away on this. How much longer is there authorization for Council's funding on these?"

Leonard said some might go to 2020. But the Council recommendation doesn't have those dates.

Member Booth said why would we keep doing the same thing if it didn't work? "Tony's right, there's still a need for something to document the overall success of

habitat work, but I don't know if sending us back to the science panel is the right move to make now either. The staff should come back in a month with some ideas, options or solutions. We don't have to wait until summer, do we, Tony? Can you come up with some options?"

Grover replied, "It's more complicated than I wish it were."

Member Booth said they could come back with some options based on the conversations this month. "We can weigh in on policy, that's our role," he said.

Grover said they had a conversation last Friday with the managers. One tribe in a few states, said:

1. You don't have all the managers at the retail level.
2. You Council people probably know what you want and need, but we're asking you to slow down and listen to their dialogue with BPA and NOAA to understand where that dynamic works and where it doesn't work.

Grover added that they're trying to listen to what the managers said they needed. "I think we can come back to the next Council meeting with a better understanding of where this needs to go," he said.

Member Lorenzen said that, at a minimum, we should have a firm schedule of what items should be done and what will be accomplished.

Grover said it's an open question of what we ask the ISRP.

Member Norman said, "I expect that when we talk to managers, there are a number of answers or progress reports that show a strategy will or won't produce an answer — or that it's not quite ready yet to produce an answer. These are the things we need to make a decision on what to support or not support."

Grover said one tangible thing that has come out of these efforts, when they began there was no way to measure fish in tributaries. Now, with the tributary-based, PIT-tag technology, we have a tangible, useful thing. That's something we don't want to throw out with the bathwater.

Adjourned at 3:29 p.m.

The Executive Committee and the Public Affairs Committee met at the close of business.

Wednesday, Feb. 15

Called to order at 9:02 a.m.

4. Briefing on the current state of federal energy-efficiency standards as of the end of 2016

Grist introduced Tom Eckman, consultant and former Power Division Director at the Council. Eckman served on a steering committee to help the Department of Energy (DOE) develop these standards in Washington, D.C. Grist recounted Eckman's efforts to come up with federal energy-efficiency standards with engineers and industry representatives. It has delivered a huge value to the country, Grist said.

Eckman said they have been working on improving federal standards. The first was enacted in 1987 and took effect in 1990-91. Now the DOE has 60 categories of appliances and equipment that it has a schedule for updating. He said we've been engaged in that effort. There have been many statutory changes since then. The culmination of those impacts is being reported upon today.

Why federal energy-efficiency standards are valuable:

- **Lower Cost** – Standards produce savings at a lower "total cost" because they avoid program administrative costs.
- **Larger Savings** – Standards affect the entire market, while programs effect only a portion of the market, resulting in greater total savings for comparable improvements in efficiency. We get 100 percent of the compliance, Eckman said.
- **Greater Equity** – The "compliance cost" of meeting a standard is borne by the consumers who benefit from the increased efficiency. There is no socialization where ratepayers pay.

The share of building energy use that is subject to standards is 79 percent residential, 46 percent commercial and 19 percent industrial. Standards also cover water.

State energy codes and federal standards reduced 2014 regional retail sales by over 2,500 MWa. Looking at utility programs, federal standards generated over 20 percent of cumulative regional conservation savings.

Impact on regional load growth – Standards adopted between the Sixth and Seventh Plans are forecast to reduce annual average regional growth by 0.3 percent per year through 2035.

Eckman reviewed standards adopted by Congress since President Reagan signed the first law with 13 standards. He reviewed the number of standards adopted by the executive branch in each administration. Obama had 47.

Standards need to be updated on a regular schedule, and 25 had to be updated by law under President Obama. The pace of DOE appliance standards updates is unprecedented under President Obama's term, Eckman said.

Every six years, the standards are examined to determine if they need to be changed to meet the requirements of the law. "We're basically on a treadmill to maintain an update cycle," he said.

There was less than one standard a year between 1992-2008, and then over five per

year since. That has caught the attention of manufacturers, and they're having second thoughts on how they are cycling now.

Eckman reviewed items that have generated the largest savings, such as general service fluorescent lamps and ballasts. There have been four updates of refrigerators/freezers since 1991. Compared to 1975, energy consumption of refrigerators is down 15-20 percent, and today, they're larger with more features.

Then manufacturers wanted more coverage for small electric motors, such as those for central air conditioning. The manufacturers wanted to expand the motors covered by the standard to protect themselves from shoddy products made offshore. Without using it as a trade barrier, it helps protect American manufacturers. Other industries are figuring this out. It's a way to create protections without violating WTO.

Member Booth asked if there is a phase-out of existing motors. Or is it a burnout? It's a burnout, Eckman replied. You only replace it when it dies. That's true for all the products.

Commercial unitary air conditioning (ACs on top of small commercial buildings) was the largest standard promulgated during the Obama administration. It takes effect in two stages, in 2019 and 2023.

Eckman said there's an improvement in fans. It provides increased ventilation in buildings whether air conditioning is needed or not.

Grist put the standards to bed at the end of 2014 for the Seventh Plan. Since, there have been 21 new standards: nine consumer products, 10 commercial/industrial products and three lighting.

Nineteen of the new federal efficiency standards issued since 2015 will help achieve the Seventh Plan's energy-efficiency goals.

Nine of the 21 standards were negotiated between industry and advocates. It's called "notice and comment rulemaking," a three-year process. All parties walk out gritting their teeth and saying they did the right thing.

An estimated 1,450 aMW in savings have come from those standards for the region. In the Sixth Plan, we picked up 1,400 MW already, Eckman said.

Eckman reviewed the implications:

- Load forecasts should reflect the impact of standards (i.e., they should be lower, particularly over the long term).
- Since standards impact all units, load reductions are larger than they would have been with energy-efficiency programs (unless they achieved 100 percent market penetration). This will benefit everyone by reducing load growths.
- The remaining energy-efficiency potential assessment should reflect new

baselines. Therefore, unless technology improves, the remaining potential will be lower, such as with LED lighting.
- Efficiency programs should adjust their focus to measures less impacted by federal standards and to new technology.
- Residential and commercial lighting efficiency upgrade programs will greatly diminish in importance. Under new regulations, those will be the new baselines. Utilities will have to move to other programs to gain savings.

But Eckman said this might not happen: There is some risk that not all of these standards will be implemented or implemented as scheduled, he said. The Trump administration has indicated that it wants to reduce existing regulations and limit the propagation of new regulations. The administration and/or Congress could delay or stop up to 15 new appliance efficiency standards from going into effect. The outcome of some of these may be known by June 2017. Already, two have been withdrawn from DOE due to a request from the administration that no new rule take effect.

Member Lorenzen said there's a very large potential in the rules that could lead to savings, such as the unitary air conditioning — is that one of them? Eckman replied it is. The new standard is supposed to go into effect by 2020 or a default standard that the Congress set will go into effect. It is subject to Congressional review.

It has affected 100-watt lamps. The DOE expanded the standard to incorporate flood lamps and other general service lamps. This created a conundrum because the manufacturers are shutting down incandescent and CFL manufacturing in favor of LEDs. But now this has caught them in the crosshairs due to creating uncertainty in the marketplace. There has been some grousing in the marketplace by GE and others.

Member Karier said there are probably some bad regulations out there, but these don't seem to be those. This is more in line with keeping lead out of drinking water. If these were to decrease, the impacts probably wouldn't be for five or six years. Would we have to revise our Seventh Plan, or would we put it into the Eighth Plan? It would be in the Eighth Plan, Eckman replied. Anything that takes effect would be 2019 and beyond. These are standards we didn't know about when we put the Seventh Plan together. Grist said either we capture the savings through standards or through utility programs and state codes. The potential doesn't go away due to federal standards.

Eckman said we wouldn't get as much as the federal standards are going to produce, or as fast or as cheaply. Federal standards get to 100 percent of the products.

Member Lorenzen said it seems like the potential would go away because the efficient dishwasher wouldn't be on the market.

Grist said the efficient dishwasher would still be on the market, it just wouldn't be the minimum required.

Member Bradbury said that when the new efficient standard adopted, it applies to new products entering the market, not existing products. The efficiency accomplished is spread out over time as products are replaced. That's correct, Eckman said. It might take 15-20 years to cycle through the existing stock.

Member Norman said he's curious about Eckman's sense of support by manufacturers for these new standards. Eckman replied that it varies. Some manufacturers work on Capitol Hill. Others want regulatory certainty. Eckman said they negotiated the air conditioning standard because of an EPA standard to remove a refrigerant by 2023. That way, manufacturers could do one redesign, not two in a litigious process. That process has relieved a lot of the pressure from the manufacturers. There's a mix. Some want to be left alone. Others know that they're being regulated in Europe and want to synchronize.

5. Update on the Pacific Lamprey Conservation Initiative and Regional Restoration Efforts

Christina Wang, with the U.S. Fish and Wildlife Service, updated Council members on Pacific lamprey and conservation efforts. She discussed the life cycle of lamprey. The spawn and eggs are buried in sediment for 3-7 years. Then they migrate to the ocean. They are parasitic in the ocean for three years, and return to fresh water, but not their native stream.

Why should we care about lamprey?

- They are important to tribal culture and as a food source,
- They are food for numerous species,
- They act as a buffer for salmon predation (sea lions prefer them), and
- They are farmers of the underwater by filter feeding and cleaning their environment.

There has been a decline in abundance throughout the Columbia River Basin and many West Coast streams. Wang discussed the lamprey conservation timeline between 1994 and 2017. In 1994, the Council's Fish and Wildlife program directed lamprey work. In 2004 was the first lamprey summit.

In 2011, there was an assessment of how lamprey are doing in various watersheds. The coastal areas are more secure, but inland they are at a higher risk of extinction.

In 2012 there was a conservation agreement between by 32 signatories, including tribes, agencies, utilities and government entities.

Wang described the regional implementation approach:

- Promote implementation of conservation measures in Alaska, Washington, Oregon, Idaho and California.
- A measured, logical approach provides the rationale for the priorities of

restoration activities.

- Develop regional implementation plans derived from existing information and plans,
- Implement high-priority conservation actions,
- Promote scientific research, and
- Monitor and evaluate action effectiveness.

Wang discussed the organization for implementation, fundraising, the conservation team, regional management unit groups and the Lamprey Technical Workgroup.

Member Bradbury asked about the size of the regional management unit groups. One has 11 units and another has six, Wang said. Including other groups, about 30 people from various partners are involved.

Howard Schaller, U.S. Fish and Wildlife Service, provided an overview of the policy structure. There was a meeting in December 2016 with 56 attendees, including tribes, agencies, utilities, the Council and others.

Discussing regional implementation plans, Schaller said they are trying to get local manager and technical expertise at the units. He said that some areas that have been restored might not be for lamprey. Lamprey have a different life history and different passage requirements. The details include what type of action, which kinds of threats are addressed, feasibility partner engagement and potential funding.

Status and threat assessment – they completed a status assessment in 2012 and are revising it in 2017. They hope to complete it by the end of this year.

What happens in the Upper Columbia? Schaller said those looking at the issue include the Yakama, U.S. Department of Fish and Wildlife, the Army Corps of Engineers, the Bureau of Reclamation, Washington Department of Fish and Wildlife and irrigators. He said, what do we need to learn to improve knowledge of Pacific lamprey? They want to look at tributary passage issues. How can we feed some of these areas and jumpstart them in the Yakama Basin? They are evaluating a wetted wall for passage. What we learn there goes into our larger conservation agreement, Schaller said.

Schaller reviewed the various actions already implemented by the parties and discussed the Lamprey Technical Workgroup, focusing on best management practices.

Standardized sampling efforts were discussed. They have found larval lamprey in the Elwha system and Condit. We don’t know anything about the ocean phase, so we partnered with the NOAA observer program, Schaller said.

He discussed the advantages of national fish habitat partnerships and Pacific lamprey partnerships.

Brian McIlraith, Columbia River Inter-Tribal Fish Commission, reviewed tribal lamprey restoration projects. A synthesis was requested by the Council in 2011. A

response was provided by the CBFWA lamprey technical working group in 2012. There was a review by ISAB and revisions were requested. Warm Springs completed a project synthesis in November 2015, and a synthesis completion is expected in March-April 2017.

The basinwide lamprey synthesis is to summarize project results and develop conclusions from the data. It includes status and trends, limiting factors and critical uncertainties and risks. It also helped set priorities for future actions.

Questions include:

Are lamprey recovering in the basin? Probably no. We've seen an uptick in adult returns, but it's still below historical abundance or what we've seen in the 2000s.

What have emerged as primary limiting factors for lamprey? Poor passage is something we know that limits returns. But there are other issues such as flow, stream and floodplain degradation.

What are the impediments to recovery plan implementation? It's not for a lack of trying, but we'll come to a point where we have a stack of feasible lamprey projects that fall outside of the funding stream. Funding is the impediment.

Are study designs and sampling methods coordinated among projects? Yes, they are vastly improved. We are sharing information and developing techniques together.

Are there escapement goals? It's difficult to develop metrics because of a lack of historical information. Tribes think we have an escapement goal. Maybe a symbolic goal is to allow for harvest throughout the basin for cultural use.

Comparative data on the non-anadromous brook lamprey might help determine if limiting factors in the ocean are important to Pacific Lamprey.

Member Bradbury asked, what are brook lamprey?

There are three species. Brook lamprey stays in fresh water, river lamprey goes out a little way into the ocean, and Pacific goes out a long way.

The Umatilla tribe has worked the longest on this. McIlraith discussed the measures being undertaking to help. He reviewed Nez Perce, Yakama and Warm Springs efforts.

"We know more about lamprey in the last 3-4 years than some populations of salmon," McIlraith said. He discussed collaborative tribal efforts. Improving tributary and mainstem passage, monitoring and evaluation adult translocation, and artificial propagation. Reports are distributed to publications.

Priorities for future action include:

- Improve mainstem lamprey passage,
- Improve passage within tributary environment,
- Develop and improve alternative passage routes,
- Develop restoration research activities,
- Understand limiting factors,
- Strengthen lamprey outreach and education, and
- Continue to identify, evaluate, and monitor status, trends, and distribution of lamprey within the Columbia River Basin.

Tribal priorities for future actions are the same as the accords' project priorities.

There will be the Lamprey Summit IV in December 2017. There will be a revision of the assessment and the development of RIPs through continued and increased partner engagement. They plan to have a recommitment to the conservation agreement, will use NFHP to advance conservation range wide, and use partner engagement in seeking action implementation and funding opportunities.

Member Bradbury asked about supplementation. McIlraith said the definition is tricky. We're focused on adult translocation program, taking them from John Day, holding them, and releasing them in spawning habitat. Then there's laboratory to determine feasibility of artificial propagation. The next step is to strategically release those fish and we're working on a master plan to do that.

Member Norman asked Schaller about the regional plan to be completed in 2017. Schaller said it's mostly done. The Snake River Basin is still in process. Willamette and Lower Columbia are being revised, and California has just one left. Coastal Washington and Puget are working on theirs. We'll have them complete by the summit, he said.

Member Norman asked, "So future project needs will follow those implementation plans?" Schaller replied that they would.

Member Booth said the Council looked at this 8-9 years ago and had questions. It didn't seem to be well coordinated. Council asked for a review and synthesis report. It was sent in and returned in 2012. Since, we've been in a do-over loop as far as the Council and it's being tied up in science review. We've been waiting for that. Date of synthesis report keeps slipping. Now it's March instead of December. Why has there been such a long wait?

McIlraith replied that there's no good excuse. But we've been working to answer the Council's questions and address the restoration needs, he said. I gathered from the original request there was a lack of understanding on what's going on with lamprey.

Schaller said he wasn't involved in the synthesis. A lot of the work presented was because we could bring in partners beyond the Columbia River Basin, and we could bring more resources to understanding the critical uncertainties. We thought this presentation would help elucidate these efforts, he said. A lot is being developed over real time across many partners, and they want to pool that information.

Member Booth said we did ask for that report six years ago.

Council Business

Decision on vendor for End-Use Conservation Model Scoping Study

Northwest Power and Conservation Council Motion to Authorize the Staff to Enter into a Contract with Cadmus to Perform an End-Use Conservation Model Scoping Study

Member Booth moved that the Council authorize staff to enter into a contract with Cadmus for an amount not to exceed $40,000, and for a period of 12 weeks to perform an end-use conservation model scoping study.

Member Baker second. Motion passes without objection.

Member Lorenzen praised Grist's staff on how judicious they have been on executing contracts.

Decision on Regional Technical Forum PAC Charter Renewal and Co-Chair appointment.

Northwest Power and Conservation Council Motion to Approve the Renewal of the Regional Technical Forum Policy Advisory Charter for a Period of Two Years

Member Booth moved that the Council approve the renewal of the Regional Technical Forum Policy Advisory Committee Charter for a period of two years.
Bradbury second. Motion passes without objection.

Northwest Power and Conservation Council Motion to Appoint Two Co-Chairs to the Regional Technical Forum Policy Advisory Committee

Member Booth moved that the Council approve the reappointment of Jim West as Co-Chair of the Regional Technical Forum Advisory Committee for a one-year term; and that the Council approve the appointment of Henry Lorenzen as Co-Chair of the Regional Technical Forum Advisory Committee for a one-year term.
Anders second. Motion passes without objection.

No public comment was received.

The meeting adjourned at 11:05 a.m.

Approved March 15, 2017

/s/ Bill Booth

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